

# Course Listings

220	Details of Courses	448				
221	Course Listings	449				
221.1	Abroad, Study Term, ABR0D	449		221.61	Bioinformatics, BIOIN	512
221.2	Accounting, ACCTG	449		221.62	Biologie, BIOLE	512
221.3	Administration, ADMI	451		221.63	Biology (Biological Sciences), BIOL	513
221.4	Agricultural and Resource Economics, AREC	452		221.64	Biomedical Engineering, BME	515
221.5	Agricultural, Food and Nutritional Science, AFNS	453		221.65	Botany (Biological Sciences), BOT	516
221.6	Agriculture, Forestry, and Home Economics, AFHE	456		221.66	Business, BUS	517
221.7	American Sign Language, ASL	456		221.67	Business Economics, BUEC	517
221.8	Anaesthesia, ANAES	456		221.68	Business Law, B LAW	519
221.9	Anatomie, ANATE	456		221.69	Canadien-français, CA FR	519
221.10	Anatomy, ANAT	456		221.70	Cell Biology, CELL	520
221.11	Andragogie, ANDR	457		221.71	Chemical and Materials Engineering, CME	521
221.12	Anglais, ANGL	457		221.72	Chemical Engineering, CH E	521
221.13	Anglais langue seconde, ALS	457		221.73	Chemistry, CHEM	523
221.14	Animal Science, AN SC	457		221.74	Chimie, CHIM	526
221.15	Anthropologie, ANTHE	458		221.75	Chinese, CHINA	526
221.16	Anthropology, ANTHR	458		221.76	Christian Theology at St Joseph's College, CHRTC	527
221.17	Arabic, ARAB	462		221.77	Christian Theology at St Stephen's College, CHRTP	529
221.18	Art, ART	462		221.78	Civil Engineering, CIV E	529
221.19	Art dramatique, ADRAM	464		221.79	Classics, CLASS	533
221.20	Art History, ART H	464		221.80	Community Service Learning, CSL	534
221.21	Astronomy, ASTRO	465		221.81	Comparative Literature, C LIT	534
221.22	Augustana Faculty - Accounting, AUACC	466		221.82	Computer Engineering, CMPE	535
221.23	Augustana Faculty - Art, AUART	466		221.83	Computing Science, CMPUT	536
221.24	Augustana Faculty - Biology, AUBIO	467		221.84	Curriculum et méthodologie, CU ME	539
221.25	Augustana Faculty - Chemistry, AUCHE	469		221.85	Dance, DANCE	540
221.26	Augustana Faculty - Classical Studies, AUCLA	471		221.86	Dance Activity, DAC	540
221.27	Augustana Faculty - Computing Science, AUCSC	471		221.87	Danish, DANSK	541
221.28	Augustana Faculty - Crime and Community, AUCRI	473		221.88	Dental Hygiene, D HYG	541
221.29	Augustana Faculty - Drama, AUDRA	473		221.89	Dentistry, DENT	542
221.30	Augustana Faculty - Economics, AUECO	475		221.90	Dentistry, DDS	542
221.31	Augustana Faculty - Education Field Experience, AUFX	476		221.91	Dentistry/Medicine, DMED	543
221.32	Augustana Faculty - Educational Computing, AUEDC	477		221.92	Design, DES	543
221.33	Augustana Faculty - Educational Psychology, AUPEP	477		221.93	Drama, DRAMA	545
221.34	Augustana Faculty - English, AUENG	477		221.94	Earth and Atmospheric Sciences, EAS	548
221.35	Augustana Faculty - Environmental Studies, AUENV	480		221.95	East Asian Studies, EASIA	553
221.36	Augustana Faculty - French, AUFRE	482		221.96	Economics, ECON	553
221.37	Augustana Faculty - Geography, AUGEO	483		221.97	Economie, ECONE	556
221.38	Augustana Faculty - German, AUGER	484		221.98	Education, EDU	556
221.39	Augustana Faculty - Greek, AUGRE	485		221.99	Education, EDUC	557
221.40	Augustana Faculty - History, AUHIS	486		221.100	Education - Adult, EDAE	557
221.41	Augustana Faculty - Interdisciplinary Studies, AUIDS	488		221.101	Education - Business, EDBU	558
221.42	Augustana Faculty - Language Studies, AULAN	490		221.102	Education - Career Technology Studies, EDCT	558
221.43	Augustana Faculty - Latin, AULAT	490		221.103	Education - Elementary, EDEL	558
221.44	Augustana Faculty - Management, AUMGT	490		221.104	Education - Elementary and Secondary, EDES	560
221.45	Augustana Faculty - Mathematics, AUMAT	491		221.105	Education - Field Experience, EDFX	561
221.46	Augustana Faculty - Music, AUMUS	492		221.106	Education - Instructional Technology, EDIT	562
221.47	Augustana Faculty - Philosophy, AUPHI	496		221.107	Education - Policy Studies, EDPS	563
221.48	Augustana Faculty - Physical Activity, AUPAC	497		221.108	Education - Psychology, EDPY	565
221.49	Augustana Faculty - Physical Education, AUPED	498		221.109	Education - Secondary, EDSE	568
221.50	Augustana Faculty - Physics, AUPHY	501		221.110	Electrical and Computer Engineering, ECE	572
221.51	Augustana Faculty - Political Studies, AUPOL	501		221.111	Electrical and Computer Engineering/Biomedical Engineering, EE BE	574
221.52	Augustana Faculty - Psychology, AUPSY	503		221.112	Electrical Engineering, E E	574
221.53	Augustana Faculty - Religion, AUREL	504		221.113	Engineering, Computer, ENCMP	577
221.54	Augustana Faculty - Scandinavian, AUSCA	506		221.114	Engineering, General, ENGG	577
221.55	Augustana Faculty - Sociology, AUSOC	507		221.115	Engineering Management, ENG M	578
221.56	Augustana Faculty - Spanish, AUSPA	509		221.116	Engineering Physics, EN PH	578
221.57	Augustana Faculty - Statistics, AUSTA	510		221.117	English, ENGL	578
221.58	Augustana Faculty - World Literatures, AULIT	510		221.118	English as a Second Language, ESL	582
221.59	Biochemistry, BIOCH	510		221.119	Enseignement pratique, ENPRQ	582
221.60	Biochimie, BIOCM	512		221.120	Entomology (Biological Sciences), ENT	582
				221.121	Environmental and Conservation Sciences, ENCS	583
				221.122	Environmental Engineering, ENV E	584
				221.123	Environmental Physical Sciences, ENVPS	585
				221.124	Espagnol, ESPA	585

221.125	Etudes canadiennes, ETCAN	585	221.195	Nursing, NURS	654
221.126	Etudes classiques, ECLSS	586	221.196	Nutrition, NUTR	658
221.127	Etudes de la religion, ET RE	586	221.197	Nutrition and Food Sciences, NU FS	659
221.128	Etudes interdisciplinaires, ETIN	586	221.198	Obstetrics and Gynaecology, OB GY	660
221.129	Exchange Program, EXCH	586	221.199	Occupational Therapy, OCCTH	660
221.130	Extension, EXT	586	221.200	Oncology, ONCOL	662
221.131	Famille, FA MI	587	221.201	Ophthalmology, OPHTH	663
221.132	Family Medicine, F MED	587	221.202	Oral Biology, OBIOL	663
221.133	Film Studies, FS	587	221.203	Organizational Analysis, ORG A	664
221.134	Finance, FIN	588	221.204	Paediatrics, PAED	667
221.135	Fondements de l'éducation, FO ED	589	221.205	Paleontology, PALEO	667
221.136	Forest Economics, FOREC	590	221.206	Persian, PERS	667
221.137	Forest Engineering, FOREN	590	221.207	Petroleum Engineering, PET E	667
221.138	Forest Science, FOR	590	221.208	Pharmacology, PMCOL	668
221.139	Français, FRANÇ	591	221.209	Pharmacy, PHARM	670
221.140	French for Educators / Français pour éducateurs, FR ED	592	221.210	Philosophie, PHILE	673
221.141	French Language and Literature, FREN	593	221.211	Philosophy, PHIL	673
221.142	Genetics (Biological Sciences), GENET	594	221.212	Physical Activity, PAC	676
221.143	Geophysics, GEOPH	595	221.213	Physical Education and Sport, PEDS	677
221.144	German, GERM	596	221.214	Physical Education, Recreation and Leisure Studies, PERLS	680
221.145	Greek, GREEK	598	221.215	Physical Therapy, PTHER	681
221.146	Health Education, HE ED	598	221.216	Physics, PHYS	683
221.147	Health Promotion Studies, HPS	598	221.217	Physiologie, PHYSE	686
221.148	Histoire, HISTE	599	221.218	Physiology, PHYSL	686
221.149	History, HIST	599	221.219	Physique, PHYSQ	687
221.150	Human Ecology, HECOL	604	221.220	Plant Science, PL SC	687
221.151	Human Resource Management, HRM	606	221.221	Polish, POLSH	688
221.152	Humanités, HUME	606	221.222	Political Science, POL S	688
221.153	Humanities Computing, HUCO	606	221.223	Portuguese, PORT	692
221.154	Hungarian, HUNG	606	221.224	Postgraduate Medical Education, PGME	692
221.155	Immunology and Infection, IMIN	607	221.225	Psychiatry, PSYCI	693
221.156	Industrial Relations, IND R	607	221.226	Psychologie, PSYCE	693
221.157	Informatique, INFOR	607	221.227	Psychologie de l'éducation, PS ED	694
221.158	Interdisciplinary Undergraduate and Graduate Courses, INT D	607	221.228	Psychology, PSYCO	694
221.159	Italian, ITAL	611	221.229	Public Health Sciences, PHS	697
221.160	Japanese, JAPAN	611	221.230	Radiology and Diagnostic Imaging, RADDI	698
221.161	Laboratory Medicine and Pathology, LABMP	613	221.231	Recreation and Leisure Studies, RLS	699
221.162	Latin, LATIN	613	221.232	Rehabilitation Medicine, REHAB	700
221.163	Latin American Studies, LA ST	614	221.233	Religious Studies, RELIG	701
221.164	Law, LAW	614	221.234	Renewable Resources, REN R	702
221.165	Library and Information Studies, LIS	618	221.235	Rural Sociology, R SOC	704
221.166	Linguistics, LING	619	221.236	Russian, RUSS	704
221.167	Linguistique, LINGQ	621	221.237	Scandinavian, SCAND	705
221.168	Maintaining Registration, M REG	621	221.238	Science politique, SC PO	706
221.169	Management Information Systems, MIS	621	221.239	Science, Technology, and Society, STS	706
221.170	Management Science, MGTSC	622	221.240	Sciences de la Terre et de l'atmosphère, SCTA	706
221.171	Marine Science (Biological Sciences), MA SC	624	221.241	Sciences infirmières, SC INF	707
221.172	Marketing, MARK	625	221.242	Sciences sociales, SCSOC	707
221.173	Master of Internetworking, MINT	627	221.243	Sciences socio-politiques, SCSP	707
221.174	Materials Engineering, MAT E	628	221.244	Slavic and East European Studies, SLAV	707
221.175	Mathematical Physics, MA PH	630	221.245	Sociologie, SOCIE	708
221.176	Mathematics, MATH	630	221.246	Sociology, SOC	708
221.177	Mathématiques, MATHQ	635	221.247	Soil Science, SOILS	712
221.178	Maîtrise ès sciences de l'éducation, M EDU	635	221.248	Spanish, SPAN	712
221.179	Mechanical Engineering, MEC E	636	221.249	Speech Pathology and Audiology, SPA	714
221.180	Medical Genetics, MDGEN	639	221.250	Statistics, STAT	715
221.181	Medical Laboratory Science, MLSCI	639	221.251	Statistique, STATQ	717
221.182	Medical Microbiology and Immunology, MMI	641	221.252	Surgery, SURG	717
221.183	Medicine, MED	642	221.253	Swahili, SWAH	718
221.184	Microbiologie, MICRE	643	221.254	Swedish, SWED	718
221.185	Microbiology (Biological Sciences), MICRB	643	221.255	Theatre Design, T DES	718
221.186	Middle Eastern and African Studies, MEAS	644	221.256	Thesis, THES	719
221.187	Mining and Petroleum Engineering, MP E	644	221.257	Ukrainian, UKR	720
221.188	Mining Engineering, MIN E	644	221.258	University, UNIV	721
221.189	Modern Languages and Cultural Studies, MLCS	646	221.259	Women's Studies, W ST	721
221.190	Music, MUSIC	646	221.260	Work Experience, WKEXP	722
221.191	Musique, MUSIQ	651	221.261	Writing, WRITE	724
221.192	Native Studies, NS	652	221.262	Zoology (Biological Sciences), ZOO	724
221.193	Neuroscience, NEURO	653			
221.194	Norwegian, NORW	654			

## 220 Details of Courses

Courses taught at the University of Alberta are listed alphabetically. All courses, except those taught by Faculté Saint-Jean, are described in English.

Each course is designated by its computer abbreviation and a number. Students should use this abbreviation and number when completing any form requiring this information.

Courses are numbered according to the following system:

000-099	Pre-University
100-199	Basic Undergraduate. Normally requires no university-level prerequisites. Designed typically for students in the first year of a program.
200-299	Undergraduate. Prerequisites, if any, are normally at the 100-level. Designed typically for students in the second year of a program.
300-399	Undergraduate. Prerequisites, if any, are normally at the 200-level. Designed typically for students in the third year of a program.
400-499	Advanced Undergraduate. Prerequisites, if any, are normally at the 300-level. Designed typically for students in the fourth year of a program.
500-599	Graduate. Designated for graduate students and certain advanced or honors undergraduate students in their final year.
600-799	Graduate Courses
800-899	Special Registrations
900-999	Graduate Thesis and Project Numbers

For the purposes of program descriptions and prerequisite designation, courses numbered 100-199 are designated as Junior Courses and courses numbered 200-499 are designated as Senior Courses.

**Note:** Some exceptions to the course number system described above have been granted to the Faculty of Law and the Faculty of Medicine and Dentistry.

### Course Description Symbols and Figures

Several symbols and figures are used to indicate the type, duration, and weight of courses.

- (1) **★**—Indicates “units of course weight,” and usually follows the course title. The accompanying number indicates the weight of the course as used in computing grade point averages and for meeting degree requirements.

A course which runs throughout the Fall/Winter (i.e., from September through April) is usually weighted **★6**. A course that runs for only one term (i.e., Fall: from September to December, or Winter: from January through April) is usually weighted **★3**. Certain courses are offered over Fall/Winter or Spring/Summer, or in one term, with weights of **★1**, **★2**, and **★4**. These are considered as one-sixth, one-third, and two-thirds of a Fall/Winter or Spring/Summer course, respectively. Some honors and graduate courses involving research may vary in weight according to the length and difficulty of the project. Some clinical courses may vary in weight according to the length of clinical experience. Some courses, not included in the computation of grade point averages, are offered for credit only and either carry a weight of **★0**, or are marked as “Credit.”

Undergraduate students who take courses offered by the Faculty of Engineering but are not registered in Engineering will have a course weight assigned for these courses according to the protocol of their home Faculty.

- (2) ***f***—Denotes: “fee index,” the value used to calculate the instructional fees for each course. The fee index is multiplied by the fee index value (given in the appropriate subsection of §22.2) to give the dollar value of instructional fees for the course.

For normal courses, the fee index is twice the value of the units of course weight; for example, a course with **★3** normally has ***f* 6**. In cases where exceptional fees considerations need to be made, the fee index is set differently by the Board of Governors.

Note that certain programs (e.g. MD, DDS, etc.) are assessed on a program fee basis for all or certain years. In these cases, the fee index calculation does not apply.

- (3) **(*x* term, a-b-c)**—These figures in parentheses give information on when the course is offered and the hours of instruction required by the course in a week, or in some cases the total time in a term.

In the case of a single-term course, the term in which the course is given is mentioned (item *x*). The designation “either term” means that the course may be offered either in the first term or in the second term or in each term, at the discretion of the department concerned. The designation “variable” means that the course may be taught either as a single-term or as a full-session course.

Item **a** indicates lecture hours. Item **b** indicates seminar hour(s), demonstration hours (d), clinic hours (c), or lecture-laboratory hours (L). Item **c** indicates laboratory hours. For two-term courses, the hours of instruction are the same in both terms unless otherwise indicated. The expression 3/2 means 3 hours of instruction every second week; 2s/2 means 2 seminar hours every second week.

Examples:

(first term, 3-0-3): a course taught in first term with 3 hours lecture, no seminar, and 3 hours lab per week.

(second term, 0-1s-2): a course taught in second term with no lectures, 1 seminar hour, and 2 hours of lab per week.

(either term, 3-0-0): a course taught in either first or second term, or each term, with 3 lecture hours per week, no seminar, and no lab.

(two-term, 3-0-3): a course taught over both first and second term with three lecture hours, no seminar, and three hours lab per week.

(variable, 3-0-0): a course which may be taught in either first or second term or over two terms with three lecture hours per week, no seminar, and no lab.

- (4) **Prerequisite**— This provides information on courses which must be successfully completed before registering in the more advanced course.

**Corequisite**—This provides information on courses which must be taken before or at the same time as the course described in the listing.

**Note:** Departments are authorized to cancel the registration of those students registered in a course offered by the department if they do not meet the prerequisite and/or corequisite requirements stated in the course description in this Calendar.

- (5) **[Department]**— This indicates the department responsible for registration for interdepartmental courses. Normally, courses will be credited to the discipline listed in the square brackets.
- (6) **Open Studies Courses**— **O** indicates a course available to students of Open Studies. **L** indicates that a course is available to Open Studies students on a delayed registration basis only (see §210.2.2).

### Important: Registration Procedures for Two-Term Courses

Students are strongly advised to refer to the Registration and Courses menu at [www.registrar.ualberta.ca](http://www.registrar.ualberta.ca) for details. Two-term courses are normally offered over two terms (either Fall/Winter or Spring/Summer). In a few instances, two-term courses are offered within a single term. In all cases these are identifiable in the Class Schedule because they consist of part A and part B (e.g., English 111A and 111B).

To successfully register in a two-term course, students, must do the following:

- register in both the part A and part B for all types of sections offered (Lectures, Labs, Seminars, etc.);
- register in the same section numbers for part A and part B of a course (e.g. Lecture A1 for both part A and part B, and Lab E3 for both part A and part B);
- register in all the appropriate sections on the same day.

All of the above must be done or the course registration is invalid and will be deleted. Invalid registrations will be deleted nightly. It is the student's responsibility to attempt the course registration again, subject to availability.

Example: A student wishes to register in ABCD 101, a two-term course. It has a lecture and a lab section. Based on the student's timetable planning, decides to take Lecture C3 and Lab C8. The student must add

In Fall Term      ABCD 101A Lec C3 and ABCD 101A Lab C8,

and

In Winter Term    ABCD 101B Lec C3 and ABCD 101B Lab C8.

All these sections must be added on the same day to successfully register. Otherwise the registration in ABCD 101 will be deleted overnight and the student's place in the course will be lost.

### Course Renumbering

Over the years many courses have been renumbered. Old numbers can be found within individual course listings of previous Calendar editions.

### Courses on Reserve

Courses not offered in the past four years are removed from this Calendar and placed on Reserve. These courses may be taught again in the future, in which case they would be brought back into the active Course Listings and placed in the Calendar. Information about Reserve Courses is available through the Registrar's Office, the University Secretariat, and Faculty Offices.

## Faculty Specific Regulations Regarding Courses

For specific Faculty regulations relating to courses and for a complete list of subjects taught by a Faculty, please consult the Undergraduate Programs section of the Calendar at the end of each Faculty section.

## Physical Requirements for University Courses

The University has a commitment to the education of all academically qualified students and special services are frequently provided on campus to assist disabled students.

Nevertheless, some courses make certain unavoidable demands on students with respect to the possession of a certain level of physical skill or ability if the academic objectives of the course are to be realized. In case of doubt, students are advised to contact the Department concerned and the Disabled Student Services Coordinator, Office of the Dean of Student Services.

Because support services cannot be guaranteed for all off-campus courses, instructors may be obliged to refuse registration in such courses.

## Course Availability

The following is a comprehensive course listing of all the approved courses that the University of Alberta may offer. The appearance of a course in this list does not guarantee that the course will actually be offered. The most current information on courses is available on *Bear Tracks* at <https://www.beartracks.ualberta.ca>

# 221 Course Listings

## 221.1 Abroad, Study Term, ABROD

International Centre

### Undergraduate Courses

#### ABROD 800 Study Term Abroad

★0 (*fi 0*) (either term, unassigned). This course is reserved for students who wish to maintain registration while participating in formal University of Alberta managed and approved Study Abroad programs. Students are registered in this course for each approved term of study abroad. The only fees assessed for this registration are the normal registration and transcript fees associated with the term. Students are eligible to register in the course on more than one occasion. Closed to web registration. Contact the International Centre.

## 221.2 Accounting, ACCTG

Department of Accounting and Management Information Systems  
Faculty of Business

### Notes

- (1) Enrolment in all ACCTG courses, except ACCTG 300, is restricted to students registered in the Faculty of Business, or to students registered in specified programs that require Business courses to meet degree requirements and who have obtained prior approval of their Faculty.
- (2) See also Management Information Systems listing.

### Undergraduate Courses

#### ACCTG 300 Introduction to Accounting

★3 (*fi 6*) (either term, 3-0-0). Provides a basic understanding of accounting: how accounting numbers are generated, the meaning of accounting reports, and how to use accounting reports to make decisions. Note: Not open to students registered in the Faculty of Business. Not for credit in the Bachelor of Commerce Program.

#### ACCTG 311 Introduction to Accounting for Financial Performance

★3 (*fi 6*) (either term, 3-1.5s-0). How to prepare and interpret financial statements that report to decision makers external to the enterprise, such as shareholders and creditors. Course includes principles and standards of balance sheet valuation, income measurement, financial disclosure and cash flow analysis that link preparation and use of such statements. Prerequisites: ECON 101 and 102.

#### ACCTG 322 Introduction to Accounting for Management Decision Making

★3 (*fi 6*) (either term, 3-0-0). In contrast to the external orientation of ACCTG 311, this course focuses on how to prepare and use accounting information for management decision making. Major topics include: the role of corporate goals,

planning and control concepts, how costs behave and how to analyze and manage them, budgeting and performance measures. Prerequisite: ACCTG 311.

#### ACCTG 412 Financial Reporting for Managers and Analysts

★3 (*fi 6*) (either term, 3-0-0). Course is for students who are not accounting majors and is especially useful for those contemplating a career in financial management or a CFA designation. It is for students who want to build on the financial accounting knowledge developed in ACCTG 311, and provides the necessary foundation for courses in financial statement analysis and tax. Further depth is provided in balance sheet valuation, income measurement, earnings per share and cash flow analysis. Prerequisite: ACCTG 311. Corequisite: FIN 301. Not open to students with credit in ACCTG 414 or 415.

#### ACCTG 414 Intermediate Financial Accounting I

★3 (*fi 6*) (either term, 3-0-0). First of two courses covering principles, methods and applications of current and proposed Generally Accepted Accounting Principles (GAAP). Emphasizes accounting for operating and investment assets, and related income measurement and disclosure. Prerequisites: ACCTG 311 and 322. Not open to students with credit in ACCTG 412. There is a consolidated exam for ACCTG 414.

#### ACCTG 415 Intermediate Financial Accounting II

★3 (*fi 6*) (either term, 3-0-0). Second of two courses (see ACCTG 414) covering principles, methods and applications of current and proposed Generally Accepted Accounting Principles (GAAP). Emphasizes accounting for financing, liabilities and equity, related income measurement and disclosure, and cash flow. Prerequisites: FIN 301, and a minimum grade of C- in ACCTG 414 or 412.

#### ACCTG 416 Accounting Theory and Current Issues

★3 (*fi 6*) (either term, 3-0-0). Major concepts and current issues in accounting thought are examined in an interactive setting. Topics include: the conceptual framework, standard-setting, concepts of income and value, accounting's role in capital markets and in contracts such as for lending and compensation, and recent and emerging issues related to financial and managerial accounting information. Prerequisites: ACCTG 414 or 412; FIN 301. Open only to fourth-year Business students, or by consent of the Department Chair. There is a consolidated exam for ACCTG 416.

#### ACCTG 418 Advanced Financial Accounting

★3 (*fi 6*) (either term, 3-0-0). The course analyzes the concepts and practices underlying financial reporting in more complex areas such as business combinations, multinational operations, future income taxes and not for profit organizations. Prerequisite: ACCTG 415. Open only to fourth-year Business students or by consent of the Department Chair.

#### ACCTG 424 Intermediate Management Accounting

★3 (*fi 6*) (either term, 3-0-0). Emphasizes mastery of techniques for implementation and evaluation of cost systems for management and decision making. Cost issues include: accumulating and analyzing costs using actual, standard and activity-based approaches, overhead allocation and cost estimation. Management topics include: pricing, production and investment decisions, revenue analysis, performance evaluation, management incentive systems and strategy analysis. Linear programming and multiple regression may be used. Prerequisites: ACCTG 322 and MGTSC 312. There is a consolidated exam for ACCTG 424.

#### ACCTG 426 Management Control Systems

★3 (*fi 6*) (either term, 3-0-0). Current research and cases in managerial accounting and control with a particular focus on strategy, governance and control processes in modern organizations. Topics include: control system design (including governance and audit), responsibility accounting, performance management, and strategic management accounting. Prerequisite: ACCTG 424. Open only to fourth year Business students, or by consent of Department Chair.

#### ACCTG 432 Financial Statement Analysis I

★3 (*fi 6*) (either term, 3-0-0). May be taken on its own or as the first of a two-course sequence that develops student competence in using financial information. Using case analysis, students learn to value a firm through the use of a five-step process: (1) examination of firm's industry, markets and strategy, (2) evaluation of firm's accounting policies and their impact on the financial reports, (3) applying fundamental analysis to assess financial strengths and weaknesses, (4) forecasting future earnings and cash flows, and (5) applying valuation models. Corequisites: ACCTG 415 or 412.

#### ACCTG 433 Financial Statement Analysis II

★3 (*fi 6*) (either term, 3-0-0). Second in a two-course sequence that develops student competence in the application of the tools of financial analysis. Topics include: evaluation of common rule-of-thumb valuation tools such as price to earnings and price to sales ratios in the light of more complete valuation models; analysis for credit and lending decisions; valuing high tech firms; forecasting quarterly and annual earnings; links between stock prices and earnings; using segment information; and other current issues. Prerequisite: ACCTG 432.

#### ACCTG 435 Information, Ethics and Society

★3 (*fi 6*) (either term, 3-0-0). For students in all majors who are interested in information and the roles it plays in business and society. Focus is on the nature and basic characteristics of information, and its importance in contemporary society, viewing information as a commodity that is produced, used, bought and sold.

Two aspects of the ways in which information affects people are emphasized: (1) ethical issues relating to professions, businesses, government, and individuals; (2) the impact of information technology and technological change on society. Prerequisites: ACCTG 311, 322, MIS 311. Open only to third or fourth year Business students, or by consent of the Department Chair.

#### **ACCTG 436 Innovative Assurance Services, Independence and E-Commerce**

★3 (*fi 6*) (either term, 3-0-0). Focuses on a broad array of assurance service topics, including: independence, methods of increasing the effectiveness of auditors, the nature of the accounting industry, e-commerce and security controls, and new assurance services. Prerequisites: ACCTG 311 and MIS 311.

#### **ACCTG 437 Accounting Information Systems**

★3 (*fi 6*) (either term, 3-0-0). An introduction to the field of computerized accounting information systems in organizations: basic transaction processing, record updating and maintenance, and financial and managerial reporting functions. Concentrates on the scope of accounting information systems in organizations; impacts of computerized accounting information systems on the role of the professional accountants; design issues for accounting information systems: security, accuracy, integrity, recovery, and operational control issues relating to accounting information systems; and impacts of computerized accounting information systems on the auditing processes in organizations. Prerequisites: ACCTG 311, 322, MIS 311. Credit may be granted for only one of ACCTG 437 or MIS 437.

#### **ACCTG 442 International Accounting**

★3 (*fi 6*) (either term, 3-0-0). How international business transactions are reflected in a company's financial statements, and how to manage international operations 'by the numbers.' Managers will develop the tools necessary to understand foreign partners'/competitors' financial statements. Prerequisites: ACCTG 311, 322.

#### **ACCTG 456 Assurance on Financial Information**

★3 (*fi 6*) (either term, 3-0-0). Focuses on the external auditor's provision of assurance services on financial information. Topics include: society's demand for various assurance services; the role, profession, ethics, independence and liability of the assurance provider; assurance risk and strategy; assurance planning, operations and reports; computerization and internal control; and emerging assurance services. Prerequisite: ACCTG 414 or 412.

#### **ACCTG 462 Tax Planning for Managerial Decision Making**

★3 (*fi 6*) (either term, 3-0-0). For students who are interested in how tax considerations affect business decisions and who want to be able to evaluate tax planning opportunities and strategies. Emphasis is on learning tax planning concepts, not on memorizing detailed tax rules. Provides students with a general framework for understanding the fundamental principles upon which effective tax strategies are based. Applications of this framework include financial and investment decisions, compensation planning, choice of organizational form, mergers and acquisitions, and international tax planning. Prerequisites: ACCTG 311, 322, and FIN 301.

#### **ACCTG 467 Basic Income Tax**

★3 (*fi 6*) (either term, 3-0-0). Examines the concepts, regulations and interpretations underlying individual and corporate income tax from the tax professional's perspective. Topics include: structure of the Income Tax Act, residency requirements, employment income, business and property income, capital gains, and the calculation of tax payable for individuals. Tax planning is introduced and opportunities for tax planning are identified where appropriate as topics are covered. Prerequisite: ACCTG 414 or 412.

#### **ACCTG 468 Corporate Taxation**

★3 (*fi 6*) (either term, 3-0-0). A study of the major tax concepts behind the specific provisions of the Income Tax Act in the taxation of corporations, corporate distributions and transactions between corporations and their shareholders. Emphasis on applying the Act in practical problems and case settings. Prerequisite: ACCTG 467.

#### **ACCTG 480 Honors Essay in Accounting**

★3 (*fi 6*) (second term, 3-0-0). Preparation of the Honors essay required for students in the Accounting Honors Program. Prerequisites: consent of the Department.

#### **ACCTG 488 Selected Topics in Accounting**

★3 (*fi 6*) (either term, 3-0-0). Acceptable as a Group A elective in the Major in Accounting. Normally restricted to third- and fourth-year Business students. Prerequisites: ACCTG 311, 322 or consent of Department. Additional prerequisites may be required.

#### **ACCTG 489 Selected Topics in Accounting**

★3 (*fi 6*) (either term, 3-0-0). Acceptable as a Group B elective in the Major in Accounting. Prerequisites: ACCTG 311 and 322.

#### **ACCTG 490 Accounting Competition Part I**

★1.5 (*fi 3*) (either term, 0-1.5s-0). Preparation for Student Competition in Accounting. May be considered as a Group A or Group B elective at the discretion of the Department. Prerequisite: consent of Instructor.

#### **ACCTG 491 Accounting Competition Part II**

★1.5 (*fi 3*) (either term, 0-1.5s-0). Completion of Student Competition in Accounting. May be considered as a Group A or Group B elective at the discretion of the Department. Prerequisite: ACCTG 490 and consent of Instructor.

#### **ACCTG 495 Individual Research Project I**

★3 (*fi 6*) (either term, 3-0-0). Special Study for advanced undergraduates. May be considered as a Group A or Group B elective at the discretion of the Department. Prerequisites: consent of Instructor and Assistant Dean, Undergraduate Program.

#### **ACCTG 496 Individual Research Project II**

★3 (*fi 6*) (either term, 3-0-0). Special Study for advanced undergraduates. Prerequisites: ACCTG 495, consent of the Instructor and Assistant Dean, Undergraduate Program.

#### **ACCTG 497 Individual Research Project III**

★3 (*fi 6*) (either term, 3-0-0). Special Study for advanced undergraduates. Prerequisites: ACCTG 496, consent of the Instructor and Assistant Dean, Undergraduate Program.

## Graduate Courses

#### **ACCTG 501 Introduction to Financial Reporting and Analysis**

★3 (*fi 6*) (either term, 3-0-0). Accounting information's role in recording and reporting on economic and business events including the primary financial statements: balance sheet, income statement, and cash flow. Concepts and purposes underlying financial reporting. Selection of accounting policies and their informational effects for external users. The course begins to develop students' abilities to evaluate and interpret financial information through basic financial analysis.

#### **ACCTG 523 Accounting Information and Internal Decision Making**

★3 (*fi 6*) (either term, 3-0-0). Accounting concepts used by managers in planning and decision-making. The course introduces concepts of cost and profit behaviour, contribution margin, and activity-based costing, as well as relevant costs and revenues for production, marketing and capital budgeting decisions. The course also introduces students to the management planning and control system and its components - budgets, variance analysis, performance evaluation in centralized and decentralized organizations, and management compensation plans. The importance of designing a system to fit the organizations' strategy is emphasized. Prerequisite: ACCTG 501.

#### **ACCTG 586 Selected Topics in Accounting**

★1.5 (*fi 3*) (either term, 3-0-0). Topics in this seminar may vary from year to year and are chosen at the discretion of the Instructor.

#### **ACCTG 610 Financial Reporting for Managers and Analysts**

★3 (*fi 6*) (either term, 3-0-0). Intended for students who would like to build on the financial accounting knowledge developed in ACCTG 501, and is especially useful for those contemplating a career in financial management. Useful both as a stand-alone course and as a foundation for further study in financial statement analysis. Provides further depth in balance sheet valuation and income measurement in order to enhance students' ability to use financial accounting as a management tool. Prerequisite: ACCTG 501. Corequisite: FIN 501.

#### **ACCTG 613 Financial Information and Capital Markets**

★3 (*fi 6*) (either term, 3-0-0). Uses of financial information by consumers and the incentives that producers face. Prerequisite: ACCTG 501, FIN 501 and MGTSC 521.

#### **ACCTG 614 Intermediate Financial Accounting I**

★3 (*fi 6*) (either term, 3-0-0). First of two courses covering the theory, methods, strengths, and weaknesses of current Generally Accepted Accounting Principles (GAAP). Prerequisite: ACCTG 501.

#### **ACCTG 615 Intermediate Financial Accounting II**

★3 (*fi 6*) (either term, 3-0-0). Second of two courses covering theory, methods, strengths, and weaknesses of current Generally Accepted Accounting Principles (GAAP). Prerequisite: ACCTG 614.

#### **ACCTG 616 Seminar in Financial Accounting Theory**

★3 (*fi 6*) (either term, 3-0-0). The theory and propositions underlying current financial accounting practices and alternative theories of accounting measurement as proposed in the literature. The function of accounting in relation to the decision processes of the principal external users of accounting data is considered. Prerequisite: ACCTG 501.

#### **ACCTG 618 Seminar in Advanced Accounting Issues**

★3 (*fi 6*) (either term, 3-0-0). The application of accounting methods to incorporate investments and other advanced topics in financial reporting. Prerequisite: ACCTG 501.

#### **ACCTG 624 Seminar in Management Accounting**

★3 (*fi 6*) (either term, 3-0-0). Seminar consisting of topics concerned at an advanced level with generating and using accounting and related data in the planning and control functions of organizations. Prerequisite: ACCTG 523.

#### **ACCTG 626 Seminar in Managerial Control**

★3 (*fi 6*) (either term, 3-0-0). Current research and cases in managerial accounting. Prerequisite: ACCTG 523.

#### **ACCTG 630 Financial Statement Analysis**

★3 (*fi 6*) (either term, 3-0-0). Develops students' competence in analyzing financial

statements and using financial information to make investment decisions, both equity and debt. The primary thrust of the course is aimed at equity investments. Students learn a five step process of analysis for equity investments: (1) An examination of the firm's industry, markets and strategy, (2) An evaluation of the firm's accounting policies and their impact on the financial reports, (3) Applying fundamental analysis to assess financial strengths and weaknesses, (4) Forecasting future earnings and cash flows, and (5) Applying valuation models to assess the current price. A comparable process for lending decisions is then developed. Prerequisite: ACCTG 501. Corequisite: FIN 501.

#### ACCTG 656 Auditing History, Theory, and Current Thought

★3 (fi 6) (either term, 3-0-0). This course examines internal and external auditing history and philosophy, functional or operational auditing, and the nature of evidence, ethics, and independence. Prerequisite: ACCTG 501.

#### ACCTG 664 Tax Planning for Managerial Decision-Making

★3 (fi 6) (either term, 3-0-0). Tax considerations play a pervasive role in managerial decision-making. This course integrates tax planning into the bigger picture of business strategy. A microeconomics-based framework is developed for understanding how taxes affect business decisions and for evaluating tax-planning opportunities and strategies. The objectives are to learn the fundamental principles of effective tax planning and to become able to analyze the economic consequences of taxes in a wide variety of decision contexts, not to memorize detailed tax law. Applications include decisions involving investment, financing, compensation, personal financial planning, corporate reorganizations, and international business. Also examined are specific tax incentives for R & D and natural resource firms. Cases are used to illustrate how taxes affect actual business decisions and to explore how firms trade off potential tax savings against the non-tax costs of particular tax strategies. Prerequisites: ACCTG 523 and FIN 501.

#### ACCTG 686 Selected Topics in Accounting

★3 (fi 6) (either term, 3-0-0). Topics may vary from year to year and are chosen at the discretion of the instructor.

#### ACCTG 701 Introduction to Accounting Research

★3 (fi 6) (either term, 3-0-0). A survey/history of accounting thought, introducing the major research approaches in accounting. Open to all doctoral students or with written permission of the instructor. Approval of the Business PhD Program Director is also required for non-PhD students.

#### ACCTG 703 Accounting Research Workshop

★3 (fi 6) (two term, 3-0-0). Based on the Department's research workshop program, this course will discuss research methodology as it applies to accounting and ensure students learn how to review/evaluate current research and literature. Students are expected to present their own research and to analyse the research of others. This workshop is a single term course offered over two terms. Students are expected to attend regularly throughout their doctoral program, but register for credit in their second year (prior to taking accounting comprehensive examination).

#### ACCTG 704 Advanced Topics in Accounting Research

★3 (fi 6) (either term, 3-0-0). In-depth study of specific approaches to accounting research. The topic chosen will be based on the needs of students and the research interests of Faculty. The focus will be on developing students' ability to produce publishable research. A 704 course may actually comprise two, or even three, segments of related research. Students registered for a PhD in Accounting are required to register in at least two terms (two different topics).

#### ACCTG 705 Individual Research

★3 (fi 6) (either term, 3-0-0).

#### ACCTG 711 Seminar on Judgement and Decision Making Research in Accounting

★3 (fi 6) (either term, 3-0-0). Judgment and Decision Making research draws on theories in psychology, economics, statistics and cognitive science to examine issues in accounting and auditing. Reviews work on a range of issues such as accountability, fraud detection, accounting policy choice, the effect of discretion in accounting rules on decisions made by managers, investors and auditors, and how well auditors can assess the knowledge and/or preferences of other agents. Students may conduct an empirical study (e.g., an experiment, survey, simulation or case study) as part of the course. Some literature in behavioral finance and marketing may also be covered. Pre- or corequisite: MGTSC 705 (or equivalent). Open to all doctoral students or with the written permission of the instructor. Approval of the Business PhD Program Director is also required for non-PhD students.

#### ACCTG 721 Advanced Topics in Interdisciplinary Accounting

★3 (fi 6) (either term, 3-0-0). A specialist course on the conduct of interdisciplinary accounting research. Content will vary depending on the interests of students and faculty, but the emphasis will be on organizational, institutional, social, political or philosophical perspectives on accounting and auditing. Open to all doctoral students or with written permission of the instructor. Approval of the Business PhD Program Director is also required for non-PhD students.

#### ACCTG 722 Accounting Epistemology and Research Professionalism

★3 (fi 6) (either term, 3-0-0). Related to the research workshop series of the Department of Accounting and MIS and providing formal study of alternative accounting research methodologies. Will develop student's skills in presentations,

and critically examine the social, political and ethical roles of an academic accountant. Students in the interdisciplinary accounting stream would be expected to attend this course each year they are in the program, but take it only once for credit. Open to all doctoral students or with written permission of the instructor. Approval of the Business PhD Program Director is also required for non-PhD students.

#### ACCTG 731 Economic Approaches to Accounting Research

★3 (fi 6) (either term, 3-0-0). Introduces accounting research topics and methods from the perspective of Financial Economics. Involves significant statistics, economics, and data processing. Focuses on the role of accounting information in market economies. Pre- or corequisite: MGTSC 705 or equivalent. Open to all doctoral students or with written permission of the instructor. Approval of the Business PhD Program Director is also required for non-PhD students.

#### ACCTG 732 Analytical Research in Accounting

★3 (fi 6) (either term, 3-0-0). Develops an information economics framework for understanding the role of accounting information in financial markets and in organizations. Involves significant microeconomics, game theory, and mathematics. Pre- or corequisite: ACCTG 731 or equivalent. Open to all doctoral students or with written permission of the instructor. Approval of the Business PhD Program Director is also required for non-PhD students.

#### ACCTG 733 Advanced Topics in Empirical Accounting Research

★3 (fi 6) (either term, 3-0-0). Intended to serve advanced doctoral students who have a specific interest in financial economics-based accounting research. Covers research design, implementation, and statistical issues in empirical accounting research. Pre- or corequisite: ACCTG 731 or equivalent. Open to all doctoral students or with written permission of the instructor. Approval of the Business PhD Program Director is also required for non-PhD students.

#### ACCTG 820 Financial Accounting

★3 (fi 32) (first term, 3-0-0). Reporting of financial results of operations and financial positions to investors and managers; the use of accounting information for decision making. Restricted to Executive MBA students only.

#### ACCTG 830 Organization Planning and Control

★3 (fi 32) (second term, 3-0-0). Implementing financial performance measurement, evaluation and control systems, and organizational designs that enhance performance; understanding organizational structures and processes. Restricted to Executive MBA students only.

## 221.3 Administration, ADMI

Faculté Saint-Jean

### Cours de 1er cycle

#### ADMI 301 Fondements légaux de l'économie canadienne

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Étude synoptique du système légal canadien, mettant l'accent sur les considérations sous-jacentes de politique sociale. Tout en considérant la nature, les sources, et la philosophie du droit, ainsi que les objectifs des politiques qu'il codifie, des sujets choisis dans les champs de la responsabilité civile délictuelle et contractuelle seront analysés. Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour B LAW 301.

#### ADMI 311 Introduction à la comptabilité

★3 (fi 6) (l'un ou l'autre semestre, 3-1.5s-0). Postulats, principes, cycle comptable, calcul du capital et du revenu, préparation et analyse d'un état financier, instance sur les rapports à présenter aux actionnaires et autres agents externes détenant des pouvoirs de décision. Préalable(s): ECONE 101/102. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ACCTG 311.

#### ADMI 322 Gestion et méthodes de contrôle

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Objectifs d'une entreprise, concepts de planification et de contrôle, accumulation des coûts en vue de l'établissement des prix et de l'évaluation du prix de revient des produits. Préalable(s): ADMI 311 ou ACCTG 311. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ACCTG 322.

#### ADMI 441 Stratégie d'entreprise

★3 (fi 6) (l'un ou l'autre semestre, 1.5-1.5s-0). Examine les décisions prises par les directions d'entreprises et met l'accent sur le développement de stratégies d'affaires et corporatives. Intègre les principes de gestion étudiés dans le tronc commun en administration des affaires, en utilisant des études de cas. Pourra inclure des invités de l'Université et du monde des affaires. Préalable(s): FIN 301, MARK 301, ORG A 201. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ORG A 441.

#### ADMI 444 Commerce international

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Problèmes et opportunités lorsqu'une entreprise opère dans plus d'un pays: le choix à faire entre opérer à l'étranger, l'exportation et l'utilisation de licences; nature et causes de l'émergence des nouveaux marchés de capitaux; institutions internationales facilitant le financement de l'exportation; programmes de stabilisation des prix des produits de base;

implications des politiques commerciales, fiscales et d'intégration pour les décisions d'entreprises; aspects de la gestion internationale, incluant la couverture contre le risque de fluctuation des taux de change, coûts de transfert et choix de structure de capital optimale. Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour BUCC 444.

#### **ADMI 445 Stratégies concurrentielles en commerce international**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Le processus de conception et d'exécution de stratégies compétitives par des firmes opérant dans plusieurs pays ou globalement. Accent sur les cadres de stratégies concurrentielles, les formes changeantes de la compétition internationale, les niveaux d'analyse de la compétition internationale, la formulation et l'exécution de stratégies compétitives internationales. La matière est illustrée par des études de cas spéciaux de firmes canadiennes. Préalable(s): BUCC 311. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour BUCC 445.

#### **ADMI 463 L'énergie et l'environnement: Structure industrielle, performance et défis**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Dans ce cours on utilise les outils de l'économie pour obtenir une meilleure compréhension des marchés et de l'industrie de l'énergie. Les différences et similarités entre les industries (pétrole, gaz naturel, électricité, etc.) et entre les différents segments (exploration, production, vente) sont expliquées. On y analyse les grands défis de l'industrie, entre autres la question environnementale et la mondialisation des marchés et les nouvelles formes de la concurrence. On verra comment cette transformation de l'industrie affectera les performances et stratégies de l'industrie. Préalable(s): ECON 281 ou ECON 281 ou BUCC 311.

#### **ADMI 479 L'entreprise et le gouvernement au Canada**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Analyse de l'interaction entre l'entreprise et l'administration publique. On s'intéresse en particulier à la dynamique d'ajustement de la firme et du gouvernement dans les changements d'environnement et de politiques. Les motivations et comportements des décideurs publics et des personnes responsables de l'application des mesures sont présentés dans le contexte d'interaction entre les différents groupes impliqués. Sont posées les bases d'une analyse de l'efficacité des différentes politiques, tant fiscales que réglementaires, visant la firme. On y aborde aussi les conséquences des changements de l'environnement économique, technologique et social pour la firme. Préalable(s): ECON 281 ou BUCC 311. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour BUCC 479.

## 221.4 Agricultural and Resource Economics, AREC

Department of Rural Economy  
Faculty of Agriculture, Forestry, and Home Economics

### Notes

- (1) Before 2003-2004, Agricultural and Resource Economics courses (AREC) were listed as Agricultural Economics (AG EC).
- (2) See also Environmental and Conservation Sciences (ENCS), Forest Economics (FOREC), Interdisciplinary Undergraduate Courses (INT D) and Rural Sociology (R SOC) listings for related courses.

### Undergraduate Courses

#### **0 AREC 200 Current Economic Issues for Agriculture and Food**

★3 (fi 6) (second term, 3-1s-0). Applications of economic principles to problems and current issues relating to agriculture, food and the environment. Prerequisite: ECON 101 or consent of Department. Credit will only be given for one of AREC 200 and AG EC 200.

#### **0 AREC 214 Applications of Linear Models to Food, Resources and the Environment**

★3 (fi 6) (either term, 3-0-2). An introduction to methods and tools that are used to solve linear quantitative problems. Emphasis is on the use of these techniques for economic analysis in applications related to agriculture, food, forestry, and the environment. Classroom examples, laboratory assignments and computer tutorials are provided to give practice in applying quantitative tools to empirical problems. Prerequisite: Pure Mathematics 30. Credit will be granted for only one of AREC 214 and AG EC 316.

#### **0 AREC 313 Statistical Analysis**

★3 (fi 6) (first term, 3-0-2). Analysis of economic data relating to renewable resource sectors including agriculture, food, forestry, and the environment; collection of data, sampling methods, tests of hypotheses, index numbers, analysis of variance, regression, and correlation; time series analysis. Prerequisite: Introductory statistics course. Credit will only be given for one of AREC 313 and AG EC 416.

#### **0 AREC 323 Introduction to Management for Agri-Food, Environmental, and Forestry Businesses**

★3 (fi 6) (either term, 3-0-0). Principles and practical aspects of business management, and their relevance to the managing businesses involved in a variety of industries, including agriculture, environment, food, and forestry. Topics

include business planning and organizing, and issues related to the management of financial, physical, and human resources. Prerequisite: ECON 101. Corequisite: ECON 102. Credit will only be given for one of AREC 323, AG EC 323, FIN 301 or MARK 301.

#### **0 AREC 333 Economics of Production and Resource Management**

★3 (fi 6) (first term, 3-0-2). Application of economic concepts and introduction of management tools related to production decision-making for resource-based businesses. Integration of biophysical and environmental relationships with economic objectives in allocating resources. Introduction to quantitative tools used in applied production management decision-making. Prerequisites: One of AREC 200, AG EC 200, ECON 281, INT D 365 or AREC 365 or equivalent. Credit will only be given for one of AREC 333 and AG EC 333.

#### **0 AREC 365 Natural Resource Economics**

★3 (fi 6) (either term, 3-0-0). Economics of natural resources; resource scarcity, conservation, sustainability, water resource issues, fisheries, forestry, agriculture, recycling, property and tenure institutions and public resource policy. Credit will be given for only one of AREC 365 and INT D 365. Prerequisite: ECON 101; ECON 102 recommended.

#### **0 AREC 384 Food Market Analysis**

★3 (fi 6) (first term, 3-0-1). Applications of price and market theories to marketing problems and issues for food and agricultural products. Topics include: market structures and marketing functions; price analysis; futures markets; economics of food safety and quality; and international food marketing. Prerequisite: One of AREC 200, AG EC 200, ECON 281, INT D 365, or AREC 365 or equivalent. Credit will only be given for one of AREC 384 and AG EC 384.

#### **0 AREC 400 Special Topics**

★3 (fi 6) (either term, 0-3s-0). Individual study of a selected topic or problem requiring both written and oral reports. Prerequisite: consent of the Department Chair.

#### **AREC 410 Advanced Methods and Applications in Applied Economics**

★3 (fi 6) (second term, 3-0-0). Empirical applications of methods used in resource, environmental, agri-food, and forest economics. Involves one or more case study projects that focus on the empirical examination of economic issues in renewable resource management. Requires payment of additional miscellaneous fees. Credit will be given for only one of AREC 410 and ENCS 410. Prerequisite: Open to fourth year students in Agricultural/Food Business Management, Agriculture (Agricultural and Resource Economics major), Environmental and Conservation Sciences (Environmental Economics and Policy major) and Forest Business Management programs, or by consent of Instructor.

#### **AREC 423 Advanced Management Methods and Applications for Agri-Food, Environmental and Forestry Businesses**

★3 (fi 6) (second term, 0-3s-0). Empirical applications of management and research methods used by business managers. Emphasis is given to integrating economic and business management concepts with applications to problems and issues in agriculture, food, the environment and forestry. Prerequisite: Open to fourth year students in Agricultural/Food Business Management, Agriculture (Agricultural and Resource Economics major), Environmental and Conservation Sciences (Environmental Economics and Policy major) and Forest Business Management programs, or by consent of Instructor. Credit will only be given for one of AREC 423 and AG EC 423.

#### **0 AREC 433 Financial Management in Resource Industries**

★3 (fi 6) (first term, 3-0-0). Recent theoretical and empirical developments in finance are applied to natural resource industries including agribusiness, farming, forestry and food. Emphasis on capital budgeting, financial risk, and associated topics for long run investment planning in smaller business enterprises. Prerequisite: One of AREC 200, AG EC 200, ECON 281, INT D 365 or AREC 365, FIN 301 or equivalent. Credit will only be given for one of AREC 433 and AG EC 433.

#### **0 AREC 450 Economic and Social Impact Assessment**

★3 (fi 6) (second term, 3-0-0). Examination of the theory and application of economic and social impact assessment methods with a focus on the evaluation of environmental and natural resource regulatory policy and planning. Includes a series of case studies of recent environmental policy proposals to illustrate the methods used to evaluate economic benefits and costs as well as the social and cultural impacts of such proposals. Prerequisite: one of AREC 200, INT D 365 or AREC 365, R SOC 355, or equivalent, or consent of Instructor. Credit will only be given for one of AREC 450 and 550.

#### **AREC 465 Advanced Natural Resource Economics**

★3 (fi 6) (second term, 3-0-0). Applied economic modeling of renewable resource utilization and environmental issues with a focus in forestry and agriculture. Topics may include current Canadian and international issues in the area of environmental valuation, energy, climate change, biodiversity and conservation as related to Forestry and Agriculture. Prerequisite: AREC 365 or permission of Instructor; (AG EC 416 or AREC 313) and ECON 281 recommended. Credit will be given for only one of AREC 465 and INT D 465.

#### **0 AREC 473 Food and Agricultural Policies**

★3 (fi 6) (first term, 3-0-0). Economics of public policy for agriculture and food industries. Public choice principles and institutions. Farm and food policy in Canada

and selected countries. Case studies on price and output policy; agricultural trade; rural safety and quality; resource use and environmental sustainability; and/or food change/restructuring. Prerequisite: One of AREC 200, AG EC 200, ECON 281, INT D 365 or AREC 365 or equivalent. Credit will only be given for one of AREC 473 and AG EC 473.

#### **O AREC 475 World Food and Agriculture**

★3 (*fi 6*) (second term, 3-1s-0). Economic issues in international agriculture including the world food problem, agricultural development; agricultural and food trade and policy and selected agricultural biotechnology issues. Both Canadian and international applications and issues are stressed. Prerequisite: One of AREC 200, AG EC 200, ECON 281 or consent of Department. Credit will only be given for one of INT D 303, AREC 475 and AG EC 475.

#### **O AREC 482 Cooperatives and Alternative Business Institutions**

★3 (*fi 6*) (second term, 3-0-0). The impact of agri-food and resource market structures on market conduct and performance; the impact of market structure on selection of cooperative versus investor owned firms including differences in firm objectives, performance and management incentives; topics may also include effects of firm type on community development and policy formation. Prerequisite: one of AREC 200, AG EC 200, ECON 281, INT D 365 or AREC 365 or equivalent. Credit will only be given for one of AREC 482 and AG EC 482.

#### **O AREC 484 Strategic Management in Resource Businesses**

★3 (*fi 6*) (second term, 3-0-0). Analysis of strategic management concepts and applications to agri-food and resource industries. The development of business and corporate strategies including competitive positioning; sustaining competitive advantage; vertical coordination and strategic alliances in value chains; corporate diversification and global business strategy. Prerequisite: One of AREC 200, AREC 323, AG EC 200, AG EC 323, ECON 281, INT D 365 or AREC 365 or equivalent. Credit will only be given for one of AREC 484 and AG EC 484.

#### **O AREC 485 Trade and Globalization in Food and Resources**

★3 (*fi 6*) (first term, 3-0-0). Principles and policies affecting international trade in food, forestry and natural resources. Current issues in trade, including fair trade concerns, trade in capital and services, effects of food safety and quality standards, and environmental issues surrounding trade agreements and institutions. Prerequisite: One of AREC 200, AG EC 200, INT D 365 or AREC 365, R SOC 355 or equivalent. Credit will only be given for one of AREC 485 and AG EC 485.

#### **O AREC 487 Managing Market Risk in Resource Industries**

★3 (*fi 6*) (second term, 3-0-0). Study of the mechanics and economic functions of commodity futures and options derivative markets. Topics include the theory and practice of hedging, price formation and issues unique to commodities. Emphasis on concepts and analysis to evaluate derivative markets; use of derivatives to manage market risk in agribusiness, forestry and other resource businesses. Prerequisite: One of AREC 333, AREC 384, AG EC 333, AG EC 384, ECON 281, FIN 301, or equivalent. Credit will only be given for one of AREC 487 and AG EC 487.

## Graduate Courses

### Notes

- (1) See also INT D 565 for a course offered by more than one Department or Faculty and which may be taken as an option or as a course.
- (2) Undergraduate AREC courses at the 400 level may be taken for credit by graduate students in Rural Economy.

#### **AREC 500 Research Projects in Agricultural Economics**

★3 (*fi 6*) (either term, 0-3s-0). Individual study. Investigations of a special problem involving field or library study and preparation of written reports. Prerequisite: consent of Department Chair.

#### **O AREC 502 Applied Demand Analysis**

★3 (*fi 6*) (either term, 3-0-0). Principles of consumer demand analysis including theoretical and empirical approaches to the analysis of consumer choice. Applications include food demand analysis, analysis of consumer choice under uncertainty (food safety, nutrition, health), dynamic consumer choice, advertising and consumer choice, preference shifts in consumer choice, and economic welfare measurement. Prerequisite: ECON 481. Credit will only be given for one of AREC 502 and AG EC 502.

#### **O AREC 513 Econometric Applications**

★3 (*fi 6*) (either term, 3-0-3). Econometric theory, multiple linear regression analysis and interpretation, simultaneous equation estimation, qualitative choice models, time series analysis, applications of econometric techniques to resource and agricultural economic problems. Prerequisite: Intermediate course in statistics or econometrics. Credit will only be given for one of AREC 513 and AG EC 513.

#### **O AREC 514 Quantitative Techniques**

★3 (*fi 6*) (either term, 3-0-3). Selected applications of econometrics, operations research, and mathematical programming to economic problems in resource, agriculture, forestry, and food sectors. Prerequisite: consent of Instructor. Credit will only be given for one of AREC 514 and AG EC 514.

#### **O AREC 533 Production Economics**

★3 (*fi 6*) (either term, 3-0-3). Static and dynamic firm theory, production principles

applied to resource use, resource and product combination, cost structure, uncertainty and expectations. Prerequisite: consent of Instructor; (AREC 313 or AG EC 416) and (AREC 502 or AG EC 502) recommended. Credit will only be given for one of AREC 533 and AG EC 533.

#### **O AREC 534 Agricultural Finance**

★3 (*fi 6*) (either term, 3-0-0). Advanced capital budgeting and financing issues relating to farms and small businesses. Risk measurement and management. Agency and information problems and the relation between farm and small business investment and security markets. Cost of capital and valuation of farm and small business assets. Financing alternatives and the choice between them. Evaluation of public programs which affect agricultural and small business financing and risk control. Prerequisites: consent of Instructor; (AREC 313 or AG EC 416) and (AREC 433, AG EC 433 or FIN 301) recommended. Credit will only be given for one of AREC 534 and AG EC 534.

#### **O AREC 550 Economic and Social Impact Assessment**

★3 (*fi 6*) (either term, 3-0-0). Examination of the theory and application of economic and social impact assessment methods with a focus on the evaluation of environmental and natural resource regulatory policy and planning. Includes a series of case studies of recent environmental policy proposals to illustrate the methods used to evaluate economic benefits and costs as well as the social and cultural impacts of such proposals. Prerequisite: one of AREC 200, 365, R SOC 355, or equivalent, or consent of Instructor. Credit will only be given for one of AREC 450 and 550.

#### **O AREC 569 Advanced Topics in Natural Resource and Environmental Economics**

★3 (*fi 6*) (either term, 3-0-0). Theoretical analysis and modeling of renewable resource and environmental issues at local and global levels. Includes analysis of international environmental issues, the effect of economic growth on the environment, sustainable development, and local and global commons management. Prerequisite: ECON 481 or consent of Department. Credit will only be given for one of AREC 569 and AG EC 569.

#### **O AREC 573 Agricultural Economics Policy**

★3 (*fi 6*) (either term, 3-0-0). Goals and instruments of agricultural policy, model constructions with decision and control criteria; national, regional, and provincial agricultural application. Prerequisite: consent of Instructor; (AREC 313 or AG EC 416) and (AREC 502 or AG EC 502) recommended. Credit will only be given for one of AREC 573 and AG EC 573.

#### **O AREC 575 Agriculture in Developing Countries**

★3 (*fi 6*) (either term, 3-0-0). Role of agriculture in the economic growth of developing countries; influence of international trade and commodity agreements on economic development. Prerequisite: consent of Instructor; (AREC 475 or AG EC 475) and (AREC 502 or AG EC 502) recommended. Credit will only be given for one of AREC 575 and AG EC 575.

#### **O AREC 584 Marketing Economics**

★3 (*fi 6*) (either term, 3-0-0). Microeconomic theory and analysis of markets for agricultural and food products. Topics will vary with the evolution of the literature but may include alternative market structures, market regulation, empirical price analysis, advertising, location theories, the role of information in markets, the role of uncertainty in markets, and organization structures. Prerequisite: consent of Instructor. (AREC 313 or AG EC 416) and (AREC 502 or AG EC 502) recommended. Credit will only be given for one of AREC 584 and AG EC 584.

#### **O AREC 585 Agricultural Trade**

★3 (*fi 6*) (either term, 3-0-0). Concepts and principles underlying international trade and specialization applied to agricultural and food products. Protection and its economic impacts. Agricultural trade policy, institutions and agreements. The role of agricultural trade in developed and less developed countries. Analysis of imperfect markets and alternative approaches to trade liberalization. Prerequisite: consent of Instructor. Credit will only be given for one of AREC 585 and AG EC 585.

#### **AREC 600 Directed Studies**

★3 (*fi 6*) (either term, 0-3s-0). Analysis of selected research problems and design of research projects in production economics, natural resource economics, or marketing economics. Prerequisite: consent of Department Chair.

#### **AREC 900 Directed Research Project**

★3 (*fi 6*) (variable, unassigned). Credit will only be given for one of AREC 900 and AG EC 900.

## 221.5 Agricultural, Food and Nutritional Science, AFNS

Department of Agricultural, Food and Nutritional Science  
Faculty of Agriculture, Forestry, and Home Economics

**Note:** See also Animal Science (AN SC), Environmental and Conservation Sciences (ENCS), Interdisciplinary (INT D), Nutrition (NUTR), Nutrition and Food Science (NU FS), Plant Science (PL SC), Renewable Resources (REN R) and Soil Science (SOILS) for related courses.



## Undergraduate Courses

### AFNS 414 Lipid Science

★3 (*fi 6*) (second term, 3-0-0). Fundamentals in lipid biochemistry featuring learning modules of relevance to students of plant, food and animal science, and human nutrition, and other life science. Topics include characteristics of lipids, environmental effects on lipid metabolism, oilseed biotechnology and biomass solutions for petrochemical alternatives. Graduate students may not register for credit (see AFNS 514). Credit will only be given for one of AFNS 414 and AFNS 514. Prerequisites: (BIOCH 200 or PL SC 331) or consent of Instructor.

### AFNS 450 Compost Science and Technology

★3 (*fi 6*) (first term, 3-0-3). Biological, chemical and physical interactions involved in composting of organic materials. Selection of appropriate technologies. Design, management, and economics of composting facilities. Graduate students may not register for credit (see AFNS 550). Credit will only be given for one of AFNS 550 and 450. Prerequisites: ★3 BIOL and (★3 PHYS or CHEM or equivalent).

## Graduate Courses

**Note:** Prerequisites are shown to provide an indication of the background that is expected for these courses. Students not having the prerequisites for a course are encouraged to discuss their case with the course Instructor.

### AFNS 500 Individual Study

★3 (*fi 6*) (either term, variable). Project or reading course under the supervision of a Faculty member requiring preparation of a comprehensive report. Prerequisite: consent of Department. Note: May be taken more than once provided the topic is different.

### AFNS 502 Advanced Study of Food Fermentations

★3 (*fi 6*) (second term, 3-1s-0). Readings and class presentations on current developments in bacterial or fungal fermentation of foods. Development in Probiotics. Lectures are the same as for NU FS 402, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 502 and NU FS 402. Prerequisite: MICRB 265 or NU FS 361 or 363.

### AFNS 503 Processing of Milk and Dairy Products

★3 (*fi 6*) (first term, 3-1s-0). Technological principles of milk treatment and processes for fluid milk products; concentrated, dried, sterilized and fermented dairy products; cheese, butter and ice cream. Lectures are the same as for NU FS 403, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 503 and NU FS 403. Prerequisite: NU FS 374.

### AFNS 506 Rangeland Plant Communities of Western Canada

★3 (*fi 6*) (second term, 3-0-3). Examines major rangeland plant communities and their physical environments in western Canada, including individual plant identification and ecology. Includes a review of various land uses such as livestock and wildlife grazing within these communities, their response to disturbances such as herbivory and fire, and other management considerations. Lectures and labs are the same as for ENCS 406, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 506 and ENCS 406. Prerequisite: ENCS 356 or consent of instructor. [Agricultural, Food and Nutritional Science]

### AFNS 509 Management of Animal Environments

★3 (*fi 6*) (second term, 3-0-3). Methods of providing acceptable environments for confined animals. Topics include animal well-being, technology to maintain good air quality, minimizing the impact of intensive livestock operations on receiving environments, and farmstead planning. Lectures and labs are the same as for AN SC 409, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 509, AN SC 309 and 409. Prerequisite: consent of instructor.

### AFNS 512 Protein and Amino Acid Metabolism

★3 (*fi 6*) (first term, 0-3s-0). Comprehensive overview of the major aspects of protein and amino acid metabolism. Publications and topics cover issues relating to protein and amino acid metabolism in both humans and domestic animals. Offered in alternate years commencing 2002-03. Prerequisite: consent of Instructor.

### AFNS 514 Lipid Science

★3 (*fi 6*) (second term, 3-0-0). Fundamentals in lipid biochemistry featuring learning modules of relevance to students of plant, food and animal science, and human nutrition, and other life science. Topics include characteristics of lipids, environmental effects on lipid metabolism, oilseed biotechnology and biomass solutions for petrochemical alternatives. Lectures are the same as for AFNS 414, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 514 and AFNS 414. Prerequisites: (BIOCH 200 or PL SC 331) or consent of Instructor.

### AFNS 518 Biometrics for Nutrition and Food Science

★3 (*fi 6*) (second term, 3-0-3). Statistical methodologies and interpretation of results, including descriptive statistics, sampling, experimental design, hypothesis testing, ANOVA, correlation and regression analysis, as well as nonparametric

procedures and an introduction to multivariate analysis. Examples for lectures and laboratories are drawn from nutrition and food science research. Prerequisites: Introductory Statistics or consent of Instructor.

### AFNS 520 Ruminant Physiology

★3 (*fi 6*) (first term, 3-0-0). A lecture and discussion course on current literature in digestive physiology and endocrinology of ruminant animals. Offered in alternate years commencing in 1998-99. Prerequisite: ★3 in each of Nutrition and Physiology.

### AFNS 521 Carcass and Meat Quality

★3 (*fi 6*) (second term, 3-0-3/2). The conversion of muscle to meat: definitions and measurement of carcass and meat quality; influences of pre-and post-slaughter factors on carcass and meat quality. The lab will consist of a two-day field trip during Reading Week. Lectures and labs are the same as for AN SC 420, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 521 and AN SC 420. Prerequisites: ★3 Biochemistry or AN SC 320 and consent of instructor.

### AFNS 527 Nutritional Toxicology and Food Safety

★3 (*fi 6*) (first term, 3-0-0). Providing students with an understanding of the principles of risk: benefit evaluations related to the metabolic consequences of exposure to foodborne chemicals and therapeutic agents, and to microbiological concerns about foods. Lectures are the same as for NU FS 427, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 527 and NU FS 427. Prerequisites: ★3 Biochemistry and ★3 in Microbiology or consent of instructor.

### AFNS 528 Recent Advances in Nutraceuticals

★3 (*fi 6*) (second term, 0-3s-0). Critical evaluations of the current literature on food components, including functional foods and nutraceuticals. Students learn to interrelate the chemistry, health potential and toxicological implications of the components. Seminars are the same as for NU FS 428, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 528 and NU FS 428. Prerequisite: NU FS 200 or consent of instructor.

### AFNS 550 Compost Science and Technology

★3 (*fi 6*) (first term, 3-0-3). Biological, chemical and physical interactions involved in composting of organic materials. Selection of appropriate technologies. Design, management, and economics of composting facilities. Lectures are the same as for AFNS 450, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 450 and 550. Prerequisites: ★3 BIOL and (★3 PHYS or CHEM or equivalent).

### AFNS 552 Nutritional Aspects of Chronic Human Diseases

★3 (*fi 6*) (second term, 3-0-0). A lecture and reading course for senior undergraduate students which will address the scientific basis for nutritional intervention in chronic human disease. Lectures are the same as for NUTR 452, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 552, NUTR 452, and NU FS 452. Prerequisites: NUTR 301 (or 303) and 302, or consent of Instructor.

### AFNS 554 Unit Operations in Food Preservation

★3 (*fi 6*) (second term, 3-0-3). Processes used in food preservation. Dehydration, refrigeration and freezing, sterilization and canning, irradiation. Effect of processing on food properties. Lectures are the same as for NU FS 454, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 554 and NU FS 454. Prerequisite: NU FS 283, NU FS 361 (or 363) and 372 (or 373) or consent of instructor.

### AFNS 561 Ruminant Digestion, Metabolism, and Nutrition

★3 (*fi 6*) (second term, 3-0-3). Integration of theory and practical concepts in ruminant nutrition, digestion and metabolism through topics such as energy flow in ruminants, protein systems and net feed efficiency. Laboratories will involve formulation of rations for various physiological states of beef and dairy cattle, economical rations, feed mixes, protein systems (degradable and undegradable protein systems) and net feed efficiency formulations. Lectures and labs are the same as for AN SC 461, with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 561 and AN SC 461. Prerequisite: consent of instructor.

### AFNS 562 Swine Nutrition

★3 (*fi 6*) (second term, 3-0-3). Nutrient utilization and requirements, feed ingredients, and applied feeding program. Feed formulation strategies and current topics in swine nutrition will be discussed in detail. Lectures and labs are the same as for AN SC 462, with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 562 and AN SC 462. Prerequisite: consent of instructor.

### AFNS 563 Poultry Nutrition

★3 (*fi 6*) (second term, 3-0-3). Nutritional requirements, feeding programs, and feed ingredients used for poultry. Feed formulation strategies and current topics in poultry nutrition will be discussed extensively. Lectures and labs are the same as for AN SC 463, with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AN SC 463, AFNS 515, and 563. Prerequisite: Consent of Instructor.

**AFNS 565 Principles of Plant Breeding**

★3 (*fi 6*) (first term, 3-0-0). Basic principles of crop improvement by plant breeding. Different plant breeding methods and their relationship to the major crop species. Lectures are the same as for PL SC 465, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 565 and PL SC 465. Prerequisites: BIOL 207 and ★3 statistics.

**AFNS 566 Advanced Food Microbiology**

★3 (*fi 6*) (second term, 3-1s-0). A lecture/discussion course on selected topics in food microbiology. Offered in alternate years commencing in 1999-00. Prerequisite: MICRB 265 or NU FS 361 or 363. Credit cannot be obtained for NU FS 566 and AFNS 566.

**AFNS 568 Clinical Nutrition**

★3 (*fi 6*) (first term, 3-0-3). Basic principles of nutrition in clinical situations. The role of diet in the management of various diseases. The laboratory sessions include practical experience in providing individualized nutritional care for clients from various cultural backgrounds. Lectures and labs are the same as for NUTR 468, with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 568, NUTR 468 and NU FS 468. Pre- or corequisite: NUTR 301.

**AFNS 570 Experimental Procedures in Nutrition and Metabolism**

★3 (*fi 6*) (either term, 0-0-6). Current methodologies in nutrition and metabolism. Prerequisites: NUTR 301 and 302 or equivalent, or consent of Instructor. Credit cannot be obtained for NUTR 504 or AFNS 570.

**AFNS 571 Applied Poultry Science**

★3 (*fi 6*) (first term, 3-0-3). Study of avian anatomy, physiology, behavior, and health as it relates to modern poultry production. Current management practices to optimize production efficiency and animal well-being are examined. Lectures and labs are the same as for AN SC 471, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 571 and AN SC 471. Prerequisite: AN SC 200 or consent of Instructor.

**AFNS 572 Practical Case Studies in Rangeland Management and Conservation**

★3 (*fi 6*) (first term, 3-0-3). Cumulative effects of fire, grazing, browsing, and improvement practices on the productivity and species composition of range and pasture ecosystems, including management implications. Extended field trip prior to the start of classes. Lectures and labs are the same as for ENCS 471, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 572 and ENCS 471. Offered in alternate years commencing 2001-02. Prerequisite: ENCS 356; ENCS 406 strongly recommended.

**AFNS 574 Applied Beef Cattle Science**

★3 (*fi 6*) (first term, 3-0-3). Examination of current and potential future production and management practices to optimize production efficiency and animal well being in the Canadian and international beef industry. Laboratories emphasize practical applications, field trips, and discussion. Lectures and labs are the same as for AN SC 474, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 574 and AN SC 474. Prerequisite: AN SC 200 or consent of Instructor.

**AFNS 576 Applied Swine Science**

★3 (*fi 6*) (second term, 3-0-3). Evaluation of swine breeding, feeding, housing management, and disease prevention practices that optimize production efficiency and animal well-being. Laboratories involve analysis of production practices with a view to optimizing efficiency. Lectures and labs are the same as for AN SC 476, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 576 and AN SC 476. Prerequisite: AN SC 200 or consent of Instructor.

**AFNS 577 Advanced Community Nutrition**

★3 (*fi 6*) (second term, 3-0-3). Examination of nutrition problems in contemporary communities that relate to health promotion, food security, policy, program planning and community nutrition throughout the lifecycle. Discussion of nutrition programs and resources. Students will develop the skills to write a community grant application. Lectures and labs are the same as for NUTR 477, with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 577, NUTR 477 and NU FS 477. Prerequisite: consent of instructor.

**AFNS 578 Advanced Clinical Nutrition**

★3 (*fi 6*) (second term, 3-0-3). The principles of diet therapy in selected areas of current interest. Emphasis on case studies, research and practical problems in clinical dietetics. Lectures and labs are the same as for NUTR 476, with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 578, NUTR 476, and NU FS 476. Prerequisite: NU FS 468 or NUTR 468. Pre- or corequisite: NUTR 302.

**AFNS 579 Advanced Nutrition: Vitamins and Inorganic Elements**

★3 (*fi 6*) (first term, 3-0-0). A lecture and reading course in vitamins and inorganic elements. Introduction to seminar presentation and critical evaluation of current literature. Students will also learn the skill of writing a scientific paper. Lectures are

the same as for NUTR 479, with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 579, NUTR 479, and NU FS 479. Prerequisite: NUTR 302. NUTR 301 (or 303) recommended.

**AFNS 580 Advanced Study of Foodborne Pathogens**

★3 (*fi 6*) (second term, 3-1s-0). Emerging issues in microbiological safety of foods. Reading and class presentations on current developments in the microbiological safety of foods. Lectures are the same as for NU FS 480, with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 580 and NU FS 480. Prerequisite: MICRB 265 or NU FS 361 or 363.

**AFNS 581 Advanced Foods**

★3 (*fi 6*) (second term, 3-0-0). Critical evaluation of current literature on the effects of ingredients and processing on quality characteristics of foods. Lectures are the same as for NU FS 481, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 581 and NU FS 481. Prerequisites: NU FS 374 and ★3 Biochemistry or consent of instructor.

**AFNS 582 Diseases of Field and Horticultural Crops**

★3 (*fi 6*) (second term, 0-3s-0). Diseases of cereal, oilseed, pulse, forage, vegetable, fruit, and ornamental crops. Course is the same as PL SC 481, but with additional assignments and evaluation appropriate to graduate studies. Offered in alternate years commencing in 2002-03. Credit will only be given for one of AFNS 582 and PL SC 481. Prerequisite: PL SC 380 or consent of instructor.

**AFNS 585 Advanced Quantitative Genomics**

★3 (*fi 6*) (second term, 3-0-3). Genetics and analysis of quantitative traits in farm animals and plants. Detecting, locating and measuring effects of quantitative trait loci (QTL). Recent developments in QTL mapping and discovery. The laboratory sessions include commonly used software for analyzing data from breeding and genomics experiments. Prerequisite: Consent of Instructor.

**AFNS 595 Integrated Crop Protection**

★3 (*fi 6*) (second term, 0-3s-0). Integrated agronomic, mechanical, biological, and chemical control of insects, disease organisms, and weeds that interfere with field crop and horticultural crop production. Lectures are the same as for PL SC 495, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 595 and PL SC 495. Prerequisites: At least two of ENT 207, PL SC 352 or PL SC 380 as prerequisites and the third as a corequisite.

**AFNS 599 Advanced Agri-Chemical Analysis**

★3 (*fi 6*) (second term, 3-0-3). Advanced analysis of food and agri-industrial materials with a focus on good laboratory practices (GLP), chromatographic techniques (HPLC, GC), mass spectrometry, and other modern techniques from sample preparation to analysis of data. Lectures are the same as for NU FS 499, but with additional assignments and evaluation appropriate to graduate studies. Credit will only be given for one of AFNS 599 and NU FS 499. Pre-requisite: NU FS 372 or consent of Instructor.

**AFNS 602 Graduate Reading Project**

★3 (*fi 6*) (either term, variable). Individual study. Critical reviews of selected literature under the direction of a Faculty member. Note: May be taken more than once if the topic is different. Prerequisite: consent of Department.

**AFNS 603 Graduate Research Project**

★3 (*fi 6*) (either term, variable). Directed laboratory study under supervision of a Faculty member. Note: May be taken more than once if the topic is different. Prerequisite: consent of Department.

**AFNS 660 Communication in Science**

★3 (*fi 6*) (first term, 0-3s-0). Students will learn effective communication skills for life as a graduate student and a future scientist. Topics will include the scientific method; paper, thesis and grant writing; poster and lecture (power point) development and delivery; ethics in science; graduate student supervisor relations. Open only to graduate students in the Department of Agricultural, Food and Nutritional Science.

**AFNS 670 Current Topics in Nutrition and Metabolism**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics in digestive physiology, fat/carbohydrate/protein metabolism, vitamins/minerals, dietary modulation of function or ruminant nutrition. May be taken for credit more than once.

**AFNS 680 Doctoral Seminar**

★3 (*fi 6*) (second term, 0-3s-0). Discussion and presentations based on current topics to provide PhD candidates with experience and understanding in advanced nutrition. Students also learn about research funding and how to develop a major grant application. Credit cannot be obtained for NU FS 680 and AFNS 680.

**AFNS 900 Directed Research Project (Course-based Masters)**

★3 (*fi 6*) (either term, unassigned). Individual study supervised by the student's supervisor, requiring the preparation of a comprehensive report, presentation of a seminar and oral examination by the student's supervisor and one additional faculty member. Open only to students in the MAg, MEng or MSc course-based program.

## 221.6 Agriculture, Forestry, and Home Economics, AFHE

Faculty of Agriculture, Forestry, and Home Economics

### Undergraduate Courses

#### AFHE 304 Communication Theory and Practice

★3 (*fi 6*) (either term, 3-0-2). Principles of business communication, including written, oral, and electronic components. Prerequisite: ★6 ENGL or ★3 ENGL and ★3 Social Science/Humanities (ENGL 111, 112, 113, or 114 recommended). Open only to Faculty of Agriculture, Forestry, and Home Economics students. Credit will be given for only one of AFHE 304 and AGFOR 204.

## 221.7 American Sign Language, ASL

Department of Modern Languages and Cultural Studies  
Faculty of Arts

#### Notes

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess prior background. Students with an American Sign Language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in an advanced course more suitable to their level of ability. Students seeking to fulfill their Language Other than English requirement may begin at any one appropriate level, but must take the full ★6 in one language.
- (3) The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should a student with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.

### Undergraduate Courses

#### 0 ASL 111 Beginners' American Sign Language I

★3 (*fi 6*) (either term, 5-0-0). Designed to provide basic practical communication and conversational skill in American Sign Language for students with little or no previous background. Covers material in matriculation-level ASL. Note: Not to be taken by students with native or near native proficiency, or students with credit in ASL 35 or its equivalents in Canada or other countries. Not to be taken by students with credit in EDPY 474 or 565.

#### 0 ASL 112 Beginners' American Sign Language II

★3 (*fi 6*) (either term, 5-0-0). Prerequisite: ASL 111 or consent of Department. Note: Not to be taken by students with native or near native proficiency, or students with credit in ASL 35 or its equivalents in Canada or other countries.

#### 0 ASL 211 Intermediate American Sign Language I

★3 (*fi 6*) (either term, 5-0-0). Intensive instruction in ASL. Topics covered on deaf community and culture. Prerequisite: ASL 35 or ASL 112 or consent of Department.

#### 0 ASL 212 Intermediate American Sign Language II

★3 (*fi 6*) (either term, 5-0-0). Prerequisite: ASL 211 or consent of Department.

## 221.8 Anaesthesia, ANAES

Department of Anesthesiology and Pain Medicine  
Faculty of Medicine and Dentistry

### Undergraduate Courses

#### ANAES 546 Anaesthesiology and Pain Medicine Student Internship

★1 (*fi 2*) (either term, 1 week). Student Internship in anaesthesiology and pain medicine for students registered in the MD program.

## 221.9 Anatomie, ANATE

Faculté Saint-Jean

### Cours de 1er cycle

#### ANATE 140 Anatomie

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-0). Introduction aux structures du corps humain. Doit être complété avant l'année 2 du BScInf (bilingue). Notes: La priorité sera accordée aux étudiants du BScInf (bilingue). Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour NURS 140.

## 221.10 Anatomy, ANAT

Division of Anatomy  
Faculty of Medicine and Dentistry

### Undergraduate Courses

#### 0 ANAT 200 Human Morphology

★3 (*fi 6*) (either term, 3-0-0). Overview of human structure. Emphasis on the systems of the body and their cooperative role in normal function.

#### 0 ANAT 400 Human Embryonic Development

★3 (*fi 6*) (first term, 3-0-0). A study of the development of the human embryo from conception to birth. The development of cells, tissues and organs of specific major structures will be covered including their relative development to other systems and structures. An understanding of anomalous development and the ability to survive will be included based on a thorough understanding of normal development. Prerequisite: ANAT 200 or consent of Division. Note: Credit will be granted for only one of ANAT 300 or 400.

#### 0 ANAT 401 Human Neuroanatomy

★3 (*fi 6*) (second term, 3-0-0). A study of the human nervous system including its development and function from an anatomical viewpoint. Both the central and peripheral nervous systems will be presented with some emphasis on abnormal development and its consequences. There will be an emphasis on clinical application where appropriate. Prerequisite: ANAT 200 or consent of Division. Note: Credit will be granted for only one of ANAT 301 or 401.

#### 0 ANAT 402 Human Histology

★3 (*fi 6*) (second term, 0-3s-0). A detailed study of the histology of the tissues and organ systems of the human body and the structural principles that govern their organization, interaction and physiological function. Will be based on self-study, utilizing an interactive, web-based learning program, and group discussions during weekly seminar sessions. Prerequisite: ANAT 200 or equivalent and consent of Division.

#### 0 ANAT 403 The Human Body

★6 (*fi 12*) (first term, 3-0-5). A detailed, regional study of the gross anatomy of the human body using functional, clinical, and evolutionary perspectives. Will include lectures and laboratory sessions involving dissection of human cadavers. Prerequisite: ANAT 200 or equivalent and consent of Division.

#### 0 ANAT 490 Individual Study

★3 (*fi 6*) (either term, 0-0-6). Registration is contingent upon a student having made prior arrangements with a Faculty member in the Division. Credit may be obtained for this course more than once. This is primarily a supervised self-study in any of the anatomical disciplines. Prerequisite: consent of Division.

#### 0 ANAT 491 Current Topics in Anatomy

★3 (*fi 6*) (either term, 0-1s-0). Discussion of topics relevant to the anatomical disciplines. Credit may be obtained for this course more than once. Prerequisite: consent of Division.

#### 0 ANAT 497 Research Project

★4 (*fi 8*) (either term, 0-0-6). Directed research carried out in the laboratory of an assigned member of the Division. Credit for this course may be obtained more than once. Successful completion requires a written report and oral presentation on the research project. Registration is contingent upon a student having made prior arrangements with a Faculty member in the Division. Prerequisite: consent of Division.

### Graduate Courses

#### 0 ANAT 600 Medical Gross Anatomy

★8 (*fi 16*) (two term, 0-0-12). Advanced study of human gross anatomy. Will entail supervised, self-directed, hands-on dissection by the student for the examination of human structure and function. Particular emphasis will be placed on the clinical relevance of Human Anatomy and its importance to clinical medicine. Prerequisite: consent of Division.

#### 0 ANAT 601 Medical Neuroanatomy

★4 (*fi 8*) (Spring/Summer, 3-0-3). Advanced study of the human nervous system. Lectures will be accompanied by hands-on dissection of human tissue. Emphasis will be placed on the clinical relevance of central and peripheral nervous system structure and their involvement with motor and sensory processing systems. Prerequisite: consent of Division.

#### 0 ANAT 603 Medical Histology

★3 (*fi 6*) (Spring/Summer, 0-3s-1). Advanced study of human histology with an emphasis on the relevance of histological examination to clinical medicine. Students will participate in discussions and complete a web-based interactive program. Prerequisite: consent of Division.

#### 0 ANAT 604 Medical Embryology

★3 (*fi 6*) (first term, 3-0-1). Advanced study of human development from conception to birth with particular reference to clinical issues in humans. Lectures will be supplemented with practical examination of specimens. Prerequisite: consent of Division.

**O ANAT 606 Selected Topics in Advanced Human Anatomy**

★3 (*fi 6*) (either term, 0-0-3). An in-depth, supervised, self-directed study focusing on topics relevant to the anatomical disciplines. Credit may be obtained for this course more than once. Registration is contingent upon a student having made prior arrangements with a Faculty member in the Division. Prerequisite: consent of Division.

**O ANAT 607 Current Topics in Human Anatomy**

★3 (*fi 6*) (either term, 0-1s-0). Discussion of topics relevant to the anatomical disciplines. Credit may be obtained for this course more than once. Prerequisite: consent of Division.

**221.11 Andragogie, ANDR**

Faculté Saint-Jean

**Cours de 2e cycle****ANDR 520 Formation expérientielle à la dynamique de groupe**

★3 (*fi 6*) (l'un ou l'autre semestre, 1-2s-0). Les concepts de groupe, d'organisation et d'institution. La dynamique de groupe: définition, ses différentes étapes, son utilisation dans le groupe de tâche et d'apprentissage. Préalable(s): ANDR 510 ou l'approbation du Vice-doyen aux affaires académiques.

**221.12 Anglais, ANGL**

Faculté Saint-Jean

**Notes**

- (1) Un seul cours complet (ou 2 demi-cours) au niveau 100 peut être crédité pour le BA.
- (2) Prérequis pour les cours au niveau 200: ANGL 101.

**Undergraduate Courses****ANGL 101 Critical Reading and Writing**

★6 (*fi 12*) (two term, 3-0-0). A critical study of literature in English, concentrating on works written since 1800, with a minimum 30% of class time devoted to writing instruction. Note: Not to be taken by students with credit in ANGL 100 or ANGL 110 or in ENGL 104/105.

**221.13 Anglais langue seconde, ALS**

Faculté Saint-Jean

**Cours de 1er cycle****ALS 100 Anglais langue seconde (Niveau débutant)**

★6 (*fi 12*) (aux deux semestres, 5-0-0). Études des éléments et des structures de base de l'anglais parlé et écrit. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour English 30, English 33, ANGL 113, ESL 140, ESL 145, ESL 150 ou leurs équivalents et il se limite aux étudiants inscrits à la Faculté Saint-Jean. Affectation par test de placement.

**ALS 160 Anglais langue seconde (Niveau intermédiaire)**

★6 (*fi 12*) (aux deux semestres, 5-0-0). Étude des éléments et des structures de base de l'anglais parlé et écrit. Note: Anciennement ANGL 113. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour English 30, English 33, ANGL 113, ESL 140 et 145, ESL 150, ou leurs équivalents et il se limite aux étudiants inscrits à la Faculté Saint-Jean. Préalable(s): ALS 100 ou l'équivalent, ou affectation par test de placement.

**221.14 Animal Science, AN SC**Department of Agricultural, Food and Nutritional Science  
Faculty of Agriculture, Forestry, and Home Economics

**Note:** See also Agricultural, Food and Nutritional Science (AFNS), Environmental and Conservation Sciences (ENCS), Interdisciplinary (INT D), Nutrition (NUTR), Nutrition and Food Science (NU FS), Plant Science (PL SC), and Renewable Resources (REN R) for related courses.

**Undergraduate Courses****O AN SC 110 Equine Physiology and Nutrition**

★3 (*fi 6*) (first term, 3-0-0). Principles of digestive, exercise, environmental, and reproductive physiology. Nutrient requirements of the horse; sources of energy and nutrients; feed formulation. Not available to students with credit in 300-level courses in animal physiology and nutrition.

**AN SC 120 Animals and Society**

★3 (*fi 6*) (first term, 3-0-3). Diverse and evolving roles of animals in human society. Pets and the companion animal industry. Topics include: behavior, cognition and training; breeds and breeding; performance, nutrition and health; animal shelters, wildlife rehabilitation and zoological parks.

**O AN SC 200 Principles of Animal Agriculture**

★3 (*fi 6*) (either term, 3-0-3). Principles and practices of modern animal production and management. Brief introduction to the structure of the livestock, poultry, and game ranching industries. Principles of animal management, breeding and feeding. Current issues in animal agriculture. Students gain direct experience with animals in production/research environments. Prerequisite: Biology 30.

**O AN SC 260 Fundamentals of Animal Nutrition**

★3 (*fi 6*) (first term, 3-0-3). Function, metabolism, homeostasis, requirements and sources of nutrients and energy for animals. Laboratory will involve principles of diet formulation. Prerequisite: ★3 in university-level biology or chemistry. Credit will be given for only one of AN SC 260, NUTR 260 and NUTR 301 or equivalent.

**O AN SC 310 Physiology of Domestic Animals**

★3 (*fi 6*) (first term, 3-0-3). Fundamental principles of regulation and maintenance of the internal environment. Includes a review of mechanisms providing for homeostasis and well-being of domestic animals in response to changes in the external environment (e.g. light, temperature, social). Prerequisites: BIOL 107 and ★6 in university-level chemistry.

**O AN SC 311 Metabolic Physiology of Domestic Animals**

★3 (*fi 6*) (second term, 3-0-3). The physiological basis of the metabolic processes in domestic animals. Includes a review of the physiological mechanisms and neuroendocrine regulation of digestion, metabolism, growth and lactation. Prerequisite: AN SC 310 or equivalent.

**O AN SC 312 Reproductive Physiology of Domestic Animals**

★3 (*fi 6*) (second term, 3-0-3). The physiological basis of reproduction, fertility and embryonic development in domestic animals in relation to animal productivity. The study of the physiological mechanisms regulating gonadal function, fertilization, implantation, pregnancy and parturition as well as the physiological basis for sound reproductive management. Prerequisite: AN SC 310 or equivalent.

**O AN SC 320 Livestock Growth and Meat Production**

★3 (*fi 6*) (first term, 3-2s-0). Concepts of growth and development applied to meat production from farm livestock. Form and function of bone, muscle and fat. Livestock and carcass appraisal. Prerequisite: AN SC 200 or ★3 in university level biology.

**AN SC 375 Animal Health**

★3 (*fi 6*) (second term, 3-0-0). An introduction to principles of maintaining healthy animals, and examination of current issues related to animal health and disease. Trends in antibiotic use and resistance, emerging diseases, relationship of healthy animals to food safety, international trade in animals and animal products, and the concept of ecohealth. Credit will only be given for one of AN SC 374 and 375. Prerequisite: AN SC 200 or ★3 biology.

**AN SC 376 Animal Behaviour and Welfare**

★3 (*fi 6*) (first term, 3-0-0). An introduction to the theories and principles of the behavior of domestic animals and their welfare. Comparative study of learning, socialization, social interaction, and other components of animal behavior. The main theoretical concepts of bioethics as related to contemporary animal agriculture. The animal welfare movement and its effect on producers and consumers of animal products. Techniques of assessment of animal well-being and review of legal requirements and voluntarily accepted codes for sound animal care and safe animal handling. Credit will only be given for one of AN SC 374 and 376. Prerequisite: AN SC 200 or ★3 biology.

**O AN SC 385 Animal Improvement**

★3 (*fi 6*) (second term, 3-0-2). Application of genetic principles to the improvement of livestock and poultry. Prerequisites: BIOL 107/207 and third year standing or higher.

**O AN SC 391 Metabolism**

★3 (*fi 6*) (second term, 3-0-0). Emphasis on metabolism of carbohydrates, proteins, amino acids, nucleic acids and lipids. Prerequisite: PL SC 331 or ★3 in Biochemistry.

**O AN SC 400 Individual Study**

★3 (*fi 6*) (either term, variable). Project or reading course supervised by a Faculty member, requiring preparation of a comprehensive report. Prerequisites: Third year standing or higher and consent of Department. Note: May be taken more than once if topic is different.

**O AN SC 409 Management of Animal Environments**

★3 (*fi 6*) (second term, 3-0-3). Methods of providing acceptable environments for confined animals. Topics include animal well-being, technology to maintain good air quality, minimizing the impact of intensive livestock operations on receiving environments, and farmstead planning. Credit will only be given for one of AFNS 509, AN SC 309 and 409. Graduate students may not register for credit (see AFNS 509). Prerequisite: AN SC 200 or ★3 university-level biology.

**O AN SC 410 Regulation of Reproduction in Domestic Animals**

★3 (fi 6) (first term, 3-0-3). Study of basic physiological mechanisms involved in the control of reproduction in domesticated animals as a basis for developing practical approaches for the regulation of reproductive processes. Prerequisite: AN SC 312 or consent of Instructor.

**O AN SC 420 Carcass and Meat Quality**

★3 (fi 6) (second term, 3-0-3/2). The conversion of muscle to meat: definitions and measurement of carcass and meat quality; influences of pre- and post-slaughter factors on carcass and meat quality. The lab will consist of a two-day field trip during Reading Week. Graduate students may not register for credit (see AFNS 521). Credit will only be given for one of AFNS 521 and AN SC 420. Prerequisite: ★3 Biochemistry or AN SC 320, or consent of instructor.

**O AN SC 461 Ruminant Digestion, Metabolism, and Nutrition**

★3 (fi 6) (second term, 3-0-3). Integration of theory and practical concepts in ruminant nutrition, digestion and metabolism through topics such as energy flow in ruminants, protein systems and net feed efficiency. Laboratories will involve formulation of rations for various physiological states of beef and dairy cattle, economical rations, feed mixes, protein systems (degradable and undegradable protein systems) and net feed efficiency formulations. Graduate students may not register for credit (see AFNS 561). Credit will only be given for one of AFNS 561 and AN SC 461. Prerequisite: AN SC 260 or ★3 NUTR. Corequisite: AN SC 311.

**O AN SC 462 Swine Nutrition**

★3 (fi 6) (second term, 3-0-3). Nutrient utilization and requirements, feed ingredients, and applied feeding programs for swine. Feed formulation strategies and current topics in swine nutrition will be discussed in detail. Graduate students may not register for credit (see AFNS 562). Credit will only be given for one of AFNS 562 and AN SC 462. Prerequisite: AN SC 260 or ★3 NUTR. Corequisite: AN SC 311.

**O AN SC 463 Poultry Nutrition**

★3 (fi 6) (second term, 3-0-3). Nutritional requirements, feeding programs and feed ingredients used for poultry. Feed formulation strategies and current topics in poultry nutrition will be discussed extensively. Graduate students may not register for credit (see AFNS 563). Credit will only be given for one of AFNS 515, 563 and AN SC 463. Prerequisite: AN SC 260 or ★3 NUTR. Corequisite: AN SC 311.

**AN SC 464 Companion Animal Nutrition**

★3 (fi 6) (first term, 3-0-3). Aimed at 4th year undergraduate students with an interest in companion animal nutrition. The course will focus on nutrient utilization and requirements of dogs and cats. Other companion animal species (mammals, birds, reptiles, fish, amphibians, etc.) will also be covered. Current issues in pet food nutrition and manufacture will be discussed. Prerequisite: AN SC 260 or ★3 Nutrition. Corequisite: AN SC 311 or consent of Instructor.

**O AN SC 471 Applied Poultry Science**

★3 (fi 6) (first term, 3-0-3). Study of avian anatomy, physiology, behavior, and health as it relates to modern poultry production. Current management practices to optimize production efficiency and animal well-being are examined. Graduate students may not register for credit (see AFNS 571). Credit will only be given for one of AFNS 571 and AN SC 471. Prerequisite: AN SC 200 or consent of Instructor.

**O AN SC 472 Applied Dairy Production Science**

★3 (fi 6) (first term, 3-0-3). Examination of the structure of the dairy industry, evaluation of management practices to optimize production efficiency and animal well-being, and integration of nutritional, physiological, and biochemical processes involved in production of quality milk. Laboratories emphasize practical applications, field trips, and discussion. Prerequisite: AN SC 200 and AN SC 260, or consent of Instructor.

**O AN SC 474 Applied Beef Cattle Science**

★3 (fi 6) (first term, 3-0-3). Examination of current and potential future production and management practices to optimize production efficiency and animal well-being in the Canadian and international beef industry. Laboratories emphasize practical applications, field trips, and discussion. Intended for undergraduate students. Graduate students may not register for credit (see AFNS 574). Credit will only be given for one of AFNS 574 and AN SC 474. Prerequisite: AN SC 200 or consent of Instructor.

**O AN SC 475 Applied Wildlife Production Science**

★3 (fi 6) (second term, 3-0-3). Biological, technical, legal, and economic basis of the international wildlife farming and ranching industries. Opportunities for livestock diversification with emphasis on elk, bison, and exotics. Laboratories emphasize practical applications, field trips, and discussion. Prerequisite: AN SC 200 or consent of Instructor.

**O AN SC 476 Applied Swine Science**

★3 (fi 6) (second term, 3-0-3). Evaluation of swine breeding, feeding, housing management, and disease prevention practices that optimize production efficiency and animal well-being. Laboratories involve analysis of production practices with a view to optimizing efficiency. Graduate students may not register for credit (see AFNS 576). Credit will only be given for one of AFNS 576 and AN SC 476. Prerequisite: AN SC 200 or consent of Instructor.

**AN SC 479 Research Project in Animal Science**

★3 (fi 6) (either term, 1-0-5). Students will work in groups with mentors to

conduct research in animal agriculture. May be taken more than once provided the research is conducted using a different species each time. For third- and fourth-year undergraduate students only. Must be taken at least once in final year to meet capstone requirement. Prerequisite: Species specific production course as a prerequisite or corequisite (AN SC 471, 472, 474, 475, or 476) and consent of Department.

**O AN SC 484 Animal Molecular Biology**

★3 (fi 6) (first term, 2-1s-0). Lecture and discussion course dealing with concepts in gene expression, gene manipulation, and application of molecular biology to animal biotechnology. Prerequisites: BIOCH 203/205, or 200/310 or PL SC 331 and AN SC 391, or consent of Instructor.

**Graduate Courses****Notes**

- (1) 400-level courses in AN SC may be taken for credit by graduate students under certain circumstances with approval of the student's supervisor or supervisory committee. A 300-level course may be taken for credit by graduate students under certain circumstances with approval of the AFNS Graduate Program Committee. See §174.1.1(1).
- (2) See also Agricultural, Food and Nutritional Science (AFNS) listings for related courses.

**221.15 Anthropologie, ANTHE**

Faculté Saint-Jean

**Cours de 1er cycle****O ANTHE 101 Introduction à l'anthropologie**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Une introduction à l'anthropologie par l'étude de concepts principaux et d'idées organisatrices tels que l'évolution humaine, l'apparition de la culture, l'organisation sociale, les théories de la culture, les systèmes symboliques, la dynamique de la culture. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits en ANTHE 202 ou 201.

**O ANTHE 110 Ethnologie du sexe, de l'âge et du pouvoir**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Dans toute société, le statut social de l'individu et des groupes change au cours du cycle de la vie. Ce cours examine comment l'âge et le sexe privilégient les rôles et le statut social dans des sociétés différentes.

**O ANTHE 207 Introduction à l'anthropologie sociale et culturelle**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Étude comparative de la société et de la culture de l'homme, en particulier dans les communautés nonoccidentales, en insistant sur la famille, la structure sociale, l'économie, les institutions politiques et la religion; les procédures de changement. Préalable(s): ANTHE 101. Cours à distance. Voir §200.

**O ANTHE 208 Introduction à l'anthropologie linguistique**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Étude anthropologique du langage et de la communication. Aperçu rapide des méthodes d'enquête sur le terrain et des méthodes analytiques et théorie de l'anthropologie linguistique. Préalable(s): ANTHE 101.

**O ANTHE 310 Anthropologie des rapports de sexes**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Étude comparée des différences sexuelles et des rapports de sexes. L'analyse des perspectives et théories dominantes dans les domaines suivants: la primatologie, la biologie, l'archéologie, l'évolution humaine, l'ethnologie et la culture populaire. Préalable(s): ANTHE 110 ou 207 ou ANTHR 209, ou l'approbation du Vice-doyen aux affaires académiques.

**O ANTHE 320 Ethnologie de la religion**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction à l'étude comparative des religions et des phénomènes qui s'y rattachent; tels la magie, les tabous, le chamanisme et la sorcellerie. Des exemples ethnographiques sont utilisés pour appuyer une analyse des liens entre pensées et rites religieux et autres aspects de la vie sociale.

**O ANTHE 365 Culture populaire**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Exploration approfondie de la culture populaire utilisant différentes approches théoriques et l'application des concepts de l'Anthropologie. Préalable(s): ★3 en ANTHE, ou autre science sociale, niveau 100.

**221.16 Anthropology, ANTHR**

Department of Anthropology  
Faculty of Arts

**Notes**

- (1) See also INT D 120 and 443 for courses offered by more than one Department or Faculty and which may be taken as options or as a course in this discipline.
- (2) Students with credit in ANTHR 202 have the equivalent of ANTHR 101 or 201.

## Undergraduate Courses

### **O** ANTHR 101 Introductory Anthropology

★3 (fi 6) (either term, 3-0-0). Approaches to the study of Anthropology through the study of human biological, cultural and linguistic diversity, past and present.

### **O** ANTHR 110 Gender, Age, and Culture

★3 (fi 6) (either term, 3-0-0). An anthropological review and comparison of cultures in terms of social positions based on differences in sex and age.

### **O** ANTHR 150 Race and Racism

★3 (fi 6) (either term, 3-0-0). The challenge of racism in modern societies and the response of anthropology, including the history of how the 'race' concept has been used to explain human variation.

### **ANTHR 206 Introduction to Archaeology**

★3 (fi 6) (either term, 2-0-1). Introduction to the nature, purposes, theory and methods of anthropological archaeology. Emphasis on principles of reconstruction of past societies from archaeological evidence and the explanation of cultural evolution. Prerequisite: A 100-level course in anthropology or consent of Department.

### **ANTHR 207 Introduction to Social and Cultural Anthropology**

★3 (fi 6) (either term, 2-1s-0). Comparative study of human society and culture, particularly non-Western communities, with special attention to the family, social structure, economics and political institutions, and religion; processes of change. Prerequisite: A 100-level course in anthropology or consent of Department.

### **ANTHR 208 Introduction to Linguistic Anthropology**

★3 (fi 6) (either term, 3-0-0). The anthropological study of language and communication. A brief survey of field and analytical methods and the theory of linguistic anthropology. Prerequisite: A 100-level course in anthropology or consent of Department.

### **ANTHR 209 Introduction to Physical Anthropology**

★3 (fi 6) (either term, 2-0-1). Survey of theory and basic data in human evolution and human variation. Topics include primatology, osteology, hominoid paleontology, variation in modern populations. Prerequisite: A 100-level course in Anthropology, or the consent of Department.

### **O** ANTHR 219 World Prehistory

★3 (fi 6) (either term, 3-0-0). A survey of the archaeological evidence for human cultural evolution.

### **L** ANTHR 227 Indigenous and Cultural Minorities in the Modern World

★3 (fi 6) (either term, 3-0-0). Survival of indigenous and minority cultures in various societies. Anthropological perspectives on relationships among race, class, culture, and politics, and on genocide, ethnocide, and the future of native peoples in the modern state. Offered in alternate years.

### **O** ANTHR 230 Anthropology of Science, Technology, and Environment

★3 (fi 6) (either term, 3-0-0). Science as a cultural practice, cultural effects and globalization of technology, changing views of nature, gender and science, traditional ecological knowledge, and the evolution of technology.

### **O** ANTHR 246 Peoples and Cultures of the Circumpolar Region

★3 (fi 6) (either term, 3-0-0). Comparative study of indigenous Arctic and sub-Arctic societies. Archaeological and ethnological considerations of northern societies of the Old and New Worlds. Offered in alternate years.

### **L** ANTHR 250 North American Aboriginal Peoples

★3 (fi 6) (either term, 3-0-0). Aboriginal North American cultures through selected ethnographies and other sources. Offered in alternate years.

### **L** ANTHR 256 Alberta Archaeology

★3 (fi 6) (either term, 3-0-0). Introduction to Alberta's past as reconstructed by archaeology.

### **O** ANTHR 261 Peoples and Cultures of Middle America

★3 (fi 6) (either term, 3-0-0). The cultural history of the native peoples of Mexico and Guatemala. Analysis of contemporary Indian communities. Offered in alternate years.

### **O** ANTHR 262 Peoples and Cultures of South America

★3 (fi 6) (either term, 3-0-0). The cultural history of the native peoples of South America. Analysis of contemporary Indian communities. Offered in alternate years.

### **O** ANTHR 270 Peoples and Cultures of Oceania

★3 (fi 6) (either term, 3-0-0). Historical, economic, and environmental factors which have helped shape major cultures and subcultures of the central and southern Pacific region (Polynesia, Micronesia, Melanesia, and Australia). Offered in alternate years.

### **O** ANTHR 271 Peoples and Cultures of Southeast Asia

★3 (fi 6) (either term, 3-0-0). Cultures and societies in Southeast Asia: Burma, Thailand, Malaysia, Cambodia, Laos, Vietnam, Indonesia, and the Philippines; origins and developments, modern forms, trends of change. Offered in alternate years.

### **O** ANTHR 278 Culture and Society of China

★3 (fi 6) (either term, 3-0-0). Development of Chinese culture and society;

social structure, religion, technology, economy, and polity in anthropological perspective.

### **O** ANTHR 280 Culture and Society of Japan

★3 (fi 6) (either term, 3-0-0). Historical background, ethos and personality, social structure, religion, art, and modernization.

### **O** ANTHR 283 Peoples and Cultures of Western Africa

★3 (fi 6) (either term, 3-0-0). The cultures of sub-Saharan West Africa and the Zaire basin.

### **O** ANTHR 284 Peoples and Cultures of Eastern and Southern Africa

★3 (fi 6) (either term, 3-0-0). The indigenous cultures of the eastern portion of Africa from Ethiopia to South Africa.

### **O** ANTHR 285 African Culture and Art

★3 (fi 6) (either term, 3-0-0). Analysis of the cultural and artistic heritage of Africa from Paleolithic times to the present, with emphasis on ethnographic Western and Central Africa. Offered in alternate years.

### **ANTHR 310 The Anthropology of Gender**

★3 (fi 6) (either term, 3-0-0). A comparative, cross-cultural, and cross-species perspective on biological and social aspects of sex and gender differences. Prerequisite: ANTHR 110 or 207 or 209 or consent of Department. Offered in alternate years.

### **ANTHR 311 North American Prehistory**

★3 (fi 6) (either term, 3-0-0). A survey of prehistory and cultural development in North America. Prerequisite: ANTHR 206 or consent of Department.

### **ANTHR 312 Lower Palaeolithic Prehistory**

★3 (fi 6) (either term, 3-0-0). Development of prehistoric culture in Europe, Africa and Asia during the Lower Palaeolithic. Prerequisite: ANTHR 206 or consent of Department. Offered in alternate years.

### **ANTHR 313 Middle and Upper Palaeolithic Prehistory**

★3 (fi 6) (either term, 3-0-0). Development of prehistoric culture in Europe, Africa, and Asia during the Middle and Upper Palaeolithic. Prerequisite: ANTHR 206 or consent of Department. Offered in alternate years.

### **ANTHR 320 Anthropology of Religion**

★3 (fi 6) (either term, 3-0-0). Survey of anthropological approaches to religions and related phenomena including magic, taboo, shamanism and witchcraft. Emphasis on the connection between religious ideas and practices and other aspects of social life in a variety of cultures. Prerequisite: ANTHR 207 or consent of Department. Note: Not open to students with credit in ANTHR 420.

### **ANTHR 321 Religions of China in Practice**

★3 (fi 6) (either term, 3-0-0). Contemporary Chinese religious culture as practiced in the family, community, voluntary associations, and the political sphere. Prerequisite: ANTHR 207 or 278 or consent of Department. Offered in alternate years.

### **ANTHR 322 Anthropological Perspectives on Discursive Practices**

★3 (fi 6) (either term, 3-0-0). Cultural constructions of narrative and discourse; interethnic communication, including discourse in the courtroom, classroom, and work settings; code choice; and communication via electronic media. Prerequisite: ANTHR 208 or consent of Department. Offered in alternate years.

### **ANTHR 323 Ecological Anthropology**

★3 (fi 6) (either term, 3-0-0). A consideration of the relationships between culture and the environment. Problems involving the application of basic ecological concepts and principles to human societies and evaluation of various explanatory frameworks regarding cultural adaptations. Prerequisite: ANTHR 206 or 207 or consent of Department.

### **ANTHR 324 Economic Anthropology**

★3 (fi 6) (either term, 3-0-0). Introduction to the literature and controversies within the field, emphasizing systems of exchange. Prerequisite: ANTHR 207 or consent of Department. Offered in alternate years.

### **ANTHR 332 Anthropology of Science**

★3 (fi 6) (either term, 3-0-0). Contemporary views of the nature of science, including debates about science's universalism, objectives, and culture-bound epistemologies. Prerequisite: ANTHR 230, or one of 206 to 209, or consent of Department. Offered in alternate years.

### **ANTHR 340 Anthropological Perspectives on North American Aboriginal Peoples**

★3 (fi 6) (either term, 3-0-0). Topics and issues in North American Aboriginal studies. Consult the Department and/or University timetable for specific topic offered in each year. Prerequisite: ANTHR 207 or 250 or consent of Department. Offered in alternate years.

### **ANTHR 350 Kinship and Social Structure**

★3 (fi 6) (either term, 3-0-0). Anthropological approaches to kinship systems and other concepts of social organization, emphasizing non-western societies. Prerequisite: ANTHR 207 or 213 or consent of Department. Note: Not open to students with credit in ANTHR 351, 413, or 450. Offered in alternate years.

### **ANTHR 366 Theories of Culture Change**

★3 (fi 6) (either term, 3-0-0). Theories of the nature of socio-cultural systems

and the processes of change. Prerequisite: ANTHR 207 or consent of Department. Offered in alternate years.

**ANTHR 367 Applied Anthropology**

★3 (fi 6) (either term, 3-0-0). The application of anthropologists' theory and method to contemporary problems of development. Prerequisite: ANTHR 207 or consent of Department. Offered in alternate years.

**ANTHR 370 Women in East Asian Societies**

★3 (fi 6) (either term, 3-0-0). A comparative examination of women's positions and roles in East Asian societies. Effects of law, social practice, and Confucian ideology on familial and economic structures. Prerequisite: ANTHR 278, 279, or 280, or consent of Department. Offered in alternate years.

**ANTHR 384 Topics in Physical Anthropology or Archaeology**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**ANTHR 385 Topics in Social Cultural Anthropology**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**ANTHR 390 Human Osteology**

★3 (fi 6) (either term, 3-0-3). Lecture and laboratory study of human skeletal biology, emphasizing the identification of bones and an understanding of human functional anatomy. Prerequisite: ANTHR 209 or consent of Department.

**ANTHR 391 Hominid Evolution**

★3 (fi 6) (either term, 3-0-0). A survey of the fossil evidence for human evolution. Prerequisite: ANTHR 209 or consent of Department.

**ANTHR 392 Primate Behavior**

★3 (fi 6) (either term, 3-0-0). Emphasis on field studies of non-human primates. Topics to include social organization, behavior and ecology, territorial behavior communication, reproductive behavior, and other relevant topics. Formerly ANTHR 292.

**ANTHR 393 Health and Healing**

★3 (fi 6) (either term, 3-0-0). A cross-cultural study through time of the beliefs and social activities associated with health, illness and healing. Prerequisite: ANTHR 101 or consent of Instructor.

**ANTHR 396 Archaeological Field Training**

★6 (fi 12) (Spring/Summer, 3-0-3). Instruction in all practical aspects of archaeological field techniques, including excavation, survey, recording, photography, and conservation. This course can be applied to the Canadian content requirement when held at a Canadian site. Prerequisites: ANTHR 206 or equivalent, and consent of Department.

**ANTHR 397 Anthropological Field Training**

★6 (fi 12) (Spring/Summer, 3-0-3). Students gather primary data and analyze a single community. In years when the course is held in Canada, it will fulfill Canadian content requirements. Prerequisite: ANTHR 207 or consent of Department.

**ANTHR 400 Honors Seminar**

★3 (fi 6) (first term, 0-3s-0). Contemporary issues in Anthropology, and identification and approval of an Honors thesis topic. Note: Open only to fourth year Honors students.

**ANTHR 401 Ethnographic Methods**

★3 (fi 6) (either term, 0-3s-0). Discussion of issues in methodology and field methods. Restricted to senior undergraduate students. Prerequisite: ANTHR 207 or consent of Department. Offered in alternate years.

**ANTHR 407 Paleopathology**

★3 (fi 6) (either term, 2-0-1). A detailed survey of disease processes in antiquity as expressed in skeletal and preserved tissues. Prerequisite: ANTHR 390 or consent of Department. Offered in alternate years.

**ANTHR 408 Methods in Linguistic Anthropology**

★3 (fi 6) (either term, 0-3s-0). Topics in field methods and analytic techniques and their extensions in socio-cultural anthropology. Prerequisite: consent of Department. Offered in alternate years.

**ANTHR 414 Peasant Society and Culture**

★3 (fi 6) (either term, 0-3s-0). Modes of production, social organization and other aspects of culture in agrarian societies, including anthropological perspectives on development. Prerequisites: ANTHR 207 and one other senior-level course. Offered in alternate years.

**ANTHR 415 History of Anthropological Theory**

★3 (fi 6) (either term, 3-0-0). Major theoretical trends in social and cultural anthropology in the nineteenth and twentieth centuries. Prerequisites: ANTHR 207 or 208 and a 300- or 400-level anthropology course, or consent of Department.

**ANTHR 416 History of Linguistic Anthropology**

★3 (fi 6) (either term, 3-0-0). Major theoretical trends in linguistic anthropology presented in a historical context. Prerequisite: ANTHR 208 or any other 200-level ANTHR course or consent of Department. Offered in alternate years.

**ANTHR 417 Anthropology of Modernity**

★3 (fi 6) (either term, 0-3s-0). The course investigates recent works that theorize modernity (globalization, transnationalism, the impact of new technologies) from an

ethnographic perspective. Prerequisite: ANTHR 207 or 208 and a 300- or 400-level ANTHR course, or consent of Department. Offered in alternate years.

**ANTHR 422 Anthropological Approaches to Verbal Art**

★3 (fi 6) (either term, 3-0-0). A review of anthropological approaches to verbal performances in various cultures. Attention to narrative forms, including myth, folklore and oral history, and to ritual language, including oratory and prayer. Prerequisite: ANTHR 207 or 208 or consent of Department. Offered in alternate years.

**ANTHR 424 Visual Anthropology**

★3 (fi 6) (either term, 3-0-0). Introduction to visual media and visualization in the creation, reproduction and comprehension of culture over time, and the use of imagery in describing the anthropological subject. Prerequisite: Consent of Department. Note: Offered in alternate years.

**ANTHR 433 The Ethnographic Study of Meaning**

★3 (fi 6) (either term, 3-0-0). An exploration of the theory and practice of 'writing culture' through consideration of classic and contemporary ethnographic monographs, together with recent contributions to contemporary cultural theory. Prerequisites: ANTHR 207 or 208 and a 300- or 400-level anthropology course, or consent of Department. Offered in alternate years.

**ANTHR 436 Ethnography of Communication**

★3 (fi 6) (either term, 1-0-2). Data collection and analysis of communicative competence, that is, how speakers interact in a given community. Prerequisite: Any 200-level course in ANTHR, or consent of Department. Offered in alternate years.

**ANTHR 437 Language, Ethnicity, and Nationalism**

★3 (fi 6) (either term, 0-3s-0). The impact of nationalism on language and culture in a variety of societies. Topics include development of national cultures and national languages; bilingualism and the creolization of language and culture; status of ethnic minorities; linguistic and cultural grounds for separatist movements; maintenance of transnational linkages in diaspora communities. Prerequisites: ANTHR 207, or 208 or consent of Department. Offered in alternate years.

**ANTHR 438 Language Use and Issues in Northern Canada**

★3 (fi 6) (either term, 0-3s-0). Languages in the Canadian North in the contemporary context. Discussion of language laws and policies in northern regions. Study of linguistic behavior in specific communities. Prerequisite: ANTHR 208 or any other 200-level ANTHR course, or consent of Department. Offered in alternate years.

**ANTHR 441 Archaeometry**

★3 (fi 6) (either term, 3-0-0). Analytical methodology for interpreting the material record of the past; structures of materials at the microscopic and macroscopic levels; raw materials and production technologies; provenance; dating; prospection; sampling and measure. Archaeological case studies are used throughout. Prerequisite: ANTHR 206 or consent of Department. Offered in alternate years.

**ANTHR 446 Circumpolar Ethnology**

★3 (fi 6) (either term, 3-0-0). A critical examination of anthropological models applied to traditional societies in the circumpolar regions. Prerequisites: ANTHR 246, one other course in anthropology, or consent of Department. Offered in alternate years.

**ANTHR 450 Honors Thesis**

★3 (fi 6) (either term, variable). Preparation of the BA Honors thesis under the supervision of an individual faculty member. Prerequisites: ANTHR 400 and consent of Department. Note: not open to students with credit in ANTHR 499.

**ANTHR 463 The Origins of Food Production**

★3 (fi 6) (either term, 0-3s-0). Archaeological evidence for the development of food production in the Old and New Worlds, discussed in the context of the major explanatory theories advanced. Prerequisite: ANTHR 206 or consent of Department. Offered in alternate years.

**ANTHR 471 Readings in Anthropology**

★3 (fi 6) (either term, 0-3s-0). Individual research project conducted under the direction of a Department faculty member. Prerequisite: consent of Department.

**ANTHR 472 Independent Research**

★3 (fi 6) (either term, 0-0-3). Individual research project involving significant laboratory work conducted under the direction of a Department faculty member. Prerequisite: consent of Department.

**ANTHR 474 Northwest Coast Societies from an Anthropological Perspective**

★3 (fi 6) (either term, 0-3s-0). A survey of the cultures of the Northwest Coast from Yakutat Bay to the Columbia River. Cultures will be examined from the perspectives of the ethnographic present, historical change, and current developments. Focal areas include Social structure, kinship, economic systems, material culture, ethnoaesthetics, winter dance ceremonial complexes, and language. Prerequisite: ANTHR 207 or 250 or consent of Department. Offered in alternate years.

**ANTHR 475 Advanced Topics in the Anthropology of Japan**

★3 (fi 6) (either term, 0-3s-0). An examination of anthropological approaches to the study of Japan and considers how Japanese society is presented by Japanese and foreign commentators. Stereotypes of Japanese society and bases

for those views are examined. Where and how changes are occurring in views of Japan and in the society itself are examined through specific topics. Offered in alternate years.

**ANTHR 479 Geoarchaeology**

★3 (*fi 6*) (either term, 3-0-3). Application of earth science methods to archaeological research. Prerequisite: EAS 101 or 201. Offered in alternate years.

**ANTHR 481 Development of Anthropological Archaeology**

★3 (*fi 6*) (either term, 3-0-0). A survey of approaches and practices used in archaeology; concepts and models used for interpreting archaeological data and cultural history; relation of culture historical explanations to general anthropological theory. Prerequisites: ANTHR 206 and a 300- or 400-level anthropology course, or consent of Instructor. Offered in alternate years.

**ANTHR 482 Topics in Linguistic Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: consent of Department.

**ANTHR 484 Topics in Archaeology and/or Physical Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Consult the Department and/or the University timetable for the specific topic offered each year. Prerequisite: consent of Department.

**ANTHR 485 Topics in Social and Cultural Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Consult the Department and/or the University timetable for the specific topic offered each year. Prerequisite: consent of Department.

**ANTHR 486 Seminar in Archaeology and/or Physical Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Consult the Department and/or the University timetable for the specific topic offered each year. Prerequisite: consent of Department.

**ANTHR 487 Seminar in Social and Cultural Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Consult the Department and/or the University timetable for the specific topic offered each year. Prerequisite: consent of Department.

**ANTHR 488 Quaternary Pollen Analysis**

★3 (*fi 6*) (either term, 3-0-3). Prerequisite: consent of Department. Offered in alternate years.

**ANTHR 489 Seminar in Linguistic Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: consent of Department.

**ANTHR 490 Human Osteoarchaeology**

★3 (*fi 6*) (either term, 3-0-0). The analysis and interpretation of data obtained from human skeletal and dental remains from archaeological sites. Prerequisite: ANTHR 390 or consent of Department. Offered in alternate years.

**ANTHR 491 Stone Tools**

★3 (*fi 6*) (either term, 3-0-0). A methodological and theoretical introduction to the analysis of stone tools. Prerequisites: ANTHR 206 and one other 400-level course in Anthropology or consent of Department. Offered in alternate years.

**ANTHR 492 Problems in Primate Behavior**

★3 (*fi 6*) (either term, 3-0-0). Examines kin selection in primates, sexual differentiation of behavior, evolution of primate behavior patterns, appropriateness of infraprimate analogies to human behavior. Prerequisite: ANTHR 392 or consent of Department. Offered in alternate years.

**ANTHR 493 The Culture of Biomedicine**

★3 (*fi 6*) (either term, 0-3s-0). Contemporary medical practices, health perceptions, healing systems and their relationship to contemporary North American culture. Prerequisite: ANTHR 393 or consent of Department. Offered in alternate years.

**ANTHR 494 Forensic Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Human skeletal individualization and its application to human death investigation. Prerequisite: ANTHR 390 or 490 or consent of Department.

**ANTHR 495 Archaeological Methods**

★3 (*fi 6*) (either term, 3-0-0). The application of archaeological theory and methods to field and laboratory problems. Prerequisites: ANTHR 206 and one other 400-level course in Anthropology, or consent of Department. Offered in alternate years.

**ANTHR 498 History of Physical Anthropology**

★3 (*fi 6*) (either term, 3-0-0). A survey of the development of theory and method in physical anthropology. Prerequisites: ANTHR 209 and a 300- or 400-level anthropology course, or consent of Department. Offered in alternate years.

## Graduate Courses

Note: See also INT D 594 for a course which is offered by more than one Department or Faculty and which may be taken as an option or as a course in this discipline.

**ANTHR 500 MA Thesis Prospectus**

★3 (*fi 6*) (either term, 0-3s-0). Preparation of a research proposal leading to

the MA thesis. The prospectus will state the proposed research problem, and demonstrate the theoretical and methodological knowledge required to complete the research.

**ANTHR 501 MA Colloquium**

★3 (*fi 6*) (first term, 0-3s-0). Readings, presentations, and discussions of staff research, recent advances and current issues in the four fields of anthropology. Limited to new MA students

**ANTHR 508 Methods in Linguistic Anthropology**

★3 (*fi 6*) (either term, 0-3s-3). Topics in field methods and analytic techniques and their extensions in socio-cultural anthropology. Prerequisite: consent of Department. Offered in alternate years. Note: Not open to students with credit in ANTHR 408.

**ANTHR 511 Ethnographic Field Methods I**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: consent of Department. Note: Not open to students with credit in ANTHR 401 or 505. Offered in alternate years.

**ANTHR 517 Anthropology of Modernity**

★3 (*fi 6*) (either term, 0-3s-0). Investigates recent works that theorize modernity (globalization, transnationalism, the impact of new technologies) from an ethnographic perspective. Prerequisite: consent of Department. Offered in alternate years.

**ANTHR 521 Topics in Medical Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: ANTHR 393 or 407; or consent of Department.

**ANTHR 524 Visual Anthropology**

★3 (*fi 6*) (either term, 3-0-0). Introduction to visual media and visualization in the creation, reproduction and comprehension of culture over time, and the use of imagery in describing the anthropological subject. Prerequisite: Consent of Department. Note: Offered in alternate years.

**ANTHR 531 Traditions, Technology and Knowledge**

★3 (*fi 6*) (either term, 0-3s-0). Examination of the relationships among technology, social practices and belief systems; role of technology in mediating societies' relationship with nature; and changes occurring in valued practices resulting from external perturbations. Comparison of local- and state-level systems of environmental management.

**ANTHR 532 Science and Culture**

★3 (*fi 6*) (either term, 0-3s-0). An examination of the perception of science in contemporary society and its formation. A review of debates concerning the theoretical positions of positivism, postmodernism, and the impact of feminist and postcolonial critiques on the formation of scientific thought. New directions within anthropology concerning cultures of science and science as culture are highlighted.

**ANTHR 537 Language, Ethnicity, and Nationalism**

★3 (*fi 6*) (either term, 0-3s-0). The impact of nationalism on language and culture in a variety of societies. Topics include development of national cultures and national languages; bilingualism and the creolization of language and culture; status of ethnic minorities; linguistic and cultural grounds for separatist movements; maintenance of transnational linkages in diaspora communities. Prerequisite: consent of Department. Not open to students with credit in ANTHR 437. Offered in alternate years

**ANTHR 538 Language Use and Issues in Northern Canada**

★3 (*fi 6*) (either term, 0-3s-0). Languages in the Canadian North in the contemporary context. Discussion of language laws and policies in northern regions. Study of linguistic behavior in specific communities. Prerequisite: ANTHR 208 or any other 200- level ANTHR course, or consent of Department. Offered in alternate years.

**ANTHR 571 Advanced Readings in Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Individual research project conducted under the direction of a Department faculty member. Prerequisite: consent of Department.

**ANTHR 572 Independent Research**

★3 (*fi 6*) (either term, 0-0-3). Individual research project involving significant laboratory or field work conducted under the supervision of a Department faculty member. Prerequisite: consent of the Department.

**ANTHR 582 Advanced Topics in Linguistic Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: consent of Department.

**ANTHR 584 Advanced Topics in Archaeology and/or Physical Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Consult the Department and/or the University timetable for the specific topic offered each year. Prerequisite: consent of Department.

**ANTHR 585 Advanced Topics in Social and Cultural Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Consult the Department and/or the University timetable for the specific topic offered each year. Prerequisite: consent of Department.

**ANTHR 586 Advanced Seminar in Archaeology and/or Physical Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Consult the Department and/or the University timetable for the specific topic offered each year. Prerequisite: consent of Department.



**ANTHR 587 Advanced Seminar in Social and Cultural Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Consult the Department and/or the University timetable for the specific topic offered each year. Prerequisite: consent of Department.

**ANTHR 589 Advanced Seminar in Linguistic Anthropology**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: consent of Department. Note: Consult with the Department for the specific topic offered each year.

**ANTHR 593 Evolution and Social Life**

★3 (*fi 6*) (either term, 0-3s-0). Current perspectives on human biological, social and cultural evolution. Prerequisite: consent of Department. Note: Offered in alternate years.

**ANTHR 598 Landscape and Culture**

★3 (*fi 6*) (either term, 0-3s-0). Cultural experiences and representations of landscape.

**ANTHR 600 PhD Thesis Prospectus**

★3 (*fi 6*) (either term, 0-3s-0). Preparation of a research proposal leading to the PhD thesis. The prospectus states the proposed research problem, and demonstrates the theoretical and methodological knowledge required to complete the research.

**ANTHR 601 PhD Colloquium**

★3 (*fi 6*) (first term, 0-3s-0). Readings, presentations, and discussions of staff research, recent advances and current issues in the four fields of anthropology. Limited to new PhD students. Optional for students with credit in ANTHR 501

## 221.17 Arabic, ARAB

Department of Modern Languages and Cultural Studies  
Faculty of Arts

**Notes**

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess prior background. Students with an Arabic language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in a more advanced course suitable to their level of ability. Students seeking to fulfill their Language Other than English requirement may begin at any one appropriate level, but must take the full ★6 in one language.
- (3) The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should a student with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.

### Undergraduate Courses

**ARAB 111 Beginners' Arabic I**

★3 (*fi 6*) (either term, 5-0-0). Introduction to pronunciation, reading, writing, and conversation. Note: not to be taken by students with native or near native proficiency, or Arabic 35 or its equivalents in Canada and other countries. Not open to students with credit in ARAB 100.

**ARAB 112 Beginners' Arabic II**

★3 (*fi 6*) (either term, 5-0-0). Continuation of ARAB 111. Prerequisite: ARAB 111 or consent of Department. Note: not to be taken by students with native or near native proficiency, or Arabic 35 or its equivalents in Canada and other countries. Not open to students with credit in ARAB 100.

**ARAB 211 Intermediate Arabic I**

★3 (*fi 6*) (either term, 3-0-0). Continuation of ARAB 112, emphasizing building an extensive vocabulary in everyday situations. Prerequisite: ARAB 112 or consent of Department. Note: not open to students with credit in ARAB 301 or 302.

**ARAB 212 Intermediate Arabic II**

★3 (*fi 6*) (either term, 3-0-0). Exercises in comprehension, translation and composition. Further study of grammar. Prerequisite: ARAB 211 or consent of Department. Note: not open to students with credit in ARAB 301 or 302.

**ARAB 499 Special Topics**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: consent of Department.

## 221.18 Art, ART

Department of Art and Design  
Faculty of Arts

**Note:** Because presence at lectures and seminars, participation in classroom discussion, and the completion of assignments are important components of most courses, regular attendance is expected.

This applies particularly to studio courses where attendance is a factor in grading.

Students are expected to have successfully completed prerequisite course(s) with a minimum grade of B-. Consent of Department may be withheld in cases where the grade in a prerequisite course is below a B-.

### Undergraduate Courses

**ART 134 Art Fundamentals**

★3 (*fi 6*) (either term, 0-6L-0). Studio-based exploration of both visual and conceptual Fine Art concerns in two- and three-dimensions. Note: ART 134 and DES 135 are required prerequisites for senior level ART or DES courses. Not open to students with credit in ART 131 or 132.

**ART 136 Art Fundamentals I**

★3 (*fi 6*) (first term, 0-6L-0). Studio-based exploration of both visual and conceptual Fine Art concerns in two- and three-dimensions. Note: Restricted to BFA and BDesign students.

**ART 137 Art Fundamentals II**

★3 (*fi 6*) (second term, 0-6L-0). Further study of studio-based exploration of both visual and conceptual Fine Art concerns in two- and three-dimensions. Note: Restricted to BFA and BDesign students.

**ART 140 Drawing I**

★3 (*fi 6*) (either term, 0-6L-0). Study of the principles and techniques of drawing. Note: Restricted to BFA and BDesign students. Pre- or corequisites: ART 136, 137, DES 138, 139 and consent of Department.

**ART 268 Introduction to Studio**

★3 (*fi 6*) (first term, 0-6L-0). Directed study in one subject embraced by ART 322. Prerequisites: ART 134 and DES 135 or ART 136 and DES 138 and consent of Department. Note: Restricted to students in the Faculty of Education.

**ART 310 Painting: Introductory Studies I**

★3 (*fi 6*) (first term, 0-6L-0). Introduction to the principles, concepts, and techniques of painting. Projects based on observation with reference to both historical and contemporary examples. Acrylic medium. Prerequisites: ART 134 and DES 135 or ART 136 and DES 138 and consent of Department. Note: Not open to students with credit in ART 312.

**ART 311 Painting: Introductory Studies II**

★3 (*fi 6*) (second term, 0-6L-0). Continued exploration of the principles, concepts and techniques of painting. Projects based on observation with reference to both historical and contemporary examples. Oil medium. Prerequisites: ART 310 and consent of Department. Note: Not open to students with credit in ART 312.

**ART 316 Painting: Introductory Studies III**

★3 (*fi 6*) (first term, 0-6L-0). Additional exploration in painting for students wishing more in-depth study at the introductory level. Acrylic and oil media. Pre- or corequisites: ART 310 and consent of Department. Note: Not open to students with credit in ART 313.

**ART 317 Painting: Introductory Studies IV (Life Painting)**

★3 (*fi 6*) (second term, 0-6L-0). Introduction to painting the figure with emphasis on working from the life model. Prerequisites: ART 310, 316; or ART 310 and prerequisite or corequisite: ART 311, and consent of Department. Note: Not open to students with credit in ART 313.

**ART 322 Printmaking: Introductory Studies I**

★6 (*fi 12*) (two term, 0-6L-0). Introduction to the principles and technical applications of printmaking through the study of screen printing, intaglio and relief process. Prerequisites: ART 134 and DES 135 or ART 136 and DES 138 and consent of Department.

**ART 323 Printmaking: Introductory Studies II**

★6 (*fi 12*) (two term, 0-6L-0). Further study of the principles and technical applications of screen printing, relief and intaglio processes, emphasizing the use of color. Pre- or corequisites: ART 322 and consent of Department.

**ART 337 Special Projects in Studio Disciplines**

★6 (*fi 12*) (two term, 0-6L-0). Special projects in studio disciplines not normally available under existing courses. Normally offered in Spring/Summer. Prerequisites: ART 134 and DES 135 or ART 136 and DES 138 and consent of Department.

**ART 338 Special Projects in Studio Disciplines**

★3 (*fi 6*) (either term, 0-6L-0). Special projects in studio disciplines not normally available under existing courses. Prerequisites: ART 134 and DES 135 or ART 136 and DES 138 and consent of Department.

**ART 339 Special Projects in Drawing**

★6 (*fi 12*) (two term, 0-6L-0). Special drawing projects not normally available under existing courses. Note: BFA and BDesign students may use ART 339 in lieu of ART 140/340 upon consent of Department. Offered in Spring/Summer only. Prerequisites: ART 134 and DES 135, or ART 136 and DES 138 and consent of Department.

**ART 340 Drawing II**

★3 (*fi 6*) (either term, 0-6L-0). Development and application of techniques and

concepts of drawing with emphasis on drawing from the life model. Note: Restricted to BFA and BDesign students. Prerequisite: ART 140.

**ART 361 Sculpture: Introductory Studies in Abstract Sculpture**

★3 (fi 6) (either term, 0-6L-0). Foundation studies in abstract sculpture. Prerequisites: ART 134 and DES 135, or ART 136 and DES 138 and consent of Department. Corequisite: Normally ART 362, to be taken in the same academic year. Not open to students with credit in ART 362 ★6 offered prior to 1992-93.

**ART 362 Sculpture: Introductory Studies in Figurative Sculpture**

★3 (fi 6) (either term, 0-6L-0). Foundation studies in figurative sculpture. Prerequisites: ART 134 and DES 135, or ART 136 and DES 138, and consent of Department. Corequisite: Normally ART 361, to be taken in the same academic year. Not open to students with credit in ART 362 ★6 offered prior to 1992-93.

**ART 365 Sculpture: Introductory Studies III**

★3 (fi 6) (first term, 0-6L-0). Further foundation studies in sculpture. Pre- or co-requisites: ART 361 and 362 and consent of the Department. Note: Not open to students with credit in ART 363 (★6).

**ART 366 Sculpture: Introductory Studies IV**

★3 (fi 6) (second term, 0-6L-0). Further foundation studies in sculpture. Pre- or co-requisites: ART 361 and 362 and consent of the Department. Note: Not open to students with credit in ART 363 (★6).

**ART 410 Painting: Intermediate Studies I**

★3 (fi 6) (first term, 0-6L-0). A project based course exploring principles, concepts and techniques of painting. Prerequisites: ART 310, 311 and consent of Department. Note: Not open to students with credit in ART 412.

**ART 411 Painting: Intermediate Studies II**

★3 (fi 6) (second term, 0-6L-0). Further study of advanced principles, concepts and techniques of painting, leading to self-initiated projects. Prerequisites: ART 410 and consent of Department. Note: Not open to students with credit in ART 412.

**ART 418 Painting: Intermediate Figure Studies I**

★3 (fi 6) (first term, 0-6L-0). Further study in painting the figure with emphasis on painting from the life model. Prerequisites: ART 310, 311, 317, and prerequisite or corequisite ART 410 and consent of Department. Note: Not open to students with credit in ART 414.

**ART 419 Painting: Intermediate Figure Studies II**

★3 (fi 6) (second term, 0-6L-0). Further study in painting the figure with emphasis on painting from the life model. Prerequisites: ART 418 and consent of Department. Note: Not open to students with credit in ART 414.

**ART 422 Printmaking: Intermediate Studies I**

★6 (fi 12) (two term, 0-6L-0). Study of the principles and technical applications of printmaking with an emphasis on lithography and etching. Prerequisites: ART 322 and consent of Department.

**ART 423 Printmaking: Intermediate Studies II**

★6 (fi 12) (two term, 0-6L-0). Further study of the principles and technical applications of lithography and etching with emphasis on the use of color. Pre- or corequisites: ART 422 and consent of Department.

**ART 425 Word and Image: Intermediate Projects in Printmaking for Artists and Designers**

★6 (fi 12) (two term, 0-6L-0). Exploration of the multiple relationships between word and image generated through consideration of text. Prerequisite: ART 322. Corequisite: ART 422. Note: ART 425 and DES 425 will be taught in conjunction. Registration priority given to BDesign Printmaking Route students registering in DES 425. Not open to students who have successfully completed DES 425.

**ART 437 Special Projects in Studio Disciplines**

★6 (fi 12) (two term, 0-6L-0). Special projects in studio disciplines not normally available under existing courses. Normally offered in Spring/Summer. Prerequisite: consent of Department.

**ART 438 Special Projects in Studio Disciplines**

★3 (fi 6) (either term, 0-6L-0). Special projects in studio disciplines not normally available under existing courses. Prerequisite: consent of Department.

**ART 439 Special Projects in Drawing: Intermediate**

★6 (fi 12) (two term, 0-6L-0). Normally offered in Spring/Summer. Prerequisites: ART 140 and 340, or 339 and consent of Department.

**ART 440 Drawing: Intermediate Studies**

★3 (fi 6) (first term, 0-6L-0). Further study and application of the techniques and concepts of drawing. Note: Restricted to BFA and BDesign students. Prerequisite: ART 339 or ART 340.

**ART 441 Drawing: Intermediate Studies**

★3 (fi 6) (second term, 0-6L-0). Further study and application of techniques and concepts of drawing. Note: Restricted to BFA and BDesign students. Prerequisite: ART 440. Not open to students with credit in ART 440 (★6) offered prior to 1995-96.

**ART 450 Installation Art: Intermediate Studies**

★3 (fi 6) (either term, 0-6L-0). Study and application of techniques and concepts of installation art. Prerequisites: a minimum of ★12 in 300-level ART courses, and consent of Department.

**ART 465 Sculpture: Intermediate Studies I**

★3 (fi 6) (first term, 0-6L-0). Intermediate studies in sculpture. Prerequisites: ART 361 and 362 and/or consent of the Department. Note: Not open to students with credit in ART 462 (★6).

**ART 466 Sculpture: Intermediate Studies II**

★3 (fi 6) (second term, 0-6L-0). Intermediate studies in sculpture. Prerequisites: ART 361 and 362 and consent of the Department. Note: Not open to students with credit in ART 462 (★6).

**ART 467 Sculpture: Intermediate Studies III**

★3 (fi 6) (first term, 0-6L-0). Further intermediate studies in sculpture. Pre- or co-requisites: ART 465 and 466 and/or consent of the Department. Note: Not open to students with credit in ART 463 (★6).

**ART 468 Sculpture: Intermediate Studies IV**

★3 (fi 6) (second term, 0-6L-0). Further intermediate studies in sculpture. Pre- or co-requisites: ART 465 and 466 and/or consent of the Department. Note: Not open to students with credit in ART 463 (★6).

**ART 510 Painting: Advanced Studies I**

★3 (fi 6) (first term, 0-6L-0). Individual directed study in a studio/workshop environment. Prerequisites: ART 410, 411 and consent of Department. Note: Not open to students with credit in ART 512.

**ART 511 Painting: Advanced Studies II**

★3 (fi 6) (second term, 0-6L-0). Individual directed study in a studio/workshop environment. Prerequisites: ART 510 or 516 and/or consent of Department. Note: Not open to students with credit in ART 512.

**ART 516 Painting: Advanced Studies III**

★3 (fi 6) (first term, 0-6L-0). Individual directed study in a studio/workshop environment. Prerequisites: ART 410, 411 and consent of Department. Note: Not open to students with credit in ART 513.

**ART 517 Painting: Advanced Studies IV**

★3 (fi 6) (second term, 0-6L-0). Individual directed study in a studio/workshop environment. Prerequisites: ART 510 or 516 and/or consent of Department. Note: Not open to students with credit in ART 513.

**ART 518 Painting: Advanced Figure Studies V**

★3 (fi 6) (first term, 0-6L-0). Individual directed study in a studio/workshop environment emphasizing the human figure as subject matter. Prerequisites: ART 418, 419 and prerequisite or corequisite: ART 510 or 516 and/or consent of Department. Note: Not open to students with credit in ART 514.

**ART 519 Painting: Advanced Figure Studies VI**

★3 (fi 6) (second term, 0-6L-0). Individual directed study in a studio/workshop environment emphasizing the human figure as subject matter. Prerequisites: ART 518 or ART 418, 419 and one of ART 510, 516 and/or consent of Department. Note: Not open to students with credit in ART 514.

**ART 522 Printmaking: Advanced Studies I**

★6 (fi 12) (two term, 0-6L-0). Advanced study of the principles and technical applications of printmaking emphasizing mixed media and photographic techniques. Prerequisites: ART 422 and consent of Department.

**ART 523 Printmaking: Advanced Studies II**

★6 (fi 12) (two term, 0-6L-0). Continued advanced study of the principles and technical applications of printmaking emphasizing individual development. Pre- or corequisites: ART 522 and consent of Department.

**ART 524 Printmaking: Advanced Studies III**

★6 (fi 12) (two term, 0-6L-0). Advanced individual study of drawing and other image-making processes and their application in printmaking. Pre- or corequisites: ART 523 and consent of Department.

**ART 525 Word and Image: Advanced Projects in Printmaking for Artists and Designers**

★6 (fi 12) (two term, 0-6L-0). Exploration of the multiple relationships between word and image generated through consideration of text. Prerequisite: ART 422 and ART 425. Corequisite: ART 522. Note: ART 525 and DES 525 are taught in conjunction. Registration priority given to BDesign Printmaking Route students registering in DES 525. Not open to students who have successfully completed DES 525.

**ART 537 Special Projects in Studio Disciplines**

★6 (fi 12) (two term, 0-6L-0). Special projects in studio disciplines not normally available under existing courses. Normally offered in Spring/Summer. Prerequisite: consent of Department.

**ART 538 Special Projects in Studio Disciplines**

★3 (fi 6) (either term, 0-6L-0). Special projects in studio disciplines not normally available under existing courses. Prerequisite: consent of Department.

**ART 539 Special Projects in Drawing: Advanced**

★6 (fi 12) (two term, 0-6L-0). Normally offered in Spring/Summer. Prerequisites: ART 439, or ART 440 and 441, and consent of Department.

**ART 540 Drawing: Advanced Studies**

★3 (fi 6) (first term, 0-6L-0). Prerequisite: ART 439, or ART 440 and 441. Note: Restricted to BFA and BDesign students.

**ART 541 Drawing: Advanced Studies**

★3 (fi 6) (second term, 0-6L-0). Prerequisite: ART 540. Note: Restricted to BFA and BDesign students. Not open to students with credit in ART 540 (★6) offered before 1995/96.

**ART 550 Installation Art: Advanced Studies**

★3 (fi 6) (either term, 0-6L-0). Prerequisites: ART 450 or ★12 in 400-level ART courses, and consent of Department.

**ART 560 Sculpture: Advanced Studies VI**

★3 (fi 6) (second term, 0-6L-0). Further advanced studies in sculpture. Pre- or co requisites: ART 567 and 568 and/or consent of the Department. Note: Not open to students with credit in ART 564 (★6).

**ART 565 Sculpture: Advanced Studies I**

★3 (fi 6) (first term, 0-6L-0). Further foundation studies in sculpture. Pre- or co requisites: ART 465 and 466 and/or consent of the Department. Note: Not open to students with credit in ART 562 (★6).

**ART 566 Sculpture: Advanced Studies II**

★3 (fi 6) (either term, 0-6L-0). Further advanced studies in sculpture. Pre- or co requisites: ART 465 and 466 and/or consent of the Department. Note: Not open to students with credit in ART 562 (★6).

**ART 567 Sculpture: Advanced Studies III**

★3 (fi 6) (first term, 0-6L-0). Further advanced studies in sculpture. Pre- or co requisites: ART 565 and 566 and/or consent of the Department. Note: Not open to students with credit in ART 563 (★6).

**ART 568 Sculpture: Advanced Studies IV**

★3 (fi 6) (second term, 0-6L-0). Further advanced studies in sculpture. Pre- or co requisites: ART 565 and 566 and/or consent of the Department. Note: Not open to students with credit in ART 563 (★6).

**ART 569 Sculpture: Advanced Studies V**

★3 (fi 6) (first term, 0-6L-0). Further advanced studies in sculpture. Pre- or co requisites: ART 567 and 568 and/or consent of the Department. Note: Not open to students with credit in ART 564 (★6).

**Graduate Courses****ART 612 Painting: Concepts, Analysis, and Criticism**

★6 (fi 12) (either term, 0-18L-0).

**ART 613 Painting: Development of Concepts, Analysis, and Criticism**

★6 (fi 12) (either term, 0-18L-0).

**ART 622 Printmaking: Concepts, Analysis, and Criticism**

★6 (fi 12) (either term, 0-18L-0).

**ART 623 Printmaking: Development of Concepts, Analysis and Criticism**

★6 (fi 12) (either term, 0-18L-0).

**ART 630 Seminar in Related Disciplines**

★3 (fi 6) (either term, 0-2s-0).

**ART 640 Drawing: Concepts, Analysis and Criticism**

★6 (fi 12) (either term, 0-18L-0).

**ART 641 Drawing: Development of Concepts, Analysis and Criticism**

★6 (fi 12) (either term, 0-18L-0).

**ART 662 Sculpture: Concepts, Analysis, and Criticism**

★6 (fi 12) (either term, 0-18L-0).

**ART 663 Sculpture: Development of Concepts, Analysis, and Criticism**

★6 (fi 12) (either term, 0-18L-0).

**221.19 Art dramatique, ADRAM**

Faculté Saint-Jean

**Cours de 1er cycle****0 ADRAM 101 Introduction à l'art théâtral**

★3 (fi 6) (l'un ou l'autre semestre, 2-0-2). Les origines et le développement de l'art théâtral, notions de base sur la production d'un spectacle de théâtre: de la conception à la réalisation. Analyses critiques de pièces auxquelles les étudiants assistent.

**0 ADRAM 103 Les procédés dramatiques**

★3 (fi 6) (l'un ou l'autre semestre, 2-0-2). Approche pratique et théorique au développement des ressources humaines par l'art dramatique. Introduction au jeu et à la forme théâtrale, avec insistance sur le processus de création, la stimulation des capacités de communiquer et de s'exprimer, l'imagination, la spontanéité. La découverte de l'improvvisation.

**0 ADRAM 201 Survol historique du théâtre universel**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Styles et formes du spectacle théâtral et leur relation changeante entre l'espace de jeu et le public, à partir du théâtre grec et romain jusqu'à nos jours. Oeuvres majeures, artistes et artisans du théâtre qui ont aidé au développement du langage théâtral tel que nous le connaissons aujourd'hui. Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits en ADRAM 301.

**ADRAM 302 Survol historique du théâtre canadien**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Évolution du théâtre canadien des origines jusqu'à nos jours; vue d'ensemble contemporaine sur l'histoire du théâtre, dans laquelle les auteurs dégagent les étapes qui allaient amener les Canadiens à s'exprimer totalement dans cet art; évaluation critique des spectacles auxquels les étudiants assistent.

**ADRAM 484 Création**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Théorie et pratique du processus créatif dans l'écriture; introduction aux procédés discursifs de la poésie, du roman et de la pièce de théâtre. Préalable(s): FRANC 235 et ★3 de littérature de niveau 300. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits en FRANC 484.

**221.20 Art History, ART H**

Department of Art and Design  
Faculty of Arts

**Note:** Because presence at lectures and seminars, participation in classroom discussion, and the completion of assignments are important components of most courses, students serve their best interest by regular attendance.

This particularly applies to seminars in the History of Art and Design, and Visual Culture where attendance is a factor in grading.

**Undergraduate Courses****1 ART H 101 History of Art, Design, and Visual Culture I**

★3 (fi 6) (either term, 3-0-0). Introduction to Western Art, Design and Visual Culture to the end of the 14th century.

**1 ART H 102 History of Art, Design and Visual Culture II**

★3 (fi 6) (either term, 3-0-0). Introduction to Western Art, Design and Visual Culture from the 15th century to the present.

**ART H 202 Survey of Renaissance Art I**

★3 (fi 6) (either term, 3-0-0). History of the visual arts of the 15th and 16th centuries in Northern Europe.

**ART H 203 Survey of Northern Baroque Art**

★3 (fi 6) (either term, 3-0-0). History of the visual arts of the 17th century in Northern Europe.

**ART H 204 Survey of 18th-Century Art**

★3 (fi 6) (either term, 3-0-0). History of the visual arts of Europe during the 18th century.

**ART H 205 Survey of 19th-Century Art I**

★3 (fi 6) (either term, 3-0-0). History of the visual arts of the first half of the 19th century in Europe.

**ART H 206 Survey of 20th-Century Art I**

★3 (fi 6) (either term, 3-0-0). History of the visual arts up to World War II in Europe and North America.

**ART H 207 Survey of Early Canadian Art**

★3 (fi 6) (either term, 3-0-0). History of the visual arts from the 17th century to the end of the 19th century in Canada.

**ART H 209 Survey of the History of Design**

★3 (fi 6) (either term, 3-0-0). Introduction to the development of design since the Industrial Revolution.

**ART H 210 Survey of the History of Photography**

★3 (fi 6) (either term, 3-0-0). A study of photography from its invention in the 19th century to its impact in the 20th century.

**ART H 249 Visual Culture and Advertising**

★3 (fi 6) (either term, 3-0-0). The history of visual advertising practices from the late 19th century to the present.

**ART H 251 Survey of Romanesque and Gothic Art**

★3 (fi 6) (either term, 3-0-0). History of the visual arts in Europe from the 11th to the 14th century.

**ART H 252 Survey of Renaissance Art II**

★3 (fi 6) (either term, 3-0-0). History of the visual arts of the 15th and 16th centuries in Italy.

**ART H 253 Survey of Southern Baroque Art**

★3 (fi 6) (either term, 3-0-0). History of the visual arts of the 17th century in Southern Europe.

**ART H 255 Survey of 19th-Century Art II**

★3 (fi 6) (either term, 3-0-0). History of the visual arts of the second half of the 19th century in Europe.

**ART H 256 Survey of 20th-Century Art II**

★3 (fi 6) (either term, 3-0-0). History of the visual arts of the 20th century from World War II to the present, in Europe and North America.

**ART H 257 Survey of 20th-Century Canadian Art**

★3 (fi 6) (either term, 3-0-0). History of the visual arts of the 20th century in Canada.

**ART H 400 Topics in Theory and Criticism**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**ART H 406 Topics in Art from the Beginning of the 20th Century**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Instructor. Students are normally expected to have successfully completed ART H 206 with a minimum grade of B-.

**ART H 407 Topics in Early Canadian Art**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Instructor. Students are normally expected to have successfully completed ART H 207 with a minimum grade of B-.

**ART H 409 Topics in the History of Design**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Instructor. Students are normally expected to have successfully completed ART H 209 with a minimum grade of B-.

**ART H 410 Topics in the History of Photography and Related Aspects of Representation**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Instructor. Students are normally expected to have successfully completed ART H 210 with a minimum grade of B-.

**ART H 411 Special Topics in Art History**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**ART H 418 Special Subject, Fourth-Year Honors**

★6 (fi 12) (two term, 0-3s-0). Preparation of the Honors essay, required in the fourth year of the Honors Program.

**ART H 430 Topics in Museum Studies in Visual and Material Culture I**

★3 (fi 6) (either term, 0-3s-0). Theoretical and practical aspects of museology. Prerequisite: consent of Department.

**ART H 431 Topics in Museum Studies in Visual and Material Culture II**

★3 (fi 6) (either term, 0-3s-0). Contemporary issues in museology. Prerequisite: consent of Department.

**ART H 449 Topics in Visual Culture and Advertising**

★3 (fi 6) (either term, 0-3s-0). Students are expected to have successfully completed ART H 249 with a minimum grade of B-. Prerequisite: consent of Department.

**ART H 455 Topics in Art from the Second Half of the 19th Century**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Instructor. Students are normally expected to have successfully completed ART H 255 with a minimum grade of B-.

**ART H 456 Topics in Art from the Second Half of the 20th Century**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Instructor. Students are normally expected to have successfully completed ART H 256 with a minimum grade of B-.

**ART H 457 Topics in 20th-Century Canadian Art**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Instructor. Students are normally expected to have successfully completed ART H 257 with a minimum grade of B-.

**Graduate Courses****ART H 505 Advanced Studies in Art from the First Half of the 19th Century**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 506 Advanced Studies in Art from the First Half of the 20th Century**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 507 Advanced Studies in Early Canadian Art**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 509 Advanced Studies in the History of Design**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 510 Topics in the History of Photography and Related Aspects of Representation**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 511 Special Topics in Art History**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 549 Advanced Studies in Visual Culture and Advertising**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 555 Advanced Studies in Art from the Second Half of the 19th Century**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 556 Advanced Studies in Art from the Second Half of the 20th Century**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 557 Advanced Studies in Canadian Art in the 20th Century**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 560 Advanced Studies in Theories of Museology**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**ART H 561 Advanced Studies in Theories of Exhibition**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**ART H 562 Museum Studies Internship**

★3 (fi 6) (either term, 0-6L-0). Supervised internships in an Edmonton area or other approved institution. Prerequisite: ART H 560, 561, an approved graduate-level research methodology course and consent of Department.

**ART H 563 Advanced Studies in Museum Management Strategies**

★3 (fi 6) (either term, 0-3s-0). Not offered every year. Prerequisite: consent of Department.

**ART H 564 Advanced Studies in Cultural Tourism in Museums, and the Globalization of Visual and Material Culture**

★3 (fi 6) (either term, 0-3s-0). Not offered every year. Prerequisite: consent of Department.

**ART H 565 Advanced Studies in the Museum and Aboriginal Issues**

★3 (fi 6) (either term, 0-3s-0). Not offered every year. Prerequisite: consent of Department.

**ART H 566 Advanced Studies in Museum Contexts**

★3 (fi 6) (either term, 0-3s-0). Not offered every year. Prerequisite: consent of Department.

**ART H 567 Advanced Studies in Museums and Multi-Media**

★3 (fi 6) (either term, 0-3s-0). Not offered every year. Prerequisite: consent of Department.

**ART H 568 Advanced Studies in Communications and Marketing the Museum**

★3 (fi 6) (either term, 0-3s-0). Not offered every year. Prerequisite: consent of Department.

**ART H 600 Historiography and Methodology**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**ART H 611 Special Topics in Art History**

★3 (fi 6) (either term, 0-3s-0). Intended for MA (History of Art, Design, and Visual Culture) students. Prerequisite: consent of Department.

**221.21 Astronomy, ASTRO**

Department of Physics  
Faculty of Science

**Undergraduate Courses****01 ASTRO 120 Astronomy of the Solar System**

★3 (fi 6) (first term, 3-0-0). The development of astronomy and astronomical techniques, including results obtained from the latest orbiting observatories. The origin, evolution and nature of the Earth, the other planets and non-planetary bodies will be discussed. Viewing experience will be available using the campus observatory. Prerequisites: Pure Mathematics 30 and Physics 30.

**01 ASTRO 122 Astronomy of Stars and Galaxies**

★3 (fi 6) (second term, 3-0-0). The development of our understanding of the universe, including current models of stellar evolution and cosmology. Emphasis

on understanding the physical processes underlying astronomical phenomena. Viewing experience will be available using the campus observatory. Prerequisites: Pure Mathematics 30 and Physics 30.

#### **O** **ASTRO 320 Stellar Astrophysics I**

★3 (*fi 6*) (either term, 3-0-0). Application of physics to stellar formation and stellar evolution; theoretical models and observational comparisons of main sequence stars, white dwarf stars, neutron stars, supernovae, black holes; binary star systems, stellar atmospheres and stellar spectra. Prerequisites: MATH 115, PHYS 126 or 146, 208. In lieu of PHYS 208, PHYS 271 may be taken as a corequisite. Some additional knowledge of astronomy (ASTRO 120 and/or 122) would be advantageous.

#### **O** **ASTRO 322 The Stellar Environment, Galaxies, and Cosmology**

★3 (*fi 6*) (either term, 3-0-0). The interstellar medium and interstellar reddening; galactic structure; kinematics and dynamics of stars in galaxies; quasars; introduction of cosmology. Prerequisites: MATH 115, PHYS 126 or 146, and one of PHYS 208 or 271. Some additional knowledge of astronomy (ASTRO 120 and/or 122) would be advantageous.

#### **O** **ASTRO 429 Upper Atmosphere and Space Physics**

★3 (*fi 6*) (either term, 3-0-0). Basic space plasma phenomena: the Earth's plasma and field environment; the solar cycle; generation of the solar wind; the interplanetary plasma and field environment; the solar-terrestrial interaction; magnetospheric substorms; the aurora borealis; magnetosphere-ionosphere interactions; effects of magnetospheric storms on man-made systems; use of natural electromagnetic fields for geophysical exploration. Pre- or corequisite: PHYS 381.

#### **O** **ASTRO 430 Physical Cosmology**

★3 (*fi 6*) (either term, 3-0-0). Observational cosmology; geometry and matter content of the Universe; physical processes in the early stages of the Universe; inflation, Big Bang nucleosynthesis and the cosmic microwave background radiation; cosmological aspects of galaxy formation and the growth of large-scale structure. Prerequisites: PHYS 211, 351, MATH 334.

#### **O** **ASTRO 465 Stellar Astrophysics II**

★3 (*fi 6*) (either term, 3-0-0). Stellar interiors and nuclear transformations; energy transport; model stars; variable stars; stellar evolution. Prerequisites: PHYS 211, 271, ASTRO 320, MATH 334. Note: Credit may be obtained for only one of PHYS 465 or ASTRO 465.

## 221.22 Augustana Faculty - Accounting, AUACC

Department of Social Sciences  
Augustana Faculty

### Undergraduate Courses

#### **AUACC 311 Introductory Accounting**

★3 (*fi 6*) (either term, 3-0-1.5). Postulates, principles, the accounting cycle, capital and income measurement, financial statement preparation and analysis; emphasis on reporting to shareholders, creditors, and other external decision makers. Prerequisites: AUACO 101, 102, and basic familiarity with microcomputer applications.

#### **AUACC 322 Managerial Accounting**

★3 (*fi 6*) (either term, 3-0-0). Designed to help managers assess needed information to carry out three essential functions in an organization: planning operations, controlling activities, and making decisions. The emphasis of this course is on cost behaviors, various product costing methods, cost-volume-profit relationships, budgeting and control through standard costs, and other quantitative techniques used by management. Prerequisite: AUACC 311.

## 221.23 Augustana Faculty - Art, AUART

Department of Fine Arts  
Augustana Faculty

### Undergraduate Courses

#### **AUART 101 Introduction to the History of Art I**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the history of art from the Prehistoric Age to the end of the Middle Ages.

#### **AUART 102 Introduction to the History of Art II**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the history of art from the Renaissance to the twentieth century.

#### **AUART 111 Studio Foundation I**

★3 (*fi 6*) (either term, 0-6L-0). Personal creativity is explored with basic techniques and ideas for making two-dimensional art. The visual language of perception and expression is introduced using graphic design problems. Aesthetic and

psychological principles of visual organization are applied to elements of line, shape, colour, and texture.

#### **AUART 112 Studio Foundation II - 3-D and Colour Theory**

★3 (*fi 6*) (either term, 0-6L-0). Further exploration of composition in two and three dimensions. Visual structure is investigated expressively and technically through colour media. Development of personal creativity and a basis for critical analysis are included. Prerequisite: AUART 111, or Art 30 equivalence with consent of the instructor (based on portfolio submission). Note: Credit may be obtained for only one of AUART 112 and 113.

#### **AUART 113 Studio Foundation II - 3-D and Digital Art**

★3 (*fi 6*) (either term, 0-6L-0). Dimensional art and digital art for beginners. Ideas for three-dimensional art are explored. Basic computer imaging techniques such as photo-editing in bitmaps, drawing with vectors, and digital painting are introduced. Notes: Additional fees for software are assessed. Credit may be obtained for only one of AUART 112 and 113.

#### **AUART 213 Computer Imaging**

★3 (*fi 6*) (either term, 2-4L-0). Intermediate course in composition and two-dimensional design problems using digital media. Colour theory and Gestalt principles are applied to techniques in photo-editing, vector drawing, and digital painting. Prerequisite: AUART 113. Note: Additional fees for software are assessed.

#### **AUART 215 Sculpture I**

★3 (*fi 6*) (either term, 0-6L-0). Introduction to principles of composition and practice in 3-dimensional art. Historical and contemporary issues are explored. Prerequisite: AUART 113.

#### **AUART 221 Nineteenth-Century Art History**

★3 (*fi 6*) (either term, 3-0-0). Development of modern art in Europe during the nineteenth century with emphasis on major movements, concepts, and innovators.

#### **AUART 222 Art of the Twentieth Century**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the practices and concepts of art during the twentieth century. Includes an introduction to a range of art and architecture, as well as a variety of critical and theoretical interpretations of art. Central focus is on the development of a modernist mainstream during this century and its relation to the ideas of post-modernism.

#### **AUART 223 Canadian Art**

★3 (*fi 6*) (either term, 3-0-0). Survey of the visual arts in Canada, from the indigenous beginnings to the present, with emphasis on the twentieth century.

#### **AUART 224 Art and Its Histories**

★3 (*fi 6*) (either term, 3-0-0). Study of works, movements, theories and institutions of art with an emphasis on contemporary art and recent approaches to the study and analysis of art works. It examines painting, sculpture, architecture, photography, graphic and applied art.

#### **AUART 228 Art Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of Art studies. Prerequisite: Second-year standing in an Art degree program. Corequisite: Any senior course in Art that requires library research. Notes: The corequisite must be taken concurrently. Credit may be received for only one of AUART 228, AUHIS 285, AUPHI 228, AUREL 228.

#### **AUART 231 Drawing I**

★3 (*fi 6*) (either term, 0-6L-0). Introductory course that develops basic skills of perception and recording as they apply to the practice of drawing. Historical and contemporary practices are explored primarily on the basis of direct observation of still life, landscape, and architecture. Issues in composition, expression, critical analysis, and technique using monochromatic media are included.

#### **AUART 232 Drawing II**

★3 (*fi 6*) (either term, 0-6L-0). Further exploration of drawing practice with the application of observational and conceptual skills to issues of expression and composition. Figure drawing, including anatomy, perceptual considerations, and the expressive potential of the human figure, is introduced. The use of colour media, the development of a personal aesthetic response, as well as critical analysis are included. Prerequisite: AUART 231 or consent of the instructor (based on portfolio submission).

#### **AUART 260 Selected Topics in Art History**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics in Art History linked to a course that would later visit sites of art and visual culture.

#### **AUART 261 Selected Topics in Art History**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics in Art History linked to a course that would later visit sites of art and visual culture.

#### **AUART 262 Selected Topics in Art History**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics in Art History linked to a course that would later visit sites of art and visual culture.

#### **AUART 263 Selected Topics in Art History**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics in Art History linked to a course that would later visit sites of art and visual culture.

**AUART 264 Selected Topics in Art History**

★3 (fi 6) (either term, 0-3s-0). Selected topics in Art History linked to a course that would later visit sites of art and visual culture.

**AUART 265 Selected Topics in Art History Tour**

★3 (fi 6) (either term, variable in 3 weeks). Tour course following the selected topics course to which it is linked. The tour visits art sites discussed in that course. Prerequisite: The appropriate linked course from the AUART 260 - 264 series.

**AUART 266 Selected Topics in Art History Tour**

★3 (fi 6) (either term, variable in 3 weeks). Tour course following the selected topics course to which it is linked. The tour visits art sites discussed in that course. Prerequisite: The appropriate linked course from the AUART 260 - 264 series.

**AUART 267 Selected Topics in Art History Tour**

★3 (fi 6) (either term, variable in 3 weeks). Tour course following the selected topics course to which it is linked. The tour visits art sites discussed in that course. Prerequisite: The appropriate linked course from the AUART 260 - 264 series.

**AUART 268 Selected Topics in Art History Tour**

★3 (fi 6) (either term, variable in 3 weeks). Tour course following the selected topics course to which it is linked. The tour visits art sites discussed in that course. Prerequisite: The appropriate linked course from the AUART 260 - 264 series.

**AUART 269 Selected Topics in Art History Tour**

★3 (fi 6) (either term, variable in 3 weeks). Tour course following the selected topics course to which it is linked. The tour visits art sites discussed in that course. Prerequisite: The appropriate linked course from the AUART 260 - 264 series.

**AUART 271 Painting I**

★3 (fi 6) (either term, 0-6L-0). Painting from the ground up. The course introduces painting technique and colour usage in acrylic and oil media. Perceptual and conceptual problems are based on historical and contemporary practices with an emphasis on personal creativity. Critical analysis of art is a component. Prerequisites: AUART 231, or AUART 111 and basic drawing skills.

**AUART 272 Painting II**

★3 (fi 6) (either term, 0-6L-0). Further exploration of painting practice using oil and acrylic painting techniques. Critical analysis is included. Varieties of conceptual contexts and individual expressive directions are investigated. Prerequisite: AUART 271 or consent of the instructor (based on portfolio submission).

**AUART 287 Origins of Modernism: Topics in Late Seventeenth- and Eighteenth-Century Art**

★3 (fi 6) (either term, 3-0-0). Origins of Modernism: Art and Enlightenment. Selected works and themes of eighteenth-century art, architecture and visual culture in the context of the Enlightenment and of the changes associated with beginnings of modern culture.

**AUART 289 Studies in Visual Culture**

★3 (fi 6) (either term, 0-3s-0). Selected topics in the history of visual culture that are organized thematically rather than by period, nationality or style. Prerequisite: Second-year standing.

**AUART 331 Drawing III**

★3 (fi 6) (either term, 0-6L-0). Intermediate drawing further develops techniques and concepts of drawing with a focus on contemporary practices leading to self-initiated projects. Prerequisite: AUART 232.

**AUART 365 Aesthetics and Visual Culture**

★3 (fi 6) (either term, 3-0-0). Considerations of theoretical issues related to visual arts, broadly understood B painting, television, video, film, advertising, and photography. Classical theories of nature of the visual experience, as well as modern and postmodern theories and critiques. Note: Credit may be obtained for only one of AUART 365 and AUPHI 365.

**AUART 366 Representations of Place and Space**

★3 (fi 6) (either term, 3-0-0). Investigation of concepts and representations in art, architecture, literature and philosophy, of place and space from the Renaissance to the present. Prerequisite: None, but a course in Art history, Philosophy, Geography, or Canadian literature would be helpful. Note: Credit may be obtained for only one of AUART 366 and AUPHI 366.

**AUART 367 Critical Discourse and the Fine Arts**

★3 (fi 6) (either term, 0-3s-0). Introduction to theory and the fine arts. A critical study of historical and contemporary issues in the fine arts with an emphasis on themes common to the disciplines of drama, music and the visual arts as cultural processes. Discussions of various theoretical positions including critical and cultural theory, aesthetic theory, disciplinary history and a history of criticism. Prerequisite: Third-year standing. Note: Credit may be obtained for only one of AUART 367, 467, AUDRA 367, AUMUS 367, AUDRA 467, AUMUS 467.

**AUART 371 Painting III**

★3 (fi 6) (either term, 0-6L-0). Intermediate painting further develops techniques and concepts of painting with a focus on contemporary practices leading to self-initiated projects. Prerequisite: AUART 272.

**AUART 380 Directed Reading in Art History**

★3 (fi 6) (variable, 1-0-0). Individual study project for the advanced art history student. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

**AUART 381 Selected Topics in Art History**

★3 (fi 6) (either term, 0-3s-0). Selected topics in art history and visual culture. Prerequisite: Any 200-level Art history course or consent of the instructor.

**AUART 382 Selected Topics in Art History**

★3 (fi 6) (either term, 0-3s-0). Selected topics in art history and visual culture. Prerequisite: Any 200-level Art history course or consent of the instructor.

**AUART 383 Selected Topics in Art History**

★3 (fi 6) (either term, 0-3s-0). Selected topics in art history and visual culture. Prerequisite: Any 200-level Art history course or consent of the instructor.

**AUART 384 Selected Topics in Art History**

★3 (fi 6) (either term, 0-3s-0). Selected topics in art history and visual culture. Prerequisite: Any 200-level Art history course or consent of the instructor.

**AUART 385 Selected Topics in Art History**

★3 (fi 6) (either term, 0-3s-0). Selected topics in art history and visual culture. Prerequisite: Any 200-level Art history course or consent of the instructor.

**AUART 411 Visual Explorations**

★3 (fi 6) (either term, 0-6s-0). Advanced studies in a studio discipline with individualized programmes designed in collaboration with the instructor. Direction is guided by issues in contemporary practice and thought. Prerequisites: AUART 331 and one of 215, 371.

**AUART 467 Critical Discourse and the Fine Arts**

★3 (fi 6) (either term, 0-3s-0). Introduction to theory and the fine arts. A critical study of historical and contemporary issues in the fine arts with an emphasis on themes common to the disciplines of drama, music and the visual arts as cultural processes. Discussions of various theoretical positions including critical and cultural theory, aesthetic theory, disciplinary history and a history of criticism. Prerequisite: Third-year standing. Note: Credit may be obtained for only one of AUART 367, 467, AUDRA 367, AUMUS 367, AUDRA 467, AUMUS 467.

**AUART 480 Directed Reading in Art History**

★3 (fi 6) (variable, 1-0-0). Individual study project for the highly advanced art history student. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

**AUART 490 Directed Project in Visual Explorations**

★3 (fi 6) (either term, 0-1L-0). Individual study course for the highly advanced studio art student. A selected theme in two- or three-dimensional expression is explored intensively. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

## 221.24 Augustana Faculty - Biology, AUBIO

Department of Science  
Augustana Faculty

### Undergraduate Courses

**AUBIO 108 Introduction to Marine Biology**

★3 (fi 6) (second term, 3-0-3/2). Introduction to the diversity of marine ecosystems and the adaptations of marine organisms to their environment. Notes: The course does not count toward the major, concentration, or minor in Biology. The course is available only as part of the Augustana-in-Cuba Program.

**AUBIO 110 Evolution of Biological Diversity**

★3 (fi 6) (either term, 3-0-3/2). Examination of the evolutionary mechanisms and history that have produced the earth's biodiversity. Prerequisite: Biology 30. Note: Credit may be obtained for only one of AUBIO 110 and AUBIO 102 (2002).

**AUBIO 130 Cell Biology**

★3 (fi 6) (either term, 3-0-3/2). Study of the ultrastructure and function of plant and animal cells. Topics include membrane models, cytoplasmic organelles, the cell cycle, and nucleocytoplasmic interactions. Dynamic processes at the cellular level, such as cellular respiration, photosynthesis, and motility, and function of plant, animal, and prokaryote cells, are also examined. Prerequisites: Biology 30 or AUBIO 093, and Chemistry 30.

**AUBIO 210 Biological Science and Information Literacy**

★1 (fi 2) (either term, 1-0-0). Introduction to library research skills in the biological sciences. Prerequisite: Second-year standing in a Biology or Environmental degree program. Corequisite: Any senior course in Biology that requires library research. Notes: The corequisite must be taken concurrently. Credit may be obtained for only one of AUBIO 210, AUCHE 210, AUENV 210 and AUGEO 210.

**AUBIO 222 Plant Diversity**

★3 (fi 6) (either term, 3-0-3). Comparative survey of the morphology, life cycles, and evolutionary features of algae, fungi, and non-vascular and vascular plants. Taxonomic and environmental considerations are also presented. Prerequisite: AUBIO 110.

**AUBIO 253 Principles of Ecology**

★3 (*fi 6*) (either term, 3-0-3). Study of the interactions between organisms and their environment in the context of populations, communities, ecosystems, and biomes. Prerequisite: AUBIO 110. Note: Formerly AUBIO 251(2004).

**AUBIO 260 Principles of Genetics**

★3 (*fi 6*) (either term, 3-0-3). Mendelian inheritance and its cytological features including the molecular and cellular basis for the transmission of hereditary characteristics. Topics that are emphasized include microbial genetics, cytoplasmic inheritance, linkage and genetic mapping, DNA as genetic material, gene action, and the genetic code. Prerequisite: AUBIO 130. Note: Formerly AUBIO 261 (2004).

**AUBIO 274 Microbiology of Prokaryotes**

★3 (*fi 6*) (either term, 3-0-3). Introduction to the organization, morphology, and cell structure of prokaryotes. Topics include microbial growth and its control, microbial systematics, ecology of prokaryotes, and medical and applied microbiology. Laboratory exercises are designed to introduce a variety of microbiological techniques and phenomena related to lecture material. Prerequisite: AUBIO 130.

**AUBIO 275 Microbiology of Eukaryotes**

★3 (*fi 6*) (either term, 3-0-3). Examination of the life histories of yeasts, moulds, and protozoans, as well as consideration of viruses. The morphology, physiology, ecology, and genetics of these micro-organisms are emphasized. Prerequisite: AUBIO 274.

**AUBIO 280 Biochemistry: Proteins, Enzymes, and Energy**

★3 (*fi 6*) (either term, 3-0-0). Structure and function of proteins and enzymes and on the structure, function, and metabolism of carbohydrates. The structure and function of lipids, nucleic acids, and amino acids are introduced. The focus of the course is toward understanding how enzymes catalyze the oxidation of carbohydrates and how the cell conserves this energy in a useful chemical form (e.g., ATP). Prerequisites: AUBIO 130 and AUCHE 250. Corequisite: AUCHE 252. Note: Credit may be obtained for only one of AUBIO 280 and AUCHE 280.

**AUBIO 294 Survey of the Invertebrates**

★3 (*fi 6*) (either term, 3-0-3). Functional anatomy and life cycles of the major invertebrate taxa. Prerequisite: AUBIO 110.

**AUBIO 295 The Vertebrates**

★3 (*fi 6*) (either term, 3-0-3). Study of the structure, function, and diversity of vertebrates. Prerequisite: AUBIO 110. Note: Formerly AUBIO 216 (2004).

**AUBIO 318 Directed Reading**

★3 (*fi 6*) (variable, 1-0-0). Supervised library research project. Prerequisites: Third-year standing, ★6 in Biology at the 200 level. Notes: Admission to the course normally requires a minimum GPA of 3.0 in Biology. An "Application for Individual Study" must be completed and approved before registration in the course. Formerly AUBIO 310 (2004).

**AUBIO 320 Plant Autecology**

★3 (*fi 6*) (either term, 3-0-0). Study of plant species' population dynamics; interrelationships with biotic and abiotic components of the environment and ecophysiological adaptations. Prerequisite: AUBIO 253. Note: Formerly AUBIO 328 (2004).

**AUBIO 321 Plant Synecology**

★3 (*fi 6*) (either term, 3-0-3). Study of plant communities and their formation, maintenance, distribution, and interaction with the abiotic environment. Consideration is also given to plant succession, fire ecology, and global vegetation patterns. Prerequisite: AUBIO 253.

**AUBIO 322 Economic Botany**

★3 (*fi 6*) (either term, 3-0-0). Biological properties, geographical distribution, applications/utilization, and history of vascular and nonvascular plants economically important in agriculture, industry, and medicine. Corequisite: AUBIO 222. Notes: Credit may be obtained for only one of AUBIO 322 and AUENV 322. Formerly AUBIO 329 (2004).

**AUBIO 326 Drug Plants**

★3 (*fi 6*) (either term, 3-0-0). Survey of historical and current use of important drug-producing plants. Evaluation of the chemistry and physiology of biologically active compounds from poisonous, analgesic, and hallucinogenic plants, and the current uses of such plant products. Use of plant biotechnology to develop drug-producing plants. Prerequisite: 200-level Biology course.

**AUBIO 327 Whole Plant Physiology**

★3 (*fi 6*) (either term, 3-0-3/2). Introductory general course on water and energy relations, evapotranspiration, mineral nutrition, membrane transport, ascent of sap, translocation, net assimilation, growth, development, hormone action, and stress. Prerequisites: AUBIO 130; one of AUBIO 222, 253.

**AUBIO 336 Histology**

★3 (*fi 6*) (either term, 3-0-3). Systematic and sequential consideration of fundamental cytology, the normal histology of the basic tissues, and the embryological development and microscopic organization of the major mammalian organs and organ systems. Emphasis is placed on the light- and electron-microscopic features of cells and tissues with direct correlation of structure and function. Prerequisites: AUBIO 130 and 295.

**AUBIO 338 Developmental Biology**

★3 (*fi 6*) (either term, 3-0-3). Development of complex organisms. Emphasis is on the interactions between cells and their environment that determine cell survival, gene activation and deactivation; and how specific cell and tissue structures and functions are selected. Developmental processes common to plants and animals are identified. Prerequisites: AUBIO 110 and 260.

**AUBIO 341 Entomology**

★3 (*fi 6*) (either term, 3-0-3). Examination of the world of insects from the point of view of major areas of entomological study including the life histories, taxonomy, phylogeny, physiology, development, morphology, and behaviour. Emphasis is given to the study of insects as animals, not as pests. Prerequisite: AUBIO 294.

**AUBIO 343 Insect Ecology**

★3 (*fi 6*) (either term, 3-0-0). Relationships of insects to their environment, including the roles of insects in energy flow, biogeochemical cycling, and ecological succession. Evolutionary relationships also receive attention. Prerequisites: AUBIO 253 and 294. Note: Formerly AUBIO 344 (2004).

**AUBIO 350 Conservation Theory and Biodiversity in Tropical Systems**

★3 (*fi 6*) (first term, 3-0-0). Introduction to the basic concepts of conservation biology. The scope of conservation biology and levels of biodiversity are explored, as are aspects of tropical ecology related to conservation. Prerequisite: One of AUBIO 253, 294, or 295. Corequisite: AUBIO 359 or EUENV 359. Note: Credit may be obtained for only one of AUBIO 350, 450. AUENV 350, 450.

**AUBIO 351 Biogeography**

★3 (*fi 6*) (either term, 3-0-3). Analysis of the spatial patterns of biotic systems and species. The course examines their past and present distribution patterns in the context of biological and ecological processes and human impacts. The course employs several methods of analysis, including geographic information systems. Prerequisite: AUBIO 253. Note: Credit may be obtained for only one of AUBIO 351 and AUGEO 351.

**AUBIO 353 Environmental Science**

★3 (*fi 6*) (either term, 3-0-0). Study of anthropogenic influences on the natural environment, with specific focus on major environmental problems as to their historical basis, effects, and potential resolution. Corequisite: AUBIO 253. Note: Credit may be obtained for only one of AUBIO 353 and AUENV 353.

**AUBIO 359 Field Studies in Tropical Ecology and Conservation**

★3 (*fi 6*) (two term, 1.5-0-0 2 weeks field work). Field course that addresses problems of biodiversity and conservation in tropical environments. The student participates in field workshops, and designs and conducts his or her own field project to answer questions related to ecological and biological conservation. Prerequisite: Consent of the instructors based on successful completion of the selection process. Corequisite: AUBIO 350 or AUENV 350. Notes: Credit may be obtained for only one of AUBIO 359 and AUENV 359. A ★3 course over the full year. Requires payment of additional miscellaneous fees (see § 22.2.3).

**AUBIO 381 Biochemistry: Intermediary Metabolism**

★3 (*fi 6*) (either term, 3-0-0). Structure, function, and metabolism of carbohydrates, lipids, amino acids, and nucleic acids at the level of the cell. The interrelationships of specialized organs with regard to the metabolism of the whole body are also discussed. Prerequisites: AUBIO 280 or AUCHE 280, and AUCHE 252. Note: Credit may be obtained for only one of AUBIO 381 and AUCHE 381.

**AUBIO 389 Molecular Biology of the Gene**

★3 (*fi 6*) (either term, 3-0-0). Survey of current knowledge and approaches in the area of structure, expression, and regulation of prokaryote and eukaryote genes. Topics include gene isolation and characterization, gene structure and replication, and transcription and translation processes and their regulation. Recombinant DNA technology and its applications are also introduced. Prerequisite: AUBIO 260.

**AUBIO 390 Animal Behaviour**

★3 (*fi 6*) (either term, 3-0-3). Introduction to key concepts and methods in animal behaviour. Both mechanistic and evolutionary points of view are considered. The student's understanding of scientific thinking is deepened. Topics include instinct, learning, orientation, communication, mating and territoriality, foraging, and social behaviour. Prerequisite: AUBIO 294 or 295.

**AUBIO 393 Natural History of the Vertebrates**

★3 (*fi 6*) (either term, 3-0-0). Ecological approach to vertebrate natural history. Topics include distribution, intra- and inter-species interactions, population, reproduction and life histories, feeding strategies, dispersal, and migration. Prerequisites: AUBIO 253 and 295. Note: Formerly AUBIO 395 (2004).

**AUBIO 397 Vertebrate Physiology**

★3 (*fi 6*) (either term, 3-0-0). Review of the general concepts in animal physiology with an emphasis on structure and function and their adaptive significance to the animal in its environment. Physical, chemical, and functional aspects of animal cells and cardiovascular, respiratory, digestive, osmoregulatory, endocrine, and nervous systems are considered. Bioelectric and contractility phenomena are also included. Prerequisites: AUBIO 130 and 295. Note: Formerly AUBIO 317 (2004).

**AUBIO 411 History and Theory of Biology**

★3 (*fi 6*) (either term, 3-0-0). Overview of historical progression in the biological sciences and their associated development in relation to prevailing philosophical, social, and cultural contexts. Prerequisites: AUBIO 260; one of AUBIO 222, 294,

295; ★6 of Biology at the 300 level; fourth-year standing. AUBIO 338 is strongly recommended. Note: Credit may be obtained for only one of AUBIO 411 and AUBIO 311.

#### **AUBIO 412 Selected Topics in Biological Science**

★3 (*fi 6*) (either term, 3-0-0). In-depth study of an advanced topic in Biology. Prerequisites: Vary according to topic; third-year standing. Note: Formerly AUBIO 480-485 (2004).

#### **AUBIO 413 Advanced Topics in Evolutionary Ecology**

★3 (*fi 6*) (either term, 3-0-0). In-depth study of evolutionary processes in natural populations of plants and animals. Selected topics for lectures and seminars address contemporary questions about natural selection, adaptation, speciation, biogeography and the evolution of interaction among species. Prerequisites: AUBIO 253; 260; and one of AUBIO 320, 321, 341, 343, 390, 393. Note: Formerly AUBIO 418 (2004).

#### **AUBIO 419 Directed Studies**

★3 (*fi 6*) (variable, 1-0-3). Supervised laboratory research project. Prerequisites: AUBIO 318 and consent of the instructor. Notes: Admission to the course normally requires a minimum GPA of 3.0 in Biology. An "Application for Individual Study" must be completed and approved before registration in the course. A ★3 course offered over the full year. Formerly AUBIO 415 (2004).

#### **AUBIO 423 Directed Reading in Plant Ecology**

★3 (*fi 6*) (variable, 1-0-0). Supervised and directed readings for developing written assignments in a specific subject area of plant ecology. The course may serve as a base for a complementary independent laboratory studies course. Prerequisite: AUBIO 320 or 321. Notes: Admission to AUBIO 423 normally requires a minimum GPA of 3.0 in Biology. An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUBIO 430 Cell Physiology**

★3 (*fi 6*) (either term, 3-0-0). Current topics in energetics, excitable membranes, the cytoskeleton, cell dynamics, and regulation of cell function. Prerequisite: One of AUBIO 327, 336, 338, 381, 389, 397, or AUCHE 381.

#### **AUBIO 448 Directed Reading in Entomology**

★3 (*fi 6*) (variable, 1-0-0). Investigation of advanced topics in entomology. Prerequisite: AUBIO 341 or 343. Notes: Admission to AUBIO 448 normally requires a minimum GPA of 3.0 in Biology. An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUBIO 450 Conservation Theory and Biodiversity in Tropical Systems**

★3 (*fi 6*) (first term, 3-0-0). Introduction to the basic concepts of conservation biology. The scope of conservation biology and levels of biodiversity are explored, as are aspects of tropical ecology related to conservation. Prerequisites: AUBIO 253; one of AUBIO 320, 321, 341, 343, 353, 390, 393, AUENV 353. Corequisite: AUBIO 459 or AUENV 459. Note: Credit may be obtained for only one of AUBIO 350, 450, AUENV 350, 450.

#### **AUBIO 459 Field Studies in Tropical Ecology and Conservation**

★3 (*fi 6*) (two term, 1.5-0-0 2 weeks field work). Field course that addresses problems of biodiversity and conservation in tropical environments. The student participates in field workshops, and designs and conducts his or her own field project to answer questions related to ecological and biological conservation. Prerequisite: Consent of the instructors based on successful completion of the selection process. Corequisite: One of AUBIO 359, 450, AUENV 359, or 450. Notes: Credit may be obtained for only one of AUBIO 459 and AUENV 459. Students who have received credit for AUBIO 359 or AUENV 359 may enrol I in AUBIO 459 or AUENV 459 in a subsequent year based on successful completion of the selection process. A ★3 course over the full year. Requires payment of additional miscellaneous fees; refer to the Fees Payment Guide in the University Regulations and Information for Students section of the Calendar.

#### **AUBIO 471 Basic Immunology**

★3 (*fi 6*) (either term, 3-0-0). Introduction to immunological concepts such as serology, immunochemistry, hypersensitivity, and anaphylaxis. Properties and structures of antibodies and antigens, as well as immunological regulatory mechanisms, are also discussed. Prerequisites: AUBIO 260 and 274.

#### **AUBIO 485 Selected Topics in Biochemistry**

★3 (*fi 6*) (either term, 3-0-0). In-depth examination of biochemistry. Prerequisites: Fourth-year standing in the Biology program; AUBIO 381 or AUCHE 381; and an additional ★3 of AUBIO at the 300-level. Note: Credit may only be obtained for one of AUBIO 485 and AUCHE 485.

#### **AUBIO 489 Directed Reading in Lipid Biochemistry**

★3 (*fi 6*) (variable, 1-0-0). Biochemistry of lipids, lipoproteins, and membranes. The course extends and deepens material covered in AUBIO 381 by examining some of the theories, experiments, and methods used to investigate lipid biochemistry. Prerequisite: AUBIO 381. Notes: It is strongly recommended that AUBIO 389 precede AUBIO 489. Admission to AUBIO 489 normally requires a minimum GPA of 3.0 in Biology. An "Application for Individual Study" must be completed and approved before registration in the course. Credit may be obtained for only one of AUBIO 489 and AUCHE 489.

#### **AUBIO 493 Directed Reading in Behavioural Ecology**

★3 (*fi 6*) (variable, 1-0-0). Advanced topics of behavioural ecology. Functional

questions in animal behaviour are explored within the framework of three conceptual issues: simple optimality, game theory, and stochastic dynamic modelling. Included are the theoretical foundations and a review of empirical studies to analyze the explanatory and predictive value of the models. Prerequisite: AUBIO 390. Notes: Admission to AUBIO 493 normally requires a minimum GPA of 3.0 in Biology. An "Application for Individual Study" must be completed and approved before registration in the course. Formerly AUBIO 498 (2004).

## 221.25 Augustana Faculty - Chemistry, AUCHE

Department of Science  
Augustana Faculty

### Undergraduate Courses

#### **AUCHE 110 General Chemistry I**

★3 (*fi 6*) (first term, 3-0-3). Electronic structure, periodic table, metals, gases, thermodynamics, thermochemistry, equilibrium, acids and bases, solubility and precipitation, liquids and solids. Prerequisites: Chemistry 30 and one of Pure Mathematics 30, AUMAT 092, 102.

#### **AUCHE 112 General Chemistry II**

★3 (*fi 6*) (second term, 3-0-3). Qualitative analysis, oxidation-reduction, electrochemistry, chemical bonding, kinetics, nonmetals, nuclear chemistry. Prerequisite: AUCHE 110.

#### **AUCHE 210 Chemistry Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in chemistry. Prerequisite: Second-year standing in a Chemistry degree program. Corequisite: Any senior course in Chemistry that requires library research. Notes: The corequisites must be taken concurrently. Credit may be obtained for only one of AUCHE 210, AUBIO 210, AUENV 210, AUGEO 210.

#### **AUCHE 220 Analytical Chemistry**

★3 (*fi 6*) (either term, 3-0-3). Theoretical and practical aspects of chemical analysis. Topics include gravimetry, titrimetry, separations, acid-base equilibria, chromatography, and spectrophotometry. Examples emphasize the utility and limitations of analytical techniques. Prerequisite: AUCHE 112. Recommended corequisite: AUMAT 110 or 111.

#### **AUCHE 222 Instrumental Analysis**

★3 (*fi 6*) (either term, 3-0-3). Study of the theory and practice of instrumental methods of analysis. Topics include atomic absorption and emission spectroscopy, fluorometry, liquid and gas chromatography, physical separations, and electrochemical methods. Examples include the analysis of chemicals with environmental importance. Prerequisites: AUCHE 112 and consent of the instructor; or AUCHE 220. Recommended corequisite: AUMAT 110 or 111.

#### **AUCHE 230 Inorganic Chemistry I**

★3 (*fi 6*) (first term, 3-0-3). Electronic structure of atoms, bonding and molecular structure, ionic bonding, symmetry and point groups, introduction to spectroscopy; infrared and Raman spectroscopy, uv-visible spectroscopy; chemistry of hydrogen, boron hydrides, cyclic boron-nitrogen, phosphorus-nitrogen, and sulfur-nitrogen compounds. Prerequisite: AUCHE 112.

#### **AUCHE 232 Inorganic Chemistry II**

★3 (*fi 6*) (second term, 3-0-3). Theory and applications of organometallic chemistry, metal carbonyls, metal nitrosyls, dinitrogen complexes, transition metal organometallic compounds, synergic bonding, organometallic catalysts, fluxional molecules; descriptive chemistry of the s- and p-block elements; fullerenes. Prerequisite: AUCHE 230.

#### **AUCHE 250 Organic Chemistry I**

★3 (*fi 6*) (first term, 3-0-3). Study of molecular structure and reactivity of the major classes (functional groups) of organic (carbon-based) compounds. Bonding and acid-base chemistry are reviewed briefly; the use of electron-movement arrows is introduced and then emphasized throughout the course to portray resonance and mechanisms. Infrared and nuclear magnetic resonance spectroscopy are presented early, as well as the field of stereochemistry. All of the important functional groups are introduced, but alkenes, alkynes, alkyl halides, alcohols, aldehydes, and ketones (along with an introduction to carbohydrates) are the ones featured. Nucleophilic aliphatic substitution reactions are dealt with at length; other reactions - all in the context of synthesis - receiving attention are eliminations, oxidation-reduction, free-radical, and nucleophilic attack on the carbonyl group. The importance and relevance of organic chemistry in a wide variety of fields (e.g., biology, medicine, pharmacy, agriculture), to say nothing of life itself, are made clear. Prerequisite: AUCHE 110.

#### **AUCHE 252 Organic Chemistry II**

★3 (*fi 6*) (second term, 3-0-3). Continuation from AUCHE 250, beginning with further consideration of carbohydrates, and then a review but more in-depth coverage of alkenes, alkynes, alcohols, aldehydes, ketones, and redox reactions (including hydride reductions and reactions of Grignard reagents). Other featured functional



groups are ethers, the carboxylic acid family, and amines. Mass spectrometry is introduced. Pericyclic reactions and aromatic substitution reactions (electrophilic especially, but also nucleophilic) - again, in the context of synthesis - are studied. The importance and relevance of organic chemistry in a wide variety of fields (e.g., biology, medicine, pharmacy, agriculture), to say nothing of life itself, are made clear. Prerequisite: AUCHE 250.

#### AUCHE 277 Introduction to Relativity and Quantum Mechanics

★3 (fi 6) (either term, 3-0-0). Special relativity; photons and matter waves; Bohr atom model; Heisenberg Uncertainty Principle; Schrödinger equation; one-dimensional systems; hydrogen atom; spin; Pauli Exclusion Principle; many-electron atoms; molecules. Prerequisites: AUCHE 112, AUMAT 112, and AUPHY 120. Corequisite: AUMAT 211. Note: Credit may be obtained for only one of AUCHE 277, AUPHY 260.

#### AUCHE 279 Physical Chemistry

★3 (fi 6) (either term, 3-0-3). Study of the principles and concepts of physical chemistry. Topics include the laws of thermodynamics, chemical equilibrium, phase, equilibria, surface chemistry, chemical kinetics and catalysis and spectroscopy and photochemistry. Prerequisites: AUCHE 112 and AUMAT 110 or 111.

#### AUCHE 280 Biochemistry: Proteins, Enzymes, and Energy

★3 (fi 6) (either term, 3-0-0). Structure and function of proteins and enzymes and on the structure, function, and metabolism of carbohydrates. The structure and function of lipids, nucleic acids, and amino acids are introduced. The focus of the course is toward understanding how enzymes catalyze the oxidation of carbohydrates and how the cell conserves this energy in a useful chemical form (e.g., ATP). Prerequisites: AUBIO 130 and AUCHE 250. Corequisite: AUCHE 252. Note: Credit may be obtained for only one of AUCHE 280 and AUBIO 280.

#### AUCHE 320 Analytical Chemistry III

★3 (fi 6) (either term, 3-0-0). Theory and application of nuclear magnetic resonance spectroscopy, infrared spectroscopy and mass spectrometry. Prerequisite: AUCHE 222

#### AUCHE 322 Topics in Analytical Electrochemistry

★3 (fi 6) (either term, 3-0-0). The study of electrochemistry and electroanalytical techniques. Prerequisite: AUCHE 222.

#### AUCHE 330 Transition Metal Chemistry

★3 (fi 6) (second term, 3-0-3). Ligand field theory, molecular orbital theory, stereochemistry, magnetochemistry, applications of nuclear magnetic resonance to transition metal complexes, isomerism, reaction mechanisms, electronic spectra and ligand field calculations, descriptive chemistry, transition metals in biological systems, the lanthanides and actinides. Prerequisite: AUCHE 230.

#### AUCHE 340 Radiochemistry

★3 (fi 6) (either term, 3-0-0). A study of radioactive processes, measurement, the use of radiotracers, radioimmunoassay, and isotopic dilution techniques. Prerequisite: ★12 in Chemistry.

#### AUCHE 350 Organic Chemistry III

★3 (fi 6) (either term, 3-0-3). Continuation of the foundation laid in AUCHE 250 and 252, considering in greater depth and breadth various familiar topics (e.g., reactions of carbonyl compounds), and exploring reactions (e.g., free-radical, enantioselective, green chemistry) and techniques (e.g., use of protecting groups) and investigating classes of compounds (e.g., heterocycles) barely touched upon previously. The laboratory work illustrates and expands upon lecture material, and provides practice in spectroscopic and chromatographic techniques. Prerequisite: AUCHE 252.

#### AUCHE 358 Industrial Organic Chemistry

★3 (fi 6) (either term, 3-0-0). Introduction to organic chemistry carried out on an industrial scale. Methods of obtaining the seven major feedstocks and then converting them into some of the larger volume products - both polymeric and nonpolymeric (including a few pharmaceuticals) - are studied. Consideration is given to the evolution of industrial processes. Prerequisite: AUCHE 252. AUCHE 350 is recommended.

#### AUCHE 379 Quantum Chemistry II

★3 (fi 6) (either term, 3-0-0). Continuation of AUCHE 277. Prerequisite: AUCHE 277.

#### AUCHE 381 Biochemistry: Intermediary Metabolism

★3 (fi 6) (either term, 3-0-0). Structure, function, and metabolism of carbohydrates, lipids, amino acids, and nucleic acids at the level of the cell. The interrelationships of specialized organs with regard to the metabolism of the whole body are discussed. Prerequisites: AUBIO 280 or AUCHE 280; and AUCHE 252. Note: Credit may be obtained for only one of AUCHE 381 and AUBIO 381.

#### AUCHE 388 Introduction to Secondary Plant Metabolism

★3 (fi 6) (either term, 3-0-0). Introduction to metabolic processes and natural products that are not widespread in the plant kingdom. While emphasizing some of the well known alkaloids (e.g., morphine, nicotine, quinine, tropine), the course focuses on the biosynthetic pathways leading from three widespread starting substances: acetic acid (as acetyl coenzyme A ester), dimethylallyl pyrophosphate, shikimic acid. Methods of studying biosynthesis are considered. Prerequisite: AUCHE 252. AUBIO/AUCHE 280 and 381 are recommended.

#### AUCHE 390 Senior Project I

★3 (fi 6) (variable, 1-0-6). A research project on a specific topic in chemistry to be determined jointly by the student and professor. Prerequisite: Consent of instructor. Notes: Admission to AUCHE 390 normally requires a minimum GPA of 3.0 in Chemistry. An "Application for Individual Study" must be completed and approved before registration in the course.

#### AUCHE 392 Senior Project II

★3 (fi 6) (variable, 1-0-6). A research project on a specific topic in chemistry to be determined jointly by the student and professor. Prerequisite: AUCHE 390. Notes: Admission to AUCHE 392 normally requires a minimum GPA of 3.0 in Chemistry. An "Application for Individual Study" must be completed and approved before registration in the course.

#### AUCHE 397 Directed Reading I

★3 (fi 6) (variable, 1-0-0). Supervised literature research project. Prerequisite: Third-year standing. Notes: Admission to AUCHE 397 normally requires a minimum GPA of 3.0 in Chemistry. An "Application for Individual Study" must be completed and approved before registration in the course.

#### AUCHE 399 Directed Reading II

★3 (fi 6) (variable, 1-0-0). Supervised literature research project. Prerequisite: AUCHE 397. Notes: Admission to AUCHE 399 normally requires a minimum GPA of 3.0 in Chemistry. An "Application for Individual Study" must be completed and approved before registration in the course.

#### AUCHE 405 Selected Topics in Chemistry

★3 (fi 6) (either term, 3-0-0). In-depth examination of selected topics in Chemistry. Prerequisites: Fourth-year standing in Chemistry program and ★6 of Chemistry at the 300 level, 3 of which must be in the subject area of the particular selected topics course.

#### AUCHE 415 Selected Topics in General Chemistry

★3 (fi 6) (either term, 3-0-0). In-depth examination of a subdiscipline in General Chemistry. Prerequisites: Fourth-year standing in Chemistry program and ★6 of Chemistry at the 300 level, 3 of which must be in the subject area of the particular selected topics course.

#### AUCHE 425 Selected Topics in Analytical Chemistry

★3 (fi 6) (either term, 3-0-0). In-depth examination of selected topics in Analytical Chemistry. Prerequisites: Fourth-year standing in Chemistry program and ★6 of Chemistry at the 300 level, 3 of which must be in Analytical Chemistry.

#### AUCHE 429 Advanced Spectroscopy

★3 (fi 6) (either term, 3-0-0). The study of advanced techniques in nuclear magnetic resonance spectroscopy. Topics include coupling theory and decoupling, multipulse, and two-dimensional experiments. Prerequisite: AUCHE 322.

#### AUCHE 430 Physical Inorganic Chemistry

★3 (fi 6) (either term, 3-0-0). Group theory and the character tables; applications to Raman, infrared, uv-visible and rotational spectroscopy; mass spectrometry; Mössbauer spectroscopy, and laser flash photolysis. Prerequisites: AUCHE 330 and AUMAT 120. Note: Formerly AUCHE 332.

#### AUCHE 434 Crystallography

★3 (fi 6) (either term, 3-0-0). An introduction to crystallography and the use of X rays to study the structure of crystals. Prerequisite: AUCHE 230 and fourth-year standing.

#### AUCHE 435 Selected Topics in Inorganic Chemistry

★3 (fi 6) (either term, 3-0-0). In-depth examination of selected topics in Inorganic Chemistry. Prerequisites: Fourth-year standing in Chemistry program and ★6 of Chemistry at the 300 level, 3 of which must be in Inorganic Chemistry.

#### AUCHE 438 Inorganic Reaction Mechanisms

★3 (fi 6) (either term, 3-0-0). Mechanisms, kinetics, and equilibria of inorganic reactions; the activated complex, transition state theory, the Eyring equation, experimental methods for slow and fast reactions, mechanism and structure, group-transfer and atom-transfer reactions, electron-transfer reactions, photochemistry. Prerequisites: AUCHE 330 and fourth-year standing.

#### AUCHE 455 Selected Topics in Organic Chemistry

★3 (fi 6) (either term, 3-0-0). In-depth examination of selected topics in Organic Chemistry. Prerequisites: Fourth-year standing in Chemistry program and ★6 of Chemistry at the 300 level, 3 of which must be in Organic Chemistry.

#### AUCHE 475 Selected Topics in Physical Chemistry

★3 (fi 6) (either term, 3-0-0). In-depth examination of selected topics in Physical Chemistry. Prerequisites: Fourth-year standing in Chemistry program and ★6 of Chemistry at the 300 level, 3 of which must be in Physical Chemistry.

#### AUCHE 485 Selected Topics in Biochemistry

★3 (fi 6) (either term, 3-0-0). In-depth examination of selected topics in Biochemistry. Prerequisites: Fourth-year standing in Chemistry program; ★3 AUCHE 381 or AUBIO 381; and an additional ★3 of AUCHE at the 300-level. Note: Credit may only be obtained for one of AUBIO 485 and AUCHE 485.

#### AUCHE 489 Directed Reading in Lipid Biochemistry

★3 (fi 6) (variable, 1-0-0). Biochemistry of lipids, lipoproteins, and membranes. The course extends and deepens material covered in AUCHE 381 by examining some

of the theories, experiments, and methods used to investigate lipid biochemistry. Prerequisite: AUCHE 381. It is strongly recommended that AUBIO 389 precede AUCHE 489. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. Credit may be obtained for only one of AUCHE 489 and AUBIO 489.

#### **AUCHE 490 Advanced Project I**

★3 (*fi 6*) (variable, 1-0-6). A research project on a specific topic in chemistry to be determined jointly by the student and professor. Prerequisite: AUCHE 390. Notes: Admission to AUCHE 490 normally requires a minimum GPA of 3.0 in Chemistry. An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUCHE 492 Advanced Project II**

★3 (*fi 6*) (variable, 1-0-6). A research project on a specific topic in chemistry to be determined jointly by the student and professor. Prerequisite: AUCHE 390. Notes: Admission to AUCHE 492 normally requires a minimum GPA of 3.0 in Chemistry. An "Application for Individual Study" must be completed and approved before registration in the course.

## 221.26 Augustana Faculty - Classical Studies, AUCLA

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### **AUCLA 100 Greek Civilization**

★3 (*fi 6*) (either term, 3-0-0). A survey of the major contributions of the Greeks to Western civilization in art, architecture, education, literature, philosophy, and politics.

#### **AUCLA 102 Greek and Roman Mythology**

★3 (*fi 6*) (either term, 3-0-0). Survey of classical mythology based on readings in translation from ancient literature. Study of the influence of classical mythology on art, film, literature, and music.

#### **AUCLA 221 History of Ancient Greece I**

★3 (*fi 6*) (either term, 3-0-0). History of Greece from the Bronze Age to the Persian Wars. Note: Credit may be obtained for only one of AUCLA 221 and AUHIS 203.

#### **AUCLA 222 History of Ancient Greece II**

★3 (*fi 6*) (either term, 3-0-0). History of Greece from the Persian Wars to the end of the Hellenistic Age. Note: Credit may be obtained for only one of AUCLA 222 and AUHIS 204.

#### **AUCLA 223 History of the Roman Republic**

★3 (*fi 6*) (either term, 3-0-0). History of the Roman Republic from its beginnings to the Battle of Actium in 31 B.C. Note: Credit may be obtained for only one of AUCLA 223 and AUHIS 207.

#### **AUCLA 224 History of the Roman Empire**

★3 (*fi 6*) (either term, 3-0-0). History of the Roman Empire from the time of Augustus to the fall of the west in the fifth century A.D. Note: Credit may be obtained for only one of AUCLA 224 and AUHIS 208.

#### **AUCLA 242 Greek and Roman Epic in Translation**

★3 (*fi 6*) (either term, 3-0-0). Study of Greek and Roman epic poetry in English translation, including works of Homer, Hesiod, Apollonius of Rhodes, Vergil, Ovid, and Lucan.

#### **AUCLA 243 Greek and Roman Tragedy in Translation**

★3 (*fi 6*) (either term, 3-0-0). Study of Greek and Roman tragedy in English translation, including works of Aeschylus, Sophocles, Euripides, and Seneca.

#### **AUCLA 244 Greek and Roman Comedy in Translation**

★3 (*fi 6*) (either term, 3-0-0). Study of Greek and Roman comedy in English translation, including works of Aristophanes, Menander, Plautus, and Terence.

#### **AUCLA 291 Greek Art and Archaeology**

★3 (*fi 6*) (either term, 3-0-0). Survey of Greek art, architecture, and archaeology from the Bronze Age to the Hellenistic Age.

#### **AUCLA 292 Classics Tour (Greece)**

★3 (*fi 6*) (Spring/Summer, 3 weeks). Three-week study tour on selected topics in the archaeology, art, and architecture of ancient Greece. Prerequisite: AUCLA 291 or consent of the instructor. Note: Tour costs are the responsibility of the student.

#### **AUCLA 293 Selected Topics in Greek and Roman Art and Archaeology**

★3 (*fi 6*) (either term, 3-0-0). Selected topics in Greek and Roman art and archaeology.

#### **AUCLA 294 Selected Topics in Greek and Roman Art and Archaeology Tour**

★3 (*fi 6*) (spring/summer, 3 weeks). Three-week study tour of ancient Greek

and/or Roman sites. Prerequisite: AUCLA 293 or consent of the instructor. Note: Tour costs are the responsibility of the student.

#### **AUCLA 301 Directed Reading I**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of Classics as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

#### **AUCLA 302 Directed Reading II**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of Classics as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

#### **AUCLA 303 Directed Reading III**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of Classics as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

#### **AUCLA 304 Directed Reading IV**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of Classics as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

#### **AUCLA 305 Directed Reading V**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of Classics as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

#### **AUCLA 310 Ancient Greek Philosophy**

★3 (*fi 6*) (either term, 3-0-0). Survey of ancient Greek philosophy from its origins with the Pre-Socratics up to and including Plato and Aristotle. Prerequisites: AUPHI 101 and 102 preferred, but not necessary. Note: Credit may be obtained for only one of AUCLA 310 and AUPHI 311.

#### **AUCLA 361 Women in Greece and Rome**

★3 (*fi 6*) (either term, 3-0-0). Survey of the Greek and Roman attitudes toward women as reflected in art, literature, law, and religion.

## 221.27 Augustana Faculty - Computing Science, AUCSC

Department of Science  
Augustana Faculty

### Undergraduate Courses

#### **AUCSC 110 Introduction to Computing Science**

★3 (*fi 6*) (first term, 3-0-1.5). Historical overview of the development of modern computers; computer applications and the social implications of information technology; the user interface and system design principles; introduction to programming and the software life cycle; overview of programming languages and introduction to program translation; gates, circuits, and Boolean logic; the architecture of a von Neumann machine; Turing machines and the theory of computation; artificial intelligence; computers and society. Prerequisite: One of Pure Mathematics 30, AUMAT 092, 102. Note: Credit may be obtained for only one of AUCSC 110, 105 (2003), AUEDC 202.

#### **AUCSC 120 Abstraction, Design, and Object-Oriented Programming**

★3 (*fi 6*) (second term, 3-0-1.5). Introduction to programming, problem solving, and designing large software systems using an object-oriented programming language (typically Java); objects, classes, methods, messages, parameters, inheritance, encapsulation, binding, polymorphism; algorithmic constructs; basic data structures; overview of software engineering. Prerequisite: AUCSC 110. Corequisites: AUMAT 110 or 111, and 120.

#### **AUCSC 210 Algorithm Analysis and Data Structures**

★3 (*fi 6*) (first term, 3-0-1.5). Introduction to algorithm analysis and O-notation. Abstract data types (lists, stacks, queues, trees, priority queues, dictionaries, sets), their implementations (linked lists, binary trees, heaps, binary search trees, balanced search trees, hash tables), and associated algorithms (iterators, enumerators, traversal, sorting, searching, retrieval). Prerequisites: AUCSC 120, AUMAT 110 or 111, and 120. Corequisite: AUMAT 250.

#### **AUCSC 220 Software Engineering and Human-Computer Interfaces**

★3 (*fi 6*) (first term, 3-0-1.5). Software engineering paradigms, requirements specification, object-oriented design, visual modelling, software verification and maintenance; software environments and software engineering tools; introduction to human-computer communication and interfaces; societal implications such as the cost of failure and professional responsibilities. Corequisite: AUCSC 210.

**AUCSC 250 Computer Organization and Architecture I**

★3 (fi 6) (first term, 3-0-1.5). Introduction to computer systems as multilevel machines. Topics include data representation; the organization and execution cycle of Von Neumann machines; assembly-level programming, addressing modes, control flow, procedure calls, input/output, interrupts; finite state machines, Boolean algebra, logic gates, and digital circuits. Prerequisite: AUCSC 120.

**AUCSC 310 Algorithm Design and Analysis**

★3 (fi 6) (second term, 3-0-1.5). Introduction to graph theory; data structures for the representation of graphs, digraphs, and networks, and their associated algorithms (traversal, connected components, topological sorting, minimum-spanning trees, shortest paths, transitive closure). Dynamic equivalence relations and union-find sets; amortized analysis. String matching. Algorithm design techniques (divide-and-conquer, dynamic programming, the greedy method). NP-completeness. Prerequisites: AUCSC 210 and AUMAT 250.

**AUCSC 315 Theory of Computing**

★3 (fi 6) (second term, 3-0-0). Models of computers including finite automata and Turing machines, computability, basics of formal languages with applications to the syntax of programming languages, unsolvable problems and their relevance to the semantics of programming, and concepts of computational complexity, including algorithm optimality. Prerequisites: AUCSC 110 and AUMAT 250.

**AUCSC 320 Software Engineering II**

★3 (fi 6) (second term, 3-0-1.5). Detailed study of software development processes, life cycles, and tools, especially object-oriented methods. Team work is emphasized in the completion of a large software project, from problem definition through to maintenance. Prerequisite: AUCSC 220.

**AUCSC 330 Database Management Systems I**

★3 (fi 6) (second term, 3-0-1.5). Introduction to current database management systems in theory and practice. Topics include relational database design (including entity-relationship modelling, relational schema, and normal forms); relational algebra, use of a query language (typically SQL) and other components of a current database management system; overview of database system architecture, file structures (including B-tree indices), query processing, and transaction management; new directions. Prerequisites: AUCSC 210 and AUMAT 250.

**AUCSC 340 Numerical Methods**

★3 (fi 6) (either term, 3-0-1.5). Computer arithmetic and errors, solution of systems of linear equations, root finding, interpolation, numerical quadrature, and numerical solutions of ordinary differential equations. Applications from physics are included. Prerequisites: AUCSC 120, AUMAT 120, 211; or consent of the instructor. Note: Credit may be obtained for only one of AUCSC 340, AUMAT 340, AUPHY 340.

**AUCSC 350 Computer Organization and Architecture II**

★3 (fi 6) (second term, 3-0-1.5). Architecture of historical and contemporary computer systems, including CPU chips and buses, memory, secondary memory devices, and I/O interfaces. Performance enhancement techniques, including prefetching, pipelining, caching, branch prediction, out-of-order and speculative execution, explicit parallelism, and predication are discussed. The course also includes the data path and control logic at the microarchitecture level; error detection and correction; floating-point number representation and calculation; fast arithmetic circuits; instruction sets and formats; and an overview of alternative and parallel architectures, including RISC/CISC, SIMD/MIMD, shared memory and message passing architectures. Prerequisite: AUCSC 250.

**AUCSC 365 Computer Graphics**

★3 (fi 6) (either term, 3-0-1.5). Overview of the principles and methodologies of computer graphics, including the representation, manipulation, and display of two- and three-dimensional objects. Prerequisites: AUCSC 210, AUMAT 110 or 111, and 120.

**AUCSC 368 Digital Multimedia**

★3 (fi 6) (either term, 3-0-1.5). Introduction to multimedia systems, techniques required for distributed multimedia, digital representation of multimedia information, hardware and software technology and tools for multimedia systems design, animation, hypermedia, sound, colour, vector and bitmapped images, three-dimensional graphics, networks and multimedia. Prerequisites: AUCSC 210, AUMAT 110 or 111, and 120.

**AUCSC 370 Programming Languages**

★3 (fi 6) (first term, 3-0-1.5). Principles of language design, abstraction, syntax and parsing, operational semantics (declaration, allocation, evaluation, run-time environment, typing, activation), and programming language paradigms (procedural, object-oriented, functional, logic programming). Prerequisites: AUCSC 210 and AUMAT 250. Corequisite: AUCSC 250.

**AUCSC 380 Operating Systems Concepts**

★3 (fi 6) (second term, 3-0-1.5). Operating system functions, concurrent process coordination, scheduling and deadlocks, memory management and virtual memory, secondary storage management and file systems, protection. Prerequisites: AUCSC 210 and 250. Corequisite: AUCSC 350.

**AUCSC 395 Directed Study I**

★3 (fi 6) (variable, 1-0-3). Intensive study of a specific area of Computing Science as defined by the student and a supervising instructor, including completion of a software project in the selected area. Prerequisite: ★9 of senior-level Computing Science. Notes: Admission to AUCSC 395 normally requires a minimum GPA of 3.0

in Computing Science. An "Application for Individual Study" must be completed and approved before registration in the course.

**AUCSC 398 Selected Topics in Computing Science**

★3 (fi 6) (either term, 3-0-1.5). Advanced study of a selected topic in computing science. The focus and content of each course offering are determined by student and faculty interests, and vary from year to year. Prerequisites: Third-year standing or consent of the instructor; previous course(s) in Computing Science as determined by the instructor.

**AUCSC 401 Professional Practicum I**

★3 (fi 6) (variable, variable). Work experience program focused on gaining practical experience in software engineering and/or with computer software and systems as used in the workplace, and an appreciation of the demands and responsibilities of the computing profession. The practicum may be internal, either as part of an on-campus software development team or as a directed self-study (possibly leading to a professional certification), or external in the context of an off-campus work placement in software development or information systems. The practicum includes a seminar directed by a faculty supervisor or by a workplace supervisor, providing opportunity for evaluation, feedback, reflection, and the sharing of experiences and knowledge. Prerequisites: At least ★18 in Computing Science, third-year standing, and consent of the Department. Note: Participation in the practicum is by application only, and is restricted to Computing Science majors.

**AUCSC 402 Professional Practicum II**

★3 (fi 6) (variable, variable). Work experience program focused on gaining practical experience in software engineering and/or with computer software and systems as used in the workplace, and an appreciation of the demands and responsibilities of the computing profession. The practicum may be internal, either as part of an on-campus software development team or as a directed self-study (possibly leading to a professional certification), or external in the context of an off-campus work placement in software development or information systems. The practicum includes a seminar directed by a faculty supervisor or by a workplace supervisor, providing opportunity for evaluation, feedback, reflection, and the sharing of experiences and knowledge. Prerequisites: AUCSC 401 and consent of the Department. Note: Participation in the practicum is by application only, and is restricted to Computing Science majors.

**AUCSC 410 Advanced Algorithm Analysis and Computational Complexity**

★3 (fi 6) (either term, 3-0-0). Algorithmic optimality. Efficient algorithms for handling complex data structures. Complexity classes P, NP, and P-Space. NP-completeness. Tractable and intractable problems. Methods for obtaining approximate solutions to intractable problems. Prerequisites: AUCSC 310 and 315.

**AUCSC 430 Database Management Systems II**

★3 (fi 6) (either term, 3-0-1.5). Issues in relational database design including functional dependencies and canonical covers, tuple relational calculus, domain relational calculus, query language SQL, query optimization, embedded SQL, SQL transaction processing, constraints, database modification, file structure, file organization, indexing, and dynamic hashing. Implementation in a database management system (typically Oracle). The object data model and object-oriented databases. Prerequisite: AUCSC 330.

**AUCSC 450 Parallel and Distributed Computing**

★3 (fi 6) (either term, 3-0-1.5). Parallel architectures, programming language constructs for parallel computing, parallel algorithms and complexity. Message-passing, remote procedure call, and shared-memory models. Synchronization and data coherence. Load balancing and scheduling. Appropriate applications. Prerequisites: AUCSC 210 and 350.

**AUCSC 455 Computer Communications Networks**

★3 (fi 6) (either term, 3-0-1.5). Current methods and practices in the use of computer networks to enable communication. Physical and architectural elements and information layers of a communication network, including communication protocols, network elements, data link, switching and routing, end-to-end protocols, LANs, and data security. Diagnostic, design, operation, and performance measurement tools that are used to implement, operate and tune a network. Comparison of different network architectures. Prerequisite: AUCSC 350. Corequisite: AUCSC 380.

**AUCSC 460 Artificial Intelligence**

★3 (fi 6) (either term, 3-0-1.5). Survey of concepts and applications of artificial intelligence, including knowledge representation, state-space search, heuristic search, expert systems and shells, natural language processing, propositional logic, learning and cognitive models, vision; implementation using an AI language (LISP or PROLOG). Prerequisites: AUCSC 210, 370, and AUMAT 250.

**AUCSC 470 Programming Language Translation**

★3 (fi 6) (either term, 3-0-1.5). In-depth study of the principles and design aspects of programming language translation, including lexical analysis, syntactic analysis, type checking, code generation, and optimization. Alternative parsing strategies (top-down, LR, recursive descent). Comparison with respect to space and time tradeoffs. Prerequisites: AUCSC 350 and 370.

**AUCSC 480 Operating Systems Project**

★3 (fi 6) (either term, 1-0-3). Implementation and comparison of various algorithms and techniques applicable to operating systems. Prerequisite: AUCSC 380.

**AUCSC 490 Social and Ethical Issues for Computing Professionals**

★3 (*fi 6*) (either term, 3-0-0). Historical and social context of computing; the social and ethical responsibilities of the computing professional; the risks and liabilities that can accompany a computing application; intellectual property. The course includes extensive writing assignments and oral presentations. Prerequisite: At least ★18 in Computing Science, including AUCSC 220 or 330; at least third-year standing.

**AUCSC 495 Directed Study II**

★3 (*fi 6*) (variable, 1-0-3). Intensive study of a specific area of Computing Science as defined by the student and a supervising instructor, including completion of a software project in the selected area. Prerequisite: ★9 in Computing Science at the 300 level. Notes: Admission to AUCSC 495 normally requires a minimum GPA of 3.0 in Computing Science. An "Application for Individual Study" must be completed and approved before registration in the course.

## 221.28 Augustana Faculty - Crime and Community, AUCRI

Department of Social Sciences  
Augustana Faculty

**Undergraduate Courses****AUCRI 160 Introduction to Crime, Correction, and Community**

★3 (*fi 6*) (either term, 3-0-0). Introduction to crime and correction in Canada. The theory and practice accompanying law enforcement, trial, correctional intervention, and probation and parole are analyzed by drawing from a range of disciplinary traditions such as ethical reflection, psychological theory, social and political thought, and biological understandings of criminality. Note: Credit may be obtained for only one of AUCRI 160 and AIDS 160.

**AUCRI 200 Young Offenders and the Law**

★3 (*fi 6*) (either term, 3-0-0). Integrative examination of theories of delinquency, the relationship of the young offender to Canadian criminal law, family, drug abuse, child abuse, and recent developments in community-based treatment programs. Note: Credit may be obtained for only one of AUCRI 200 and AUSOC 200.

**AUCRI 222 Canadian Social Issues**

★3 (*fi 6*) (either term, 3-0-0). Introduction to sociological perspectives on social problems. Various theoretical orientations are applied to contemporary Canadian social issues such as poverty, gender issues, aboriginal rights, human sexuality, and regionalism. Note: Credit may be obtained for only one of AUCRI 222 and AUSOC 222.

**AUCRI 224 Studies in Deviant Behaviour**

★3 (*fi 6*) (either term, 3-0-0). Interactionist analysis of processes accompanying the definition of deviance, subculture formation, careers of involvement in deviant activities, and the formal and informal regulation of deviance. Prerequisite: One of AUCRI 160, AIDS 160, AUSOC 101, 103, 105. Note: Credit may be obtained for only one of AUCRI 224 and AUSOC 224.

**AUCRI 225 Criminology: A Canadian Perspective**

★3 (*fi 6*) (either term, 3-0-0). Examination of anthropological and sociological explanations of crime and criminality, including a cross-cultural analysis of the social processes accompanying criminal activities. The course focuses on criminality as defined under Canadian criminal law and the traditional legal systems of Canada's aboriginal peoples. Prerequisite: One of AUCRI 160, AIDS 160, AUSOC 101, 103, 105. Note: Credit may be obtained for only one of AUCRI 225 and AUSOC 225.

**AUCRI 260 Crime and Community Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research and skills in the discipline of Crime and Community. Prerequisite: Second-year standing in an IDS-Crime and Community degree program. Corequisite: Second-year standing in Crime and Community. Any senior course in Crime and Community that requires library research. Notes: The corequisite must be taken concurrently. Credit may be obtained for only one of AUCRI 260, AUPOL 201, AUSOC 231.

**AUCRI 327 Crimes of the Powerful**

★3 (*fi 6*) (either term, 3-0-0). Why is it that so much attention is paid to "street crime" while the crimes of the powerful go virtually unpunished and sometimes unnoticed? A comprehensive examination of the prevalence and impact of crime committed by the powerful, including white collar occupational crime, corporate crimes, and crimes committed by the state. Prerequisite: One of AUCRI/AUIDS 160, AUCRI/AUSOC 224, AUCRI/AUSOC 225, AUCRI/AUSOC 253/353. Note: Credit may be obtained for only one of AUCRI 327/427 and AUSOC 327/427.

**AUCRI 353 Law, Politics, and the Judicial Process**

★3 (*fi 6*) (either term, 3-0-0). Examination of the Canadian judicial branch of government in comparative perspective. The course probes court structures; judicial independence, appointment, discipline, and removal; judicial decision-making processes; and courts and the public policy process. Prerequisite: One of AUPOL 103, 104, 221, AUCRI 160, AIDS 160. Note: Credit may be obtained for only one of AUCRI 253 (2005), 353, AUPOL 253 (2005), 353.

**AUCRI 422 The Canadian Charter of Rights and Freedoms**

★3 (*fi 6*) (either term, 3-0-0). Study of the Canadian Charter and its effect on Canadian politics and government. The course traces the development of Charter jurisprudence and examines the Charter's effect on federalism, public policy (including criminal law), and political culture. Prerequisite: One of AUPOL 103, 104, 221, AUCRI 160, AIDS 160. Note: Credit may be obtained for only one of AUCRI 322 (2005), 422, AUPOL 322 (2005), 422.

**AUCRI 427 Crimes of the Powerful**

★3 (*fi 6*) (either term, 3-0-0). Why is it that so much attention is paid to "street crime" while the crimes of the powerful go virtually unpunished and sometimes unnoticed? A comprehensive examination of the prevalence and impact of crime committed by the powerful, including white collar occupational crime, corporate crimes, and crimes committed by the state. Prerequisite: One of CRI/IDS 160, CRI/SOC 224, CRI/SOC 225, CRI/SOC 253/353. Note: Credit may be obtained for only one of CRI 327/427 and SOC 327/427.

**AUCRI 488 Forensic Psychology**

★3 (*fi 6*) (either term, 3-0-0). Examination of the psychology of criminal conduct. Topics covered include theories of antisocial and criminal behaviour, the psychological effects of incarceration, values and beliefs of offenders, eyewitness testimony, and the assessment and treatment of offenders - in particular, sexual offenders. Prerequisite: AUPSY 220. Corequisite: AUPSY 483 or 486. Note: Credit may be obtained for only one of AUCRI 488 and AUPSY 488.

## 221.29 Augustana Faculty - Drama, AUDRA

Department of Fine Arts  
Augustana Faculty

**Undergraduate Courses****AUDRA 101 Play Analysis**

★3 (*fi 6*) (either term, 3-0-0). Survey and critical analysis of dramatic literature from ancient Greek to contemporary.

**AUDRA 123 Introduction to Oral Communication**

★3 (*fi 6*) (either term, 3-2L-0). Study in speech and rhetoric for effective oral communication and interpretation.

**AUDRA 138 Theatre Company**

★3 (*fi 6*) (first term, 0-6L-0). Ensemble production of improvisational or scripted plays. Involves an extensive research component appropriate to the chosen production. Prerequisite: Consent of the instructor, based on audition.

**AUDRA 139 Theatre Company**

★3 (*fi 6*) (second term, 0-6L-0). Ensemble production of improvisational or scripted plays. Involves an extensive research component appropriate to the chosen production. Prerequisite: Consent of the instructor, based on audition. Note: Distinct from AUDRA 138 in that it is a separate production with a different director.

**AUDRA 141 Introduction to Dramatic Process**

★3 (*fi 6*) (either term, 0-6L-0). Speech and movement improvisation with an emphasis on imaginative development; introduction to the process of acting and to dramatic form.

**AUDRA 148 Community Theatre**

★2 (*fi 4*) (two term, 0-4L-0). Two-credit course offered over the full year, including participation in all scheduled performances. Participation in the course is determined by audition C being cast in a significant role in the chosen production. Prerequisite: Consent of the Division. Note: An "Application for Community Theatre Studies" must be completed and approved before registration in the course.

**AUDRA 201 History and Critical Analysis of Theatre**

★3 (*fi 6*) (either term, 3-0-0). Survey of crucial works, genres, and styles, within the history of Western theatre along with the critical analysis of contemporary theatrical presentations. Prerequisite: AUDRA 101.

**AUDRA 220 Introduction to Voice and Speech for Actors**

★3 (*fi 6*) (either term, 0-6L-0). Introduction to the workings of the human voice and its application to spoken texts.

**AUDRA 228 Drama Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of Drama. Prerequisite: Second-year standing in a Drama degree program. Corequisite: Any senior course in Drama that requires library research. Notes: The corequisites must be taken concurrently. Credit may be obtained for only one of AUDRA 228, AUENG 201 (2004), AUENG 204, AUFRE 210, AUGER 210, AUSCA 210.

**AUDRA 230 Acting Techniques I**

★3 (*fi 6*) (either term, 0-6L-0). Introduction to scene study with an emphasis on character and text analysis. Prerequisites: AUDRA 141 and consent of the instructor.

**AUDRA 238 Theatre Company**

★3 (*fi 6*) (first term, 0-6L-0). Ensemble production of improvisational or scripted plays. Involves an extensive research component appropriate to the chosen production. Prerequisites: AUDRA 141, and consent of the instructor based on audition.

**AUDRA 239 Theatre Company**

★3 (fi 6) (second term, 0-6L-0). Ensemble production of improvisational or scripted plays. Involves an extensive research component appropriate to the chosen production. Prerequisites: AUDRA 141, and consent of the instructor based on audition. Note: Distinct from AUDRA 238 in that it is a separate production with a different director.

**AUDRA 244 Improvisational Workshop**

★3 (fi 6) (either term, 0-6L-0). Practice in the preparation and application of improvisational theatre. Prerequisites: AUDRA 141 and consent of the instructor.

**AUDRA 248 Community Theatre**

★2 (fi 4) (two term, 0-4L-0). Two-credit course offered over the full year, including participation in all scheduled performances. Participation in the course is determined by audition C being cast in a significant role in the chosen production. Prerequisite: Consent of the Division. Note: An "Application for Community Theatre Studies" must be completed and approved before registration in the course.

**AUDRA 275 Theatre Management**

★3 (fi 6) (either term, 0-6L-0). Instruction and practical experience in stage management, publicity and promotion, fundraising, front of house and lighting and sound operation in a repertory theatre setting. Prerequisite: Second-year standing.

**AUDRA 301 Directed Reading I**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of Drama to be defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended for a student with a major in Drama.

**AUDRA 310 Modern Canadian Drama**

★3 (fi 6) (either term, 3-0-0). Survey of Canadian Drama designed to familiarize students with the dramatic literature and theatrical practices of a representative group of twentieth century Canadian playwrights. Prerequisite: AUDRA 101.

**AUDRA 320 Vocal Masque**

★3 (fi 6) (either term, 0-6L-0). Exploration, practice, and experimentation in performer-created theatre using the technique of "vocal masque." Prerequisite: AUDRA 230.

**AUDRA 338 Theatre Company**

★3 (fi 6) (first term, 0-6L-0). Ensemble production of improvisational or scripted plays. Involves an extensive research component appropriate to the chosen production. Prerequisites: AUDRA 238 or 239, and consent of the instructor based on audition.

**AUDRA 339 Theatre Company**

★3 (fi 6) (second term, 0-6L-0). Ensemble production of improvisational or scripted plays. Involves an extensive research component appropriate to the chosen production. Prerequisites: AUDRA 238 or 239, and consent of the instructor based on audition. Note: Distinct from AUDRA 338 in that it is a separate production with a different director.

**AUDRA 340 Movement for the Theatre**

★3 (fi 6) (either term, 1-2L-0). Exploration of movement for the performer; study and development toward an awareness of the physical body in space; and study in expression and personal movement patterns. Prerequisite: AUDRA 141 or 230 or consent of the instructor.

**AUDRA 345 Popular Theatre: Theatre for Education and Action**

★3 (fi 6) (either term, 0-6L-0). Study and practice of "social action" and "educational" theatre for special populations. The course explores the many possible ways and means of creating theatre for these audiences, including improvisational methods through collective creation. Prerequisite: Third year standing or consent of the instructor. Note: Formerly AUDRA 245 (2004).

**AUDRA 346 Drama in Education**

★3 (fi 6) (either term, 0-6L-0). Study and practice of drama in education and theatre for young audiences, including exploration into developmental and collective theatre techniques that can be directly applied to the classroom. Prerequisites: AUDRA 141 and consent of the instructor. Notes: The course is appropriate for a student who is planning to teach at the elementary school level. Formerly AUDRA 246 (2004).

**AUDRA 348 Community Theatre**

★2 (fi 4) (two term, 0-4L-0). Two-credit course offered over the full year, including participation in all scheduled performances. Participation in the course is determined by audition C being cast in a significant role in the chosen production. Prerequisite: Consent of the Division. Note: An "Application for Community Theatre Studies" must be completed and approved before registration in the course.

**AUDRA 350 Introduction to Directing**

★3 (fi 6) (either term, 0-6L-0). Fundamentals of directing explored through practical exercises. Prerequisites: AUDRA 141 and consent of the instructor.

**AUDRA 360 Dramaturgy**

★3 (fi 6) (either term, 3-0-0). Role of the dramaturge, in theory and practice, in professional and amateur theatre. Offers a bridge between the academic (theoretical

and historical ) and the practical (communicating to an audience) aspects of the discipline. Prerequisite: AUDRA 101 or 201 or consent of the instructor.

**AUDRA 367 Critical Discourse and the Fine Arts**

★3 (fi 6) (either term, 0-3s-0). Introduction to Theory and the Fine Arts. A critical study of historical and contemporary issues in the fine arts with an emphasis on themes common to the disciplines of drama, music and the visual arts as cultural processes. Discussions of various theoretical positions including critical and cultural theory, aesthetic theory, disciplinary history and a history of criticism. Prerequisite: Third-year standing. Note: Credit may be obtained for only one of AUDRA 367, 467, AUART 367, 467, AUMUS 367,467.

**AUDRA 395 Canadian Theatre Festivals Tour**

★3 (fi 6) (either term, 1-0-0). Includes 1 week tour. Examination of the significance of two festivals to Canadian theatre history and exploration of the impact of G. B. Shaw and William Shakespeare on Western theatre. This course analyses texts from the current year's festivals and includes a week-long tour to Canada's two major theatre festivals The Shaw Festival at Niagara-on-the-Lake and the Stratford Festival at Stratford.

**AUDRA 396 Selected Topics**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected topics related to the theory, history, and practice of performance on stage or in secondary visual media. Prerequisite: AUDRA 101.

**AUDRA 397 Selected Topics**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected topics related to the theory, history, and practice of performance on stage or in secondary visual media. Prerequisite: AUDRA 101.

**AUDRA 398 Selected Topics**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected topics related to the theory, history, and practice of performance on stage or in secondary visual media. Prerequisite: AUDRA 101.

**AUDRA 399 Selected Topics**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected topics related to the theory, history, and practice of performance on stage or in secondary visual media. Prerequisite: AUDRA 101.

**AUDRA 401 Directed Reading II**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of concentration for highly advanced students to be defined by the student and a supervising instructor. Prerequisite: AUDRA 301. Notes: An application for Individual Study must be completed and approved before registration in the course. Must have fourth year standing and receive Department Chair approval. Formerly AUDRA 301(2004).

**AUDRA 430 Movement and Physical Theatre**

★3 (fi 6) (either term, 0-6L-0). Introduction to the use of abstract and improvisational movement with a view to creating physical performance pieces. Prerequisite: AUDRA 320 or 340.

**AUDRA 431 Acting for the Camera**

★3 (fi 6) (either term, 0-6L-0). Introduction to the basics of acting for both television and film style productions. Emphasis is placed on truthful acting within the medium of the camera. The course will include live tapings of auditions (including selected scenes and monologues), and cold readings for sitcoms and television dramas. Prerequisites: AUDRA 230 and 244.

**AUDRA 433 Clown and Mask**

★3 (fi 6) (either term, 3-0-0). Exploration and experimentation in impulse inspired performance using mask, improvisation and clowning techniques. Prerequisite: AUDRA 230 or 244.

**AUDRA 437 Senior Showcase**

★3 (fi 6) (either term, 0-6L-0). Research, rehearsal, production and performance of a play chosen specifically for a senior level acting ensemble. Priority given to fourth year students. Prerequisites: AUDRA 230 and 238 or 239.

**AUDRA 438 Theatre Company**

★3 (fi 6) (first term, 0-6L-0). Ensemble production of improvisational or scripted plays. Involves an extensive research component appropriate to the chosen production. Prerequisites: AUDRA 338 or 339, and consent of the instructor based on audition.

**AUDRA 439 Theatre Company**

★3 (fi 6) (second term, 0-6L-0). Ensemble production of improvisational or scripted plays. Involves an extensive research component appropriate to the chosen production. Prerequisites: AUDRA 338 or 339, and consent of the instructor based on audition. Note: Distinct from AUDRA 438 in that it is a separate production with a different director.

**AUDRA 444 Improvisation Intensive**

★3 (fi 6) (either term, 0-6L-0). Focused on the work of Viola Spolin and Paul Sills, the course will challenge students to find focus B both collectively and as an individual performer. Various problems in theatre will be addressed including how to create a spontaneous performance by applying improvisation to traditional script-acting. Prerequisite: AUDRA 244.

**AUDRA 448 Community Theatre**

★2 (fi 4) (two term, 0-4L-0). Two-credit course offered over the full year, including participation in all scheduled performances. Participation in the course is determined by audition C being cast in a significant role in the chosen production. Prerequisite: Consent of the Division. Note: An "Application for Community Theatre Studies" must be completed and approved before registration in the course.

**AUDRA 467 Critical Discourse and the Fine Arts**

★3 (fi 6) (either term, 0-3s-0). Introduction to Theory and the Fine Arts. A critical study of historical and contemporary issues in the fine arts with an emphasis on themes common to the disciplines of drama, music and the visual arts as cultural processes. Introduction to Theory and the Fine Arts. A critical study of historical and contemporary issues in the fine arts with an emphasis on themes common to the disciplines of drama, music and the visual arts as cultural processes. Discussions of various theoretical positions including critical and cultural theory, aesthetic theory, disciplinary history and a history of criticism. Prerequisite: Third-year standing. Note: Credit may be obtained for only one of AUDRA 367, 467, AUART 367, 467, AUMUS 367,467.

**AUDRA 484 Playwriting**

★3 (fi 6) (either term, 0-4L-0). Study of the theory of, and practice in, writing for the stage. Prerequisites: AENUG 103, 104, and consent of the instructor.

## 221.30 Augustana Faculty - Economics, AUECO

Department of Social Sciences  
Augustana Faculty

### Undergraduate Courses

**AUECO 100 Introduction to Economics**

★3 (fi 6) (either term, 3-0-0). Fundamental concepts of economics with particular application to the Canadian economy; key economic indicators and their interrelation; and a description of how societies choose to allocate resources, with special emphasis on allocation by markets. Note: Credit may be obtained for only one of AUECO 100 and 101.

**AUECO 101 Introduction to Microeconomics**

★3 (fi 6) (either term, 3-0-0). Economic analysis, problems, and policies, with emphasis on the Canadian economy; roles of consumers and firms in competitive and monopolistic markets; foreign ownership in the Canadian economy; distribution of income, inequality, and poverty; use of the environment; government economic policies. Note: Credit may be obtained for only one of AUECO 101 and 100.

**AUECO 102 Introduction to Macroeconomics**

★3 (fi 6) (either term, 3-0-0). Economic analysis, problems, and policies, with emphasis on the Canadian economy; national income and monetary theory; problems of unemployment and inflation; government monetary and fiscal policies; international trade theory, problems, and government policies. Prerequisite: AUECO 100 or 101.

**AUECO 110 Critical Thinking in Economics and Business I**

★1 (fi 2) (either term, 1-0-0). Current issues in economics and business; development of speaking, writing, and critical thinking skills for economics and business. Prerequisite: AUECO 100 or 101. Note: Open only to a student with a major in Economics, or who is in the Bachelor of Management in Business Economics program.

**AUECO 203 Intermediate Microeconomic Analysis I**

★3 (fi 6) (either term, 3-0-0). Theory of consumer behaviour; theory of production and cost; price and output determination under competition, monopoly, and other market structures. Prerequisite: AUECO 100 or 101.

**AUECO 204 Intermediate Macroeconomic Analysis I**

★3 (fi 6) (either term, 3-0-0). National income concepts and income determination; theories of aggregate consumption, investment, and employment behaviour; monetary and fiscal policy. Prerequisite: AUECO 102.

**AUECO 206 Mathematics for Economics and Finance**

★3 (fi 6) (either term, 3-0-0). Mathematical analysis of problems arising in economics and finance, including an introduction to economic modelling; simple, compound, and continuous rates of interest; static and comparative-static analysis; optimization; annuities, mortgages, bonds, and other securities; dynamics. Prerequisites: AUECO 101 and one of AUMAT 110, 111, 120. Note: Credit may be obtained for only one of AUECO 206, AUMGT 206, AUMAT 235, AUECO 306 (2004).

**AUECO 210 Critical Thinking in Economics and Business II**

★1 (fi 2) (either term, 1-0-0). Current issues in economics and business, and the development of speaking, writing, and critical thinking skills for economics and business. Prerequisites: AUECO 100 or 101; 102; and 110. AUGEN 101 (2002) may be substituted for AUECO 110 if taken before the student's enrolment in economics or management. Note: Open only to a student with a major in Economics, or who is in the Bachelor of Management in Business Economics program.

**AUECO 212 Economics Studies and Information Literacy**

★1 (fi 2) (either term, 1-0-0). Introduction to library research skills in the discipline of Economics. Prerequisite: Second-year standing in an Economics degree program. Corequisite: Any senior course in Economics that requires library research. Notes: Credit may be obtained for only one of AUECO 212, AUMGT 212. The corequisite must be taken concurrently.

**AUECO 215 Economic Thought**

★3 (fi 6) (either term, 3-0-0). Survey of the history of economic thought, focusing on the major schools of thought from classical political economy to post-war neoclassicism. Prerequisite: AUECO 100 or 101. Note: Credit may be obtained for only one of AUECO 215, 316 (1999), 317 (1999).

**AUECO 220 Thinking Strategically**

★3 (fi 6) (either term, 3-0-0). Introduction to game theory and strategic thinking in economics, business, and related disciplines. Prerequisites: One of Pure Mathematics 30, AUMAT 092, 102; and AUECO 100 or 101.

**AUECO 251 History of Canadian Economic Development**

★3 (fi 6) (either term, 3-0-0). Survey of Canada's economic development from before Confederation until the present. Note: Credit may be obtained for only one of AUECO 251 and AUHIS 262.

**AUECO 253 India Tour Orientation**

★1 (fi 2) (second term, 2-0-0). Examination of the intersection between religion and development in India. Students research and present on a particular topic relevant to the intersection of religion and development, as well as participate in team building exercises. Issues such as health and safety, travel preparations, dealing with culture shock, and the regional geography of India will be covered. Prerequisite: One of AUREL 100, 283, AUECO 101, consent of the instructor. Notes: This is a prerequisite course for the India Tour (AUECO 254/AUREL 266). Costs associated with the India Tour (3-weeks) and applicable tuition are the responsibility of the student. Enrolment is limited to 15 students. This course can only be taken by students who also register in AUECO 254/AUREL 266. Credit may be obtained for only one of AUECO 253, AUREL 265.

**AUECO 254 India Tour**

★3 (fi 6) (spring/summer, 3 weeks). Three-week study tour of India that focuses on a chosen region of India in order to examine the intersection between religious belief and practice and development challenges. Students will be exposed to various development projects as well as an array of religious sites. It is expected that students will gain an in depth understanding of India, its cultural and religious diversity, and the challenges it faces in the 21st century. Students will be exposed to both rural and urban life. Prerequisite: AUECO 253 or AUREL 265. Notes: Costs associated with this India Tour course and applicable tuition are the responsibility of the students. Enrolment is limited to 15 students. Credit may be obtained for only one of AUECO 254, AUREL 264 (2004), 266.

**AUECO 257 The International Economy in Historical Perspective I**

★3 (fi 6) (either term, 3-0-0). Economic analysis of modern economic growth focusing on the Industrial Revolution and its consequences. Critical thinking about why the Industrial Revolution and its related economic growth models can and/or cannot be generalized worldwide is also encouraged.

**AUECO 258 The International Economy in Historical Perspective II**

★3 (fi 6) (either term, 3-0-0). Economic analysis of the international economy during the past century. Topics examined include the disintegration of national and international economies after World War I, the Great Depression, and the fate of national and international economies after World War II. Critical thinking about whether international economic integration has promoted worldwide economic growth and stability is also encouraged.

**AUECO 264 Globalization and Growth**

★3 (fi 6) (first term, 3-0-0). Study of globalization and its role in economic development from a historical perspective. This course will examine the pros and cons of globalization, reasons countries trade, the distributional consequences of trade, and the role of multinational and international organizations. Prerequisite: AUECO 101.

**AUECO 309 Quantitative Methods in Economics**

★3 (fi 6) (either term, 3-0-3). Introduction to the measurement of economic variables and the application of the techniques of statistical inference to economic analysis. Topics examined include methods of data collection, the reliability of economic data, statistical estimation, the organization of data for the purpose of comparison, the testing of hypotheses with data, and the interpretation of the results of statistical procedures. Prerequisites: AUSTA 153 and AUECO 203. Note: Credit may be obtained for only one of AUECO 309 and 311.

**AUECO 310 Critical Thinking in Economics and Business III**

★1 (fi 2) (either term, 1-0-0). Current issues in economics and business; and the development of speaking, writing, and critical thinking skills for economics and business. Prerequisites: AUECO 210 and at least a further ★12 at a senior-level in Economics. Note: Open only to a student with a major in Economics, or who is in the Bachelor of Management in Business Economics program.

**AUECO 311 Introductory Econometrics**

★3 (fi 6) (either term, 3-0-3). Introduction to the application of econometric methods in economics and business. The focus is on major topics in econometrics with

emphasis on applied regression methods. Prerequisites: AUSTA 153 and AUECO 203. Note: Credit may be obtained for only one of AUECO 311 and 309.

#### **AUECO 314 The Economics and Literature of Nineteenth-Century British Capitalism**

★3 (fi 6) (either term, 3-0-0). Study of British economic and literary works from 1776 to 1890, covering the basic writings of classical political economy, Victorian literary reactions to political economy and Industrial Revolution, Karl Marx, and the late Victorian emergence of neoclassical economics and Fabian socialism. The course combines economic and literary perspectives by focusing on the economic dimension of the literary work and the rhetorical features of the economic writing. Prerequisite: AUENG 103. Note: Credit may be obtained for only one of AUECO 314 and AUENG 351.

#### **AUECO 323 Industrial Organization**

★3 (fi 6) (either term, 3-0-0). Exploration of various patterns of internal organization in industries, focusing on the relations among the structure, conduct, and performance of the industries. Prerequisite: AUECO 100 or 101. Note: Credit may be obtained for only one of AUECO 323, 322 (2004), AUMGT 323.

#### **AUECO 325 Women, Work, and Welfare in Canada**

★3 (fi 6) (either term, 3-0-0). Examination of the economic emergence of women and its consequences for Canadian economic organization. Topics include the changing relation of women and men at work, economic evaluation of women's labour market choices, competing explanations for the difference between men's and women's earnings, women in poverty, and the impact of women's economic emergence on their welfare and on the economic organization of Canadian society. Prerequisite: AUECO 100 or 101.

#### **AUECO 328 Economics of the Internet**

★3 (fi 6) (either term, 3-0-0). Investigation of the transformation of knowledge, the creation and commercialization of intellectual property, and the restructuring of economic and social relations brought about by the internet. The course also examines e-commerce and the challenge posed to economic theory by the presence of increasing returns across the knowledge economy. Prerequisite: AUECO 100 or 101.

#### **AUECO 333 Money and Banking in Canada**

★3 (fi 6) (either term, 3-0-0). Study of the role of money and of monetary institutions and policy in the framework of Canadian financial institutions. Prerequisite: AUECO 100 or 101.

#### **AUECO 336 Economics of Financial Markets**

★3 (fi 6) (either term, 3-0-0). Examination of economic approaches to financial market activity: the meaning and measurement of risk, portfolio investment choices and market equilibrium, theory of interest and the term structure of interest rates, inter-temporal and macro-policy issues, and debt management. Prerequisite: AUECO 100 or 101.

#### **AUECO 341 Environmental Economics**

★3 (fi 6) (either term, 3-0-0). Examination of the relationships between the economy and the environment. Emphasis is placed on the application of economic analysis to various environmental issues. Prerequisite: AUECO 100 or 101. Note: Credit may be obtained for only one of AUECO 341 and AUENV 341.

#### **AUECO 346 Agricultural Economics**

★3 (fi 6) (either term, 3-0-0). Study of economic theory and policy relating to the agricultural sector of the economy. Emphasis is placed on the economic aspects of agricultural production, marketing, finance, and resource use with particular reference to agricultural policy in Canada and Alberta. Prerequisite: AUECO 100 or 101.

#### **AUECO 360 International Economics**

★3 (fi 6) (either term, 3-0-0). Examination of the theories of international trade and investment, the international monetary system, and the multinational firm. Prerequisite: AUECO 100 or 101.

#### **AUECO 363 International Finance**

★3 (fi 6) (either term, 3-0-0). Examination of the types of international transactions, exchange rate determination, balance of payments adjustments, macroeconomics in an open economy, and other issues in the international monetary system. Prerequisite: AUECO 102.

#### **AUECO 364 Development Economics**

★3 (fi 6) (either term, 3-0-0). Survey of the major approaches to and problems of economic development in the less-developed nations. Particular emphasis is placed on issues relating to capital accumulation, income distribution, population growth and employment, and international economic relations. Prerequisite: AUECO 100 or 101.

#### **AUECO 393 Public Sector Economics**

★3 (fi 6) (either term, 3-0-0). Analysis of the use of resources for public purposes by all levels of government, emphasizing the rationale for public expenditures, taxation structures, and public choice mechanisms. Prerequisite: AUECO 102.

#### **AUECO 397 Directed Reading I**

★3 (fi 6) (variable, 3-0-0). Intensive study of a specific area of economics as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Notes: An "Application for Individual Study" must be completed and

approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in economics.

#### **AUECO 398 Directed Reading II**

★3 (fi 6) (variable, 3-0-0). Intensive study of a specific area of economics as defined by the student and a supervising instructor. Prerequisites: AUECO 397 or 497, and consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in economics.

#### **AUECO 422 Industrial Organization and Policy**

★3 (fi 6) (either term, 3-0-0). Examination of oligopoly theory, the economics of mergers and takeovers, competition policy, and industry regulation. Prerequisites: AUECO 203 and AUECO/AUMGT 323. Note: Credit may be obtained for only one of AUECO 422, AUMGT 422.

#### **AUECO 436 Economics of Financial Markets**

★3 (fi 6) (either term, 3-0-0). Examination of economic approaches to financial market activity: the meaning and measurement of risk, portfolio investment choices and market equilibrium, theory of interest and the term structure of interest rates, inter-temporal and macro-policy issues, and debt management. Prerequisite: AUECO 100 or 101.

#### **AUECO 449 Economic Methods of Project Evaluation**

★3 (fi 6) (either term, 3-0-0). Analysis of investment projects using various economic methods. Topics include the use of cost-benefit analysis, impact analysis, and methods to examine the relations among economic activity, the environment, and development. Prerequisites: AUECO 203 and 204.

#### **AUECO 463 International Finance**

★3 (fi 6) (either term, 3-0-0). Examination of the types of international transactions, exchange rate determination, balance of payments adjustments, macroeconomics in an open economy, and other issues in the international monetary system. Prerequisite: AUECO 102.

#### **AUECO 465 International Trade Policy and Applications**

★3 (fi 6) (either term, 3-0-0). Examination of various trade models. The application of economic tools to international trade policy; tariffs, quotas, export subsidies, and application of game theory to international trade. Prerequisite: AUECO 203. Note: AUECO 360 is highly recommended.

#### **AUECO 480 Ethics in Economics and Business**

★3 (fi 6) (either term, 3-0-0). Investigation of the relation between ethical reflection and the activities of businesses and economics. Attention is paid to the role of self-interest and rationality in economic and business discourse, the relation between the price system and human values, and the morality of the market as a means of social organization. Several case studies are used. Prerequisite: At least ★6 at a senior-level in Economics or Management.

#### **AUECO 497 Directed Reading I**

★3 (fi 6) (variable, 3-0-0). Intensive study of a specific area of economics as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in economics.

#### **AUECO 498 Directed Reading II**

★3 (fi 6) (variable, 3-0-0). Intensive study of a specific area of economics as defined by the student and a supervising instructor. Prerequisites: AUECO 397 or 497, and consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in economics.

## 221.31 Augustana Faculty - Education Field Experience, AUEFX

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### **AUEFX 200 Introduction to the Profession of Teaching**

★3 (fi 6) (either term, 2-0-4). Orientation to teaching. For the laboratory component of the course, a student spends half a day per week assisting in a local elementary or secondary school. Note: Credit may be obtained for only one of AUEFX 200 and 201.

#### **AUEFX 201 Orientation to Teaching**

★3 (fi 6) (either term, 2-0-6). Introductory education course with a field experience component for a student intending to teach at the elementary or secondary level. The field experience component consists of two three-hour or three two-hour blocks of time per week assisting in a local school classroom. Notes: The course is designed for a student intending to apply for admission to the Faculty of Education at the University of Lethbridge, which requires a field experience component of at least 60 hours. Credit may be obtained for only one of AUEFX 201 and 200.

## 221.32 Augustana Faculty - Educational Computing, AUEDC

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### AUEDC 202 Technology Tools for Teaching and Learning

★3 (fi 6) (either term, 3-0-1). Exploration, at both the introductory and more advanced levels, of the most common information technology tools currently used in schools, including tools for internet access, digital media processing, multimedia/hypermedia presentations, spreadsheets, and databases. Prerequisite: Basic computer skills, preferably within a MS Windows environment, including word processing, e-mail, and use of a web browser. Note: Credit may be obtained for only one of AUEDC 202 and AUCSC 105 (2003).

## 221.33 Augustana Faculty - Educational Psychology, AUEPS

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### AUEPS 258 Educational Psychology for Teaching

★3 (fi 6) (either term, 2-0-1). Introduction to the fundamental concepts and issues in educational psychology. The focus is on the child from preschool to adolescence through examination of learning and instruction, individual differences, motivation, assessment, and classroom management. Prerequisite: AUPSY 102.

## 221.34 Augustana Faculty - English, AUENG

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### AUENG 91 Reading, Writing, and the Research Paper

★3 (fi 6) (either term, 3-0-0). Introduction, through discussion and lecture, to thinking and writing critically about fiction, poetry, and drama, based on a study of selected literary works. An important segment deals with the application of basic modern methods in the use and acknowledgment of sources and source materials for the university term paper and general beginning research. Prerequisite: ELA 20-1 or English 20 or consent of the instructor. Notes: The course is normally not open to a student with credit in ELA 30-1 or English 30. It does not count toward the BA or BSc degree.

#### AUENG 92 Literature, Composition, and Oral Expression

★3 (fi 6) (either term, 3-0-0). For the general student as well as the prospective English major. Emphasis is placed on reading selections from many historical periods. The course is designed to develop the student's imaginative understanding of literature and his or her ability to write and speak. Prerequisite: AUENG 091 or consent of the instructor. Notes: The course is normally not open to a student with credit in ELA 30-1 or English 30. It does not count toward the BA or BSc degree.

#### AUENG 103 English Literature from the Romantic Period to the Present

★3 (fi 6) (either term, 3-0-0). Examination of works of literature in English from the major literary periods and principal genres from the Romantic period up to the present. British, United States, and Canadian literatures are represented. Prerequisite: ELA 30-1 or English 30.

#### AUENG 104 English Literature from the Middle Ages to the Romantic Period

★3 (fi 6) (either term, 3-0-0). Examination of works of literature in English from the major literary periods and principal genres from the Middle Ages to the end of the eighteenth century. Prerequisite: AUENG 103.

#### AUENG 202 Women's Writing and Feminist Theology

★3 (fi 6) (either term, 3-0-0). Several contemporary feminist theological approaches will be used to analyze religious and devotional writings by women from various historical periods and areas of the English-speaking world. Texts in the areas of scripture, systematic theology, ethics, and feminist theory and spirituality will be analyzed to understand the importance of feminist theological practice in dialogue with the Judeo-Christian tradition and women's struggles for justice and well-

being. Literary texts will include fiction, poetry, essays and personal narrative by authors such as Toni Morrison, Louise Erdrich, Alice Sebold, Emily Dickinson, Adrienne Rich, and Louise Glück. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 302.

#### AUENG 204 English and Information Literacy

★1 (fi 2) (either term, 1-0-0). Introduction to library research skills in the discipline of English. Prerequisite: Second-year standing in an English degree program. Corequisite: A senior course in English that requires library research. Notes: The corequisite must be taken concurrently. Credit may be obtained for only one of AUENG 204, AUENG 201 (2004), AUFRE 210, AUDRA 228, AUGER 210 and AUSCA 210.

#### AUENG 205 Children's Literature

★3 (fi 6) (either term, 3-0-0). Offers a critical study of literature written for or appropriated by children. The course considers the historical development of children's literature and examines prevailing and changing attitudes toward children. It addresses major themes and issues in children's literature, and studies significant texts representative of important genres and trends in the field. Critical analysis of the literature will be stressed. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 305.

#### AUENG 206 Folklore in Children's Literature in English

★3 (fi 6) (either term, 3-0-0). Examination of the related fields of folklore and fantasy in children's literature in English. Those elements of folklore, mythology, and legend that have become a traditional part of children's literature are studied. Also included are certain modern adaptations and fantasies that have their origins in myth and folklore. Prerequisites: AUENG 103 and 104.

#### AUENG 207 Aboriginal/Indigenous Literature

★3 (fi 6) (either term, 3-0-0). Offers a critical study of literature by First Peoples, including narratives from the oral tradition, fiction, poetry, drama, essays, and personal narratives. Themes will include traditional and contemporary perspectives on gender, cultural and political identity, and spirituality. Multiple critical approaches (aesthetic, linguistic, political, historical, and cultural) will be employed in examining this literature, including selections from Native critical texts. Content, period, and national focus will vary. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 307.

#### AUENG 208 African Literature

★3 (fi 6) (either term, 3-0-0). Survey of African literature in English from a variety of genres. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 308.

#### AUENG 211 The History of the English Language

★3 (fi 6) (either term, 3-0-0). Introduction to the historical development of the English language from its Indo-European roots to its present-day forms, including Canadian English. Prerequisites: AUENG 103 and 104. Formerly part of AUENG 213. Note: Not to be taken by students with credit in AUENG 311.

#### AUENG 212 The English Language

★3 (fi 6) (either term, 3-0-0). Introduction to the structures, varieties, and uses of contemporary English. Prerequisites: AUENG 103 and 104. Formerly part of AUENG 213. Note: Not to be taken by students with credit in AUENG 312.

#### AUENG 213 The English Language

★3 (fi 6) (either term, 3-0-0). Introduction to the structures, varieties and uses of contemporary English, and a survey of its historical development. Prerequisites: AUENG 103 and 104. Note: Credit may be obtained for only one of AUENG 213, 313, 211, 212, 312, 313.

#### AUENG 215 Creative Writing

★3 (fi 6) (either term, 3-0-0). Introduction to the writing of poetry and short fiction. Literary examples are analyzed, and a student is required to write poetry and fiction with attention to specific elements of writing such as imagery, structure, dialogue, and characterization. A central element of the course is peer discussion. Prerequisites: AUENG 103 and 104.

#### AUENG 221 Chaucer

★3 (fi 6) (either term, 3-0-0). Selected works by Chaucer, with emphasis on The Canterbury Tales. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 321.

#### AUENG 225 Middle Ages

★3 (fi 6) (either term, 3-0-0). Old and Middle English literature (excluding Chaucer) in its social and cultural contexts. Some works are read in translation and some in the original. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 325.

#### AUENG 230 The Early English Renaissance

★3 (fi 6) (either term, 3-0-0). Literature of sixteenth-century England, including Shakespeare, showing the influence of Renaissance ideas and literary forms. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 330.

#### AUENG 231 The Later English Renaissance

★3 (fi 6) (either term, 3-0-0). Literature of the early seventeenth century (excluding Milton) in relation to the intellectual and historical developments of the period. Representative writers include Donne, Jonson, Herbert, Herrick, Marvell, Bacon,



Burton, and Wroth. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 331.

#### **AUENG 233 Shakespeare**

★3 (fi 6) (either term, 3-2L-0). Selected works of Shakespeare. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 333.

#### **AUENG 239 Milton**

★3 (fi 6) (either term, 3-0-0). Study of the development and artistry of Milton's poetry and selected prose, with emphasis on *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 339.

#### **AUENG 241 The Augustan Age**

★3 (fi 6) (either term, 3-0-0). Literature - poetry, prose, drama, and fiction - of the period from 1660 to 1745. The majority of the authors of this period, including Dryden, Wycherley, Behn, Astell, Fyge, Swift, Pope, and Defoe, were above all concerned with a person's relation to other people, the practical questions of ethical behaviour. The predominant mode was satiric. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 341.

#### **AUENG 243 The Age of Sensibility**

★3 (fi 6) (either term, 3-0-0). Literature - poetry, prose, and fiction - of the period between 1745 and 1800. This period saw the rise of the novel as an art form with such acknowledged masters as Fielding and Austen. Initially its poets became more introspective, moving away from the predominantly social concerns of the previous age, though by the end of the period writers fired by revolutionary zeal, like Wolstonecraft, Burns, and Blake, attacked the status quo and the power structures it supported. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 343.

#### **AUENG 252 The British Romantic Period**

★3 (fi 6) (either term, 3-0-0). Representative works of the Romantic poets, and related prose materials. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 352.

#### **AUENG 254 The Earlier Victorian Age**

★3 (fi 6) (either term, 3-0-0). Representative works of three major poets: Tennyson, Browning, and Arnold. As well, one novel by Dickens and one novel by another author are studied. Attention is also given to essays by at least three of the following: T. Carlyle, J. H. Newman, J. S. Mill, J. Ruskin, M. Arnold, and T. H. Huxley. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 354.

#### **AUENG 255 The Later Victorian Age**

★3 (fi 6) (either term, 3-0-0). Representative works of the later Victorians including Hardy, Wilde, and Gissing. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 355.

#### **AUENG 261 The Modern British Novel**

★3 (fi 6) (either term, 3-0-0). Representative works of early twentieth-century British novelists including Joyce, Woolf, and D. H. Lawrence. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 361.

#### **AUENG 265 Modern and Contemporary Poetry**

★3 (fi 6) (either term, 3-0-0). Representative works of British, United States, and other English-speaking poets. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 365.

#### **AUENG 266 Women's Writing**

★3 (fi 6) (either term, 3-0-0). Offers a critical study of writing by women, including poetry, fiction, drama, essays, and personal narrative. The focus of the course may be historical or thematic, and will include writing in English from different nations. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 366.

#### **AUENG 267 Contemporary Literature**

★3 (fi 6) (either term, 3-0-0). Representative literary works of the latter half of the twentieth century, particularly those written within the last two decades. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 367.

#### **AUENG 268 Women and Environmental Literature**

★3 (fi 6) (either term, 3-0-0). Study of women's writing about nature and environment focusing on various themes relevant to environmental literature, primarily the various ways that the natural world is represented in literature, and the relationship between cultural constructions of nature and cultural constructions of gender, class, race, and sexuality. Works include fiction, poetry, and/or nonfiction. An introduction to several ecofeminist theorists provides a critical framework for exploring images and themes in women's environmental literature. Prerequisites: AUENG 103 and 104. Note: Credit may be obtained for only one of AUENG 268, 368, AUENV 268, 368.

#### **AUENG 270 United States Literature to 1865**

★3 (fi 6) (either term, 3-0-0). Representative works of American literature from discovery and the Puritan migration in the 16th and 17th centuries through the American Civil War (1861-1865). Genres will include poetry, personal narrative, speeches and essays, short stories and novels. Authors will include lesser known writers alongside Hawthorne, Melville, Poe, Stowe, Dickinson and Whitman.

Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 370.

#### **AUENG 280 Canadian Literature to 1950**

★3 (fi 6) (either term, 3-0-0). As well as giving a broad sweep of the development of Canadian literature from colonial times to the middle of the twentieth century, the course focuses on three movements: the Confederation poets such as Roberts, Carman, Lampman, and D.C. Scott; the emergence of fictional realism in the works of Grove, Callaghan, MacLennan, and Wilson; and the revolt of the poets of the 1920s, F. R. Scott, Smith, Pratt, Klein, and Livesay. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 380.

#### **AUENG 281 Canadian Literature since 1950**

★3 (fi 6) (either term, 3-0-0). Development of literature in English in Canada from the middle of the twentieth century to the present, an age that some have termed postmodernist. The course focuses on the rise and fall of realism in fiction and also the emergence of distinctively Canadian voices among our poets. Included are works by Laurence, Atwood, Wiebe, Munro, Davies, Birney, Page, Purdy, and Layton. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 381.

#### **AUENG 290 History of English Literary Criticism**

★3 (fi 6) (either term, 3-0-0). Survey of major developments in literary criticism in England from the seventeenth through the twentieth century. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 390.

#### **AUENG 291 Contemporary Criticism**

★3 (fi 6) (either term, 3-0-0). Examination of trends in contemporary criticism such as Marxist, feminist, structuralist, and poststructuralist criticism. Prerequisites: AUENG 103 and 104. Notes: Limited to majors and minors in English. Credit may be obtained for only one of AUENG 291, 391 (2004).

#### **AUENG 292 Feminist Critical Theory and Women's Writing**

★3 (fi 6) (either term, 3-0-0). Several contemporary feminist critical approaches will be used to analyze writings by women from various historical periods and areas of the English-speaking world. Prerequisites: AUENG 103 and 104. Note: Not to be taken by students with credit in AUENG 392.

#### **AUENG 301 The Bible and Literature**

★3 (fi 6) (either term, 3-0-0). Study of key texts from the Bible and their influence on literature written in English. Prerequisite: ★9 at a senior level in English (excluding AUENG 205, 206, 211, 212, 215, 311, 312, 314, 316, 317).

#### **AUENG 302 Women's Writing and Feminist Theology**

★3 (fi 6) (either term, 3-0-0). Several contemporary feminist theological approaches will be used to analyze religious and devotional writings by women from various historical periods and areas of the English-speaking world. Texts in the areas of scripture, systematic theology, ethics, and feminist theory and spirituality will be analyzed to understand the importance of feminist theological practice in dialogue with the Judeo-Christian tradition and women's struggles for justice and well-being. Literary texts will include fiction, poetry, essays and personal narrative by authors such as Toni Morrison, Louise Erdrich, Alice Sebold, Emily Dickinson, Adrienne Rich, and Louise Glück. Prerequisites: AUENG 103 and 104, and ★6 in English at the 200-level (excluding AUENG 201 (2004), 204, 215, 291. Note: Not to be taken by students with credit in AUENG 202.

#### **AUENG 305 Children's Literature**

★3 (fi 6) (either term, 3-0-0). Offers a critical study of literature written for or appropriated by children. The course considers the historical development of children's literature and examines prevailing and changing attitudes toward children. It addresses major themes and issues in children's literature, and studies significant texts representative of important genres and trends in the field. Critical analysis of the literature will be stressed. Prerequisites: AUENG 103 and 104, and ★6 in English at the 200-level (excluding AUENG 201 (2004), 204, 215, 291. Note: Not to be taken by students with credit in AUENG 205.

#### **AUENG 307 Aboriginal/Indigenous Literature**

★3 (fi 6) (either term, 3-0-0). Offers a critical study of literature by First Peoples, including narratives from the oral tradition, fiction, poetry, drama, essays, and personal narratives. Themes will include traditional and contemporary perspectives on gender, cultural and political identity, and spirituality. Multiple critical approaches (aesthetic, linguistic, political, historical, and cultural) will be employed in examining this literature, including selections from Native critical texts. Content, period, and national focus will vary. Prerequisites: AUENG 103 and 104, and ★6 in English at the 200-level (excluding AUENG 201 (2004), 204, 215, 291. Note: Not to be taken by students with credit in AUENG 207.

#### **AUENG 308 African Literature**

★3 (fi 6) (either term, 3-0-0). Survey of African literature in English from a variety of genres. Prerequisites: AUENG 103, 104 and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Not to be taken by students with credit in AUENG 208.

#### **AUENG 311 The History of the English Language**

★3 (fi 6) (either term, 3-0-0). Introduction to the historical development of the English language from its Indo-European roots to its present-day forms, including Canadian English. Prerequisites: AUENG 103 and 104, and ★6 in English at the 200-level (excluding AUENG 201 (2004), 204, 215, 291. Formerly part of AUENG 213. Note: Not to be taken by students with credit in AUENG 211.

**AUENG 312 The English Language**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the structures, varieties, and uses of contemporary English. Prerequisites: AUENG 103 and 104, and ★6 in English at the 200-level (excluding AUENG 201 (2004), 204, 215, 291. Formerly part of AUENG 213. Note: Not to be taken by students with credit in AUENG 212.

**AUENG 313 The English Language**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the structures, varieties and uses of contemporary English, and a survey of its historical development. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Credit may be obtained for only one of AUENG 213, 313, 211, 212, 312, 313.

**AUENG 314 Advanced Creative Writing: Poetry**

★3 (*fi 6*) (either term, 3-0-0). Continuation of the poetry instruction begun in AUENG 215. The completion of at least a draft of a chapbook-length collection of poems (20 to 48 pages) is required. Prerequisite: AUENG 215 or consent of the instructor.

**AUENG 316 Advanced Creative Writing: Fiction**

★3 (*fi 6*) (either term, 3-0-0). Continuation of the fiction instruction begun in AUENG 215. The completion of a chapbook-length collection of fiction (20 to 48 pages) is required. Prerequisite: AUENG 215 or consent of the instructor.

**AUENG 317 Expository Writing**

★3 (*fi 6*) (either term, 3-0-0). Working from a common mode of inquiry, the analysis and criticism of literary texts, the course explores some of the prevailing theories of expository writing while providing extensive practice. Prerequisite: ★6 at a senior level in English (excluding AUENG 204, 205, 206, 211, 212, 215, 311, 312, 314, 316) or consent of the instructor.

**AUENG 318 Advanced Expository Writing**

★3 (*fi 6*) (either term, 3-0-0). Continuation of AUENG 317. Prerequisite: AUENG 317.

**AUENG 321 Chaucer**

★3 (*fi 6*) (either term, 3-0-0). Selected works by Chaucer, with emphasis on *The Canterbury Tales*. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 221.

**AUENG 325 Middle Ages**

★3 (*fi 6*) (either term, 3-0-0). Old and Middle English literature (excluding Chaucer) in its social and cultural contexts. Some works are read in translation and some in the original. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 225.

**AUENG 330 The Early English Renaissance**

★3 (*fi 6*) (either term, 3-0-0). Literature of sixteenth-century England, including Shakespeare, showing the influence of renaissance ideas and literary forms. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 230.

**AUENG 331 The Later English Renaissance**

★3 (*fi 6*) (either term, 3-0-0). Literature of the early seventeenth century (excluding Milton) in relation to the intellectual and historical developments of the period. Representative writers include Donne, Jonson, Herbert, Herrick, Marvell, Bacon, Burton, and Wroth. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 231.

**AUENG 333 Shakespeare**

★3 (*fi 6*) (either term, 3-2L-0). Selected works of Shakespeare. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 233.

**AUENG 339 Milton**

★3 (*fi 6*) (either term, 3-0-0). Study of the development and artistry of Milton's poetry and selected prose, with emphasis on *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 239.

**AUENG 341 The Augustan Age**

★3 (*fi 6*) (either term, 3-0-0). Literature - poetry, prose, drama, and fiction - of the period from 1660 to 1745. The majority of the authors of this period, including Dryden, Wycherley, Behn, Astell, Fyge, Swift, Pope, and Defoe, were above all concerned with a person's relation to other people, the practical questions of ethical behaviour. The predominant mode was satiric. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 241.

**AUENG 351 The Economics and Literature of Nineteenth-Century British Capitalism**

★3 (*fi 6*) (either term, 3-0-0). Study of British economic and literary works from 1776 to 1890, covering the basic writings of classical political economy, Victorian literary reactions to political economy and the Industrial Revolution, Karl Marx, and

the late Victorian emergence of neoclassical economics and Fabian socialism. The course combines economic and literary perspectives by focusing on the economic dimension of the literary work and the rhetorical features of the economic writing. Prerequisite: AUENG 103. Note: Credit may be obtained for only one of AUENG 351 and AUECO 314.

**AUENG 352 The British Romantic Period**

★3 (*fi 6*) (either term, 3-0-0). Representative works of the Romantic poets, and related prose materials. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 252.

**AUENG 354 The Earlier Victorian Age**

★3 (*fi 6*) (either term, 3-0-0). Representative works of three major poets: Tennyson, Browning, and Arnold. As well, one novel by Dickens and one novel by another author are studied. Attention is also given to essays by at least three of the following: T. Carlyle, J. H. Newman, J. S. Mill, J. Ruskin, M. Arnold, and T. H. Huxley. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 254.

**AUENG 355 The Later Victorian Age**

★3 (*fi 6*) (either term, 3-0-0). Representative works of the later Victorians including Hardy, Wilde, and Gissing. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 255.

**AUENG 361 The Modern British Novel**

★3 (*fi 6*) (either term, 3-0-0). Representative works of early twentieth-century British novelists including Joyce, Woolf, and D. H. Lawrence. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 261.

**AUENG 365 Modern and Contemporary Poetry**

★3 (*fi 6*) (either term, 3-0-0). Representative works of British, United States, and other English-speaking poets. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 265.

**AUENG 366 Women's Writing**

★3 (*fi 6*) (either term, 3-0-0). Offers a critical study of writing by women, including poetry, fiction, drama, essays, and personal narrative. The focus of the course may be historical or thematic, and will include writing in English from different nations. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 266.

**AUENG 367 Contemporary Literature**

★3 (*fi 6*) (either term, 3-0-0). Representative literary works of the latter half of the twentieth century, particularly those written within the last two decades. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 267.

**AUENG 368 Women and Environmental Literature**

★3 (*fi 6*) (either term, 3-0-0). Study of women's writing about nature and environment focusing on various themes relevant to environmental literature, primarily the various ways that the natural world is represented in literature, and the relationship between cultural constructions of nature and cultural constructions of gender, class, race, and sexuality. Works include fiction, poetry, and/or nonfiction. An introduction to several ecofeminist theorists provides a critical framework for exploring images and themes in women's environmental literature. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Credit may be obtained for only one of AUENG 268, 368, AUVEN 268, 368.

**AUENG 370 United States Literature to 1865**

★3 (*fi 6*) (either term, 3-0-0). Representative works of American literature from discovery and the Puritan migration in the 16th and 17th centuries through the American Civil War (1861-1865). Genres will include poetry, personal narrative, speeches and essays, short stories and novels. Authors will include lesser known writers alongside Hawthorne, Melville, Poe, Stowe, Dickinson and Whitman. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 270.

**AUENG 371 United States Literature since 1865**

★3 (*fi 6*) (either term, 3-0-0). Representative works of American literature since the American Civil War (1861-1865). Genres will include poetry, personal narrative, speeches and essays, short stories and novels. Authors will include lesser known writers alongside Howells, Wharton, Faulkner, Plath, Pynchon, Morrison, Pinsky, Erdrich, Chabon and DeLillo. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 271.

**AUENG 380 Canadian Literature to 1950**

★3 (*fi 6*) (either term, 3-0-0). As well as giving a broad sweep of the development of Canadian literature from colonial times to the middle of the twentieth century,

the course focuses on three movements: the Confederation poets such as Roberts, Carman, Lampman, and D.C. Scott; the emergence of fictional realism in the works of Grove, Callaghan, MacLennan, and Wilson; and the revolt of the poets of the 1920s, F. R. Scott, Smith, Pratt, Klein, and Livesay. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 280.

#### **AUENG 381 Canadian Literature since 1950**

★3 (*fi 6*) (either term, 3-0-0). Development of literature in English in Canada from the middle of the twentieth century to the present, an age that some have termed postmodernist. The course focuses on the rise and fall of realism in fiction and also the emergence of distinctively Canadian voices among our poets. Included are works by Laurence, Atwood, Wiebe, Munro, Davies, Birney, Page, Purdy, and Layton. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 281.

#### **AUENG 390 History of English Literary Criticism**

★3 (*fi 6*) (variable, 3-0-0). Survey of major developments in literary criticism in England from the seventeenth through the twentieth century. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 290.

#### **AUENG 392 Feminist Critical Theory and Women's Writing**

★3 (*fi 6*) (either term, 3-0-0). Several contemporary feminist critical approaches will be used to analyze writings by women from various historical periods and areas of the English-speaking world. Prerequisites: AUENG 103 and 104, and ★6 in English at the 200-level (excluding AUENG 201 (2004), 204, 215, 291). Note: Not to be taken by students with credit in AUENG 292.

#### **AUENG 401 Directed Reading I**

★3 (*fi 6*) (either term, 1-0-0). Intensive study of a specific area of English as defined by the student and a supervising instructor. Prerequisites: ★15 at a senior level in English, including at least ★3 at the 300 level, and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUENG 402 Directed Reading II**

★3 (*fi 6*) (either term, 1-0-0). Intensive study of a specific area of English as defined by the student and a supervising instructor. Prerequisites: AUENG 401 and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUENG 410 Contemporary Issues in Renaissance Literature**

★3 (*fi 6*) (either term, 3-0-0). Study of some of the recent theoretical developments in the field of Renaissance literature. Topics may include cultural poetics, the relationship between "literary" and "nonliterary" texts, canon formation, gender studies, feminist approaches, the presence of ideology within texts, and the political contexts for literary production and circulation. Prerequisites: AUENG 103 and 104; and one of AUENG 230/330, AUENG 231/331, AUENG 233/333, AUENG 239/339, AUENG 291/391.

#### **AUENG 411 Historiographic Metafiction**

★3 (*fi 6*) (either term, 3-0-0). Examination of several postmodern literary texts that self-consciously question how past reality may be adequately known or represented. Such literature exposes the ideological assumptions underlying traditional portrayals of history, portrayals often accepted as natural, apolitical, and universal. In the process, this literature suggests the ways in which the supposedly separable categories of fiction and nonfiction may be seen to interpenetrate. Prerequisites: AUENG 103 and 104.

#### **AUENG 412 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 420 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 421 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 430 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 431 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 440 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 441 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 450 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 451 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 460 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

#### **AUENG 461 Topics in English Studies**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected authors, works, periods, and critical approaches. Focus and content of each course are determined by student and faculty interests, and vary from year to year. Prerequisites: Fourth-year standing or consent of the instructor; previous course(s) in English as determined by the instructor.

## 221.35 Augustana Faculty - Environmental Studies, AUENV

Department of Science  
Augustana Faculty

### Undergraduate Courses

#### **AUENV 120 Human Activities and the Natural Environment**

★3 (*fi 6*) (either term, 3-0-0). Introductory analysis of the interrelationships between society and the natural world, environmental consequences, and human perceptions. The characteristics and interactions of physical environmental systems and various facets of resource management (including forestry, agriculture, fisheries, protected areas, endangered species, and pollution) are described and analyzed. Note: Credit may be obtained for only one of AUENV 120 and AUGEO 120.

#### **AUENV 132 Field Physical Geography**

★3 (*fi 6*) (Spring/Summer, variable). Examination, in an intensive 3-4 week outdoor practicum, of the physical geography of a selected region of Alberta, with emphasis on landforms and their origins, climate and weather, ecosystems, and human-environment relationships. Notes: Additional fees are assessed. Credit may be obtained for only one of AUENV 132/232, AUGEO 132/232, AUBIO 105/205 (2002).

#### **AUENV 210 Environmental Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of Environmental Studies. Prerequisite: Second-year standing in an Environmental degree program. Corequisite: Any senior course in Environmental Studies that requires library research. Notes: The corequisite must be taken concurrently. Credit may be obtained for only one of AUENV 210, AUBIO 210, AUCHE 210, AUGEO 210.

#### **AUENV 232 Field Physical Geography**

★3 (*fi 6*) (Spring/Summer, variable). Examination, in an intensive 3-4 week outdoor practicum, of the physical geography of a selected region of Alberta,

with emphasis on landforms and their origins, climate and weather, ecosystems, and human-environment relationships. Notes: Additional fees are assessed. Credit may be obtained for only one of AUENV 132/232, AUGEO 132/232, AUBIO 105/205 (2002).

#### **AUENV 260 Environmental Studies Practicum**

★3 (*fi 6*) (either term, 1-3s-0). Practicum placement in a government, industry, or non-governmental organization to gain awareness and experience in an environmental field. Prerequisite: AUENV 120 or AUGEO 120. Notes: Open only to a student with a major in Environmental Studies/Science. Credit may be obtained for only one of AUENV 260 and AUIDS 260.

#### **AUENV 268 Women and Environmental Literature**

★3 (*fi 6*) (either term, 3-0-0). Study of women's writing about nature and environment focusing on various themes relevant to environmental literature, primarily the various ways that the natural world is represented in literature, and the relationship between cultural constructions of nature and cultural constructions of gender, class, race, and sexuality. Works include fiction, poetry, and/or nonfiction. An introduction to several ecofeminist theorists provides a critical framework for exploring images and themes in women's environmental literature. Prerequisites: AUENG 103 and 104. Note: Credit may be obtained for only one of AUENV 268, 368, AUENG 268, 368.

#### **AUENV 301 Directed Reading**

★3 (*fi 6*) (variable, 1-0-0). Supervised library research project and intensive study of a specific area in environmental science. Prerequisites: Third-year standing and consent of the instructor. Notes: Admission to the course normally requires a minimum GPA of 3.0 in Environmental Studies/Science. An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUENV 320 Parks and Wilderness**

★3 (*fi 6*) (either term, 3-0-0). Examination of scientific principles and concepts underlying parks, wilderness and other protected area systems with emphasis on Canada. Topics include history, philosophy, conceptual frameworks, roles in sustainability, and types of biological and geographic designations. Prerequisite: One of AUBIO 253, AUENV 120, AUGEO 120, consent of the instructor. Note: Credit may be obtained for only one of AUENV 320 and AUGEO 320.

#### **AUENV 322 Economic Botany**

★3 (*fi 6*) (either term, 3-0-0). Biological properties, geographical distribution, application/utilization, and history of vascular and nonvascular plants that are economically important in agriculture industry and medicine. Corequisite: AUBIO 222. Notes: Credit may be obtained for only one of AUENV 322 and AUBIO 322. Formerly AUENV 329 (2004).

#### **AUENV 324 Resource and Environmental Management**

★3 (*fi 6*) (either term, 3-0-0). Integration of both physical and human phenomena in understanding natural resources, their dimensions and boundaries. Basic concepts in resource analysis and management: the decision-making process, management frameworks and strategies, legislation and regulation, impact assessment, the role of perceptions, attitudes and behaviour, and the impact of public participation/interest groups in the development of natural resources. Prerequisite: One of AUBIO 253, AUENV 120, AUGEO 120, 230, 231, consent of the instructor. Note: Credit may be for only one of AUENV 324 and AUGEO 324.

#### **AUENV 328 Environmental Politics**

★3 (*fi 6*) (either term, 3-0-0). Examination of contemporary debates in, and the evolution of, environmental policy and politics. This course will focus on Canadian issues in a comparative perspective, exploring topics such as environmental political theory, the policy cycle, social movements, international issues, and related case studies. Prerequisite: Three credits in either Environmental Studies/Science or Political Studies. Note: Credit may be obtained for only one of AUENV 328 and AUPOL 328.

#### **AUENV 341 Environmental Economics**

★3 (*fi 6*) (either term, 3-0-0). Examination of the relationships between the economy and the environment. Emphasis is placed on the application of economic analysis to various environmental issues. Prerequisite: AU ECO 100 or 101. Note: Credit may be obtained for only one of AUENV 341 and AU ECO 341.

#### **AUENV 345 Religion and Ecology**

★3 (*fi 6*) (either term, 3-0-0). Examination of the relationship between ecology and religion from Christian and non-Christian perspectives. The course looks at ecological spirituality, ecotheology, animal rights, deep ecology, ecoactivism, and ecofeminism. It also devotes substantial time to ecological themes in Asian (Hindu, Buddhist, and Chinese) and traditional (native American and Australian aboriginal) religions. Note: Credit may be obtained for only one of AUENV 345 and AUREL 345.

#### **AUENV 350 Conservation Theory and Biodiversity in Tropical Systems**

★3 (*fi 6*) (first term, 3-0-0). Introduction to the basic concepts of conservation biology. The scope of conservation biology and levels of biodiversity are explored, as are aspects of tropical ecology related to conservation. Prerequisite: One of AUBIO 253, 294, or 295. Corequisite: AUENV 359 or AUBIO 359. Note: Credit may be obtained for only one of AUENV 350, 450, AUBIO 350, 450.

#### **AUENV 353 Environmental Science**

★3 (*fi 6*) (either term, 3-0-0). Study of anthropogenic influences on the natural

environment, with specific focus on major environmental problems as to their historical basis, effects, and potential resolution. Corequisite: AUBIO 253. Note: Credit may be obtained for only one of AUENV 353 and AUBIO 353.

#### **AUENV 355 Philosophy, Technology, and the Environment**

★3 (*fi 6*) (either term, 3-0-0). Investigation of the philosophical and social issues related to technology and the environment. The natural/artificial distinction, different senses of "environment" and the ways we understand, package, and manage nature form the foundation of the course. Issues in environmental ethics are also addressed. Thinkers may include Marx, Heidegger, Marcel, Borgmann, Winner, Singer, Regan, and others. Prerequisite: None, but AUPHI 350 would be useful. Note: Credit may be obtained for only one of AUENV 355 and AUPHI 355.

#### **AUENV 358 Environmental Sociology**

★3 (*fi 6*) (either term, 3-0-0). Theoretical and empirical examination of the connection between the natural environment and the social world. This involves inquiry into the sociological dimensions of some major contemporary environmental problems, including air, water and soil pollution, decreased biodiversity, deforestation, climate change, and ozone depletion. Particular attention is paid to the social and political connections among issues of industrialization, development, globalization, inequality, gender, social change and environmental destruction. Third-year standing and one of the following: any Environmental Studies course or its cross-listed equivalent, participation in either the Rural Development Exchange Program or the Augustana in Cuba Program, SOC 218, 391. Note: Credit may be obtained for only one of AUENV 358/458 and AUSOC 358/458.

#### **AUENV 359 Field Studies in Tropical Ecology and Conservation**

★3 (*fi 6*) (two term, 1.5-0-0). Plus 2 week field trip. Field course that addresses problems of biodiversity and conservation in tropical environments. The student participates in field workshops, and designs and conducts his or her own field project to answer questions related to ecological and biological conservation. Prerequisite: Consent of the instructors based on successful completion of the selection process. Corequisite: AUENV 350 or AUBIO 350. Notes: Credit may be obtained for only one of AUENV 359 and AUBIO 359. A ★3 course over the full year. Requires payment of additional miscellaneous fees; refer to the Fees Payment Guide in the University Regulations and Information for Students section of the Calendar.

#### **AUENV 368 Women and Environmental Literature**

★3 (*fi 6*) (either term, 3-0-0). Study of women's writing about nature and environment focusing on various themes relevant to environmental literature, primarily the various ways that the natural world is represented in literature, and the relationship between cultural constructions of nature and cultural constructions of gender, class, race, and sexuality. Works include fiction, poetry, and/or nonfiction. An introduction to several ecofeminist theorists provides a critical framework for exploring images and themes in women's environmental literature. Prerequisites: AUENG 103, 104, and ★6 in English at the 200 level (excluding AUENG 201 (2004), 204, 215, 291). Note: Credit may be obtained for only one of AUENV 268, 368, AUENG 268, 368.

#### **AUENV 375 Canadian Environmental History**

★3 (*fi 6*) (either term, 3-0-0). Historical examination of the dynamic interrelationships between the natural world and humans, with a focus on Canadian issues within a North American context. Topics and perspectives will include: Aboriginal peoples, colonization, fur trade, exploration, settlement, western agriculture, science, and the conservation movement. Note: Credit may be obtained for only one of AUENV 375 and AUHIS 375.

#### **AUENV 401 Directed Studies**

★3 (*fi 6*) (variable, 1-0-3). Supervised research project and intensive study of a specific area in environmental science. Prerequisites: AUENV 301, third-year standing, and consent of the instructor. Notes: Admission to the course normally requires a minimum GPA of 3.0 in Environmental Studies/Science. An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUENV 421 Environmental Science: History and Impacts**

★3 (*fi 6*) (first term, 3-0-0). Overview of the historical developments, past and current impacts, and changing roles of the field of environmental science. Prerequisites: One of AUBIO 350, 353, 450; AUENV 320, 324, 350, 353, 450; AUGEO 320, 324 and at least fourth-year standing. Note: Credit may be obtained for only one of AUENV 421 and AUGEO 421.

#### **AUENV 450 Conservation Theory and Biodiversity in Tropical Systems**

★3 (*fi 6*) (first term, 3-0-0). Introduction to the basic concepts of conservation biology. The scope of conservation biology and levels of biodiversity are explored, as are aspects of tropical ecology related to conservation. Prerequisites: AUBIO 253; one of AUBIO 320, 321, 341, 343, 353, 390, 393, AUENV 353. Corequisite: AUENV 459 or AUBIO 459. Note: Credit may be obtained for only one of AUENV 350, 450, AUBIO 350, 450.

#### **AUENV 458 Environmental Sociology**

★3 (*fi 6*) (either term, 3-0-0). Theoretical and empirical examination of the connection between the natural Environment and the social world. This involves inquiry into the sociological dimensions of some major contemporary Environmental problems, including air, water and soil pollution, decreased biodiversity, deforestation, climate change, and ozone depletion. Particular attention is paid to the social and political

connections among issues of industrialization, development, globalization, inequality, gender, social change and Environmental destruction. Prerequisites: Fourth-year standing and one of the following: any Environmental Studies course or its cross-listed equivalent, participation in either the Rural Development Exchange Program or the Augustana in Cuba Program, AUSOC 218, 391. Note: Credit may be obtained for only one of AUENV 358/458 and AUSOC 358/458.

## 221.36 Augustana Faculty - French, AUFRE

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### AUFRE 91 Beginners' French I

★3 (fi 6) (first term, 4-0-0). First in a 2-course sequence for a student who lacks high school credit. French 091 and 092 are designed to develop ability in reading and writing French, with a strong emphasis on the development of comprehension and oral communication skills. During this process, the student participates in a wide variety of interactive activities and is also exposed to contemporary francophone culture. These two courses not only encourage the student to think critically about the principles of grammar as they relate to the French language, but also stimulate an in-depth understanding of the principles by which language functions in general. These two courses also lead the student through the steps of reflective learning as he or she considers and discusses language learning strategies. Notes: The course is not open to a student with credit in French 20, or to a student with French 30 or equivalent. AUFRE 091 does not count toward the major in Modern Languages or the minor in French. Credit may be obtained for only one of AUFRE 091, 101, 105 (2003).

#### AUFRE 92 Beginners' French II

★3 (fi 6) (second term, 4-0-0). Continuation of AUFRE 091. Notes: The course is not open to a student with credit in French 20, or to a student with French 30 or equivalent. AUFRE 092 does not count toward the major in Modern Languages or the minor in French. Credit may be obtained for only one of AUFRE 092, 102, 106 (2003).

#### AUFRE 101 Beginners' French I

★3 (fi 6) (first term, 4-0-0). AUFRE 101 and 102 are designed to develop ability in reading and writing French, with a strong emphasis on the development of comprehension and oral communication skills. During this process the student participates in a wide variety of interactive activities and is also exposed to contemporary francophone culture. These two courses not only encourage the student to think critically about the principles of grammar as they relate to the French language, but also stimulate an in-depth understanding of the principles by which language functions in general. These two courses also lead the student through the steps of reflective learning as he or she considers and discusses language learning strategies. Notes: The course is not open to a student with credit in French 20, or to a student with French 30 or equivalent. AUFRE 101 does not count toward the major in Modern Languages or the minor in French. Credit may be obtained for only one of AUFRE 101, 091, 105 (2003).

#### AUFRE 102 Beginners' French II

★3 (fi 6) (second term, 4-0-0). Continuation of AUFRE 101. Prerequisite: French 20 or AUFRE 101 or consent of the instructor. Notes: The course is not open to a student with French 30 or equivalent. AUFRE 102 does not count toward the major in Modern Languages or the minor in French. Credit may be obtained for only one of AUFRE 102, 092, 106 (2003).

#### AUFRE 201 Intermediate French I

★3 (fi 6) (first term, 4-0-0). Intensive training in spoken and written French. The major focus is on communication. Prerequisite: French 30 or AUFRE 102. Notes: A student wishing to register in AUFRE 201 must first take an on-line placement test. The purpose of the test is to advise the student of the appropriate level at which to begin university French. Credit may be obtained for only one of AUFRE 201 and 115 (2003).

#### AUFRE 202 Intermediate French II

★3 (fi 6) (second term, 4-0-0). Further development of the speaking, reading, and writing skills acquired in AUFRE 201. The major focus is on formal grammar. Prerequisite: One of AUFRE 201; French 31a or 31b or 31c, with a sufficient score on the on-line placement test; French Language Arts 20 or 30 (= French immersion), with a sufficient score on the on-line placement test; consent of the instructor. Note: Credit may be obtained for only one of AUFRE 202 and 116 (2003).

#### AUFRE 210 French Studies and Information Literacy

★1 (fi 2) (either term, 1-0-0). Introduction to library research skills in the discipline of French. Prerequisite: Second-year standing in a Modern Languages degree program. Corequisite: Any senior course in French that requires library research. Notes: The corequisite must be taken concurrently. Credit may be obtained for only one of AUFRE 210, AUENG 201 (2004), AUENG 204, AUDRA 228, AUGER 210, AUSCA 210.

#### AUFRE 222 French Pronunciation and Phonetics

★3 (fi 6) (first term, 3-0-0). Study of the French Phonetic System to improve French pronunciation. Prerequisite: AUFRE 201. Corequisite: AUFRE 202. Not to be taken by students with credit in the Augustana "Selected Topics" course FRE 498: Romance Linguistics (2005).

#### AUFRE 301 Advanced French I

★3 (fi 6) (first term, 4-0-0). As a normal sequel to AUFRE 202, the course develops further the speaking, reading, and writing skills acquired at the Intermediate level. The major focus is on formal grammar. Prerequisite: One of AUFRE 202; French 31a or 31b or 31c, with a sufficient score on the on-line placement test; French Language Arts 20 or 30 (= French immersion), with a sufficient score on the on-line placement test; consent of the instructor. Note: Credit may be obtained for only one of AUFRE 301 and 215 (2003).

#### AUFRE 305 Aspects of Civilization and Culture of France I

★3 (fi 6) (either term, 3-0-0). French civilization and culture up to the French Revolution as seen from historical, geographical, social, and cultural points of view. The course aims at improving the student's command of oral and written French. Prerequisite: One of AUFRE 202; Français 20 or 30, with a sufficient score on the on-line placement test; French 31a or 31b or 31c, with a sufficient score on the on-line placement test; French Language Arts 20 or 30 (= French immersion), with a sufficient score on the on-line placement test; consent of the instructor. Note: Credit may be obtained for only one of AUFRE 305 and 205 (2004).

#### AUFRE 306 Aspects of Civilization and Culture of France II

★3 (fi 6) (either term, 3-0-0). French civilization and culture of modern France as seen from historical, geographical, social, and cultural points of view. The course aims at improving the student's command of oral and written French. Prerequisite: One of AUFRE 202; Français 20 or 30 or French 31a or 31b or 31c, with a sufficient score on the on-line placement test; French Language Arts 20 or 30 (= French immersion) with a sufficient score on the on-line placement test; consent of the instructor. Note: Credit may be obtained for only one of AUFRE 306 and 206 (2004).

#### AUFRE 307 Topics in the History and Culture of Southern France

★3 (fi 6) (second term, 3-0-0). Aspects of the social, political and religious history, as well as the arts, architecture and literature of Southern France. All lectures and readings are in English. Note: Credit may be obtained for only one of AUFRE 307 and AUHIS 329.

#### AUFRE 308 Tour of Southern France

★2 (fi 4) (Spring/Summer, 2 weeks). Tour of Southern France: History and culture. To complement the topics covered in AUFRE 307. Prerequisite: AUFRE 305 or 307. Notes: Enrolment limited to a maximum of 10 students. Credit may be obtained for only one of AUFRE 308 and AUHIS 333.

#### AUFRE 310 Advanced Translation: French into English

★3 (fi 6) (either term, 3-0-0). For students having a fair knowledge of French and the total fluency in English. The aim of the course is to improve the student's ability to understand and render into idiomatic English complex constructions, nuances of meaning, and stylistic devices. The translation of texts by Francophone authors forms the basis of class activity. Prerequisite: AUFRE 202.

#### AUFRE 311 Advanced Translation: English into French

★3 (fi 6) (either term, 3-0-0). Intensive training in translation into French of contemporary texts written in English. Prerequisite: AUFRE 301.

#### AUFRE 317 Business French

★3 (fi 6) (either term, 2-0-1). Study of the French language (oral and written) as used in the francophone business milieu and in the administrative sector. A student is introduced to the technical vocabulary required to function competently in situations revolving around business life. Prerequisite: AUFRE 301 or consent of the instructor.

#### AUFRE 331 French-Canadian Literature

★3 (fi 6) (either term, 3-0-0). Introduction to the literature of French Canada through a study of representative texts. Included are works by Louis Hémon, Gabrielle Roy, Anne Hébert, Gérard Bessette, Marie-Claire Blais, Emile Nelligan, and Michel Tremblay or Marcel Dubé. Prerequisite: AUFRE 392 or 393.

#### AUFRE 332 Introduction to French-Canadian Short Stories

★3 (fi 6) (either term, 3-0-0). Introduction to short stories of twentieth-century French Canada. Prerequisite: One of AUFRE 202; Français 20 or 30, with a sufficient score on the on-line placement test; French 31a or 31b or 31c, with a sufficient score on the on-line placement test; French Language Arts 20 or 30 (= French immersion), with a sufficient score on the on-line placement test; consent of the instructor. Note: Credit may be obtained for only one of AUFRE 332 and 232 (2004).

#### AUFRE 333 Aspects of French-Canadian Civilization and Culture

★3 (fi 6) (either term, 3-0-0). Evolution of political, economic, and social patterns in Québec. Documentary sources from the mass media and artistic productions are studied as expressions of lifestyles, ideas, and values. Prerequisite: One of AUFRE 202, Français 20, 30, French 31a or 31b or 31c, consent of the instructor. Note: Credit may be obtained for only one of AUFRE 333 and 231 (2004).

**AUFRE 341 Children's Literature in French**

★3 (*fi 6*) (either term, 3-0-0). The critical analysis of selected children's literature written in French. These works will be examined in their historical perspective. Prerequisite: AUFRE 392 or 393 or consent of the instructor.

**AUFRE 342 Francophone Women's Writing**

★3 (*fi 6*) (either term, 3-0-0). The study of selected works by Francophone women writers. Feminist literary theory is employed to analyze the texts. Prerequisite: AUFRE 392 or 393.

**AUFRE 355 French Literature of the Seventeenth Century**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the literature and society of the century of Louis XIV through a study of representative texts including works from what is generally regarded as the golden age of French drama. Prerequisite: AUFRE 392 or 393.

**AUFRE 370 French Literature of the Nineteenth Century**

★3 (*fi 6*) (either term, 3-0-0). Introduction to French literature of the nineteenth century through a study of representative texts which are analyzed in depth. Prerequisite: AUFRE 392 or 393.

**AUFRE 380 French Literature of the Twentieth Century**

★3 (*fi 6*) (either term, 3-0-0). Introduction to French literature of the twentieth century through a study of representative texts which are analyzed in depth. Prerequisite: AUFRE 392 or 393.

**AUFRE 390 Introduction to French Literature I**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the study of French literature as a discipline. Texts chosen from different periods and genres of French literature are situated in their socio-historical context and studied not only for their own intrinsic value, but also for their specific value in assisting a student to master techniques of textual analysis. The course focuses on the postrevolutionary era and is taught in French. Assignments are submitted in English. Prerequisite: AUFRE 202 or consent of the instructor. Note: Credit may be obtained for only one of AUFRE 390, 290 (2004), 292 (2004), 392.

**AUFRE 391 Introduction to French Literature II**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the study of French literature as a discipline. Texts chosen from different periods and genres of French literature are situated in their socio-historical context and studied not only for their own intrinsic value, but also for their specific value in assisting a student to master techniques of textual analysis. The course focuses on the prerevolutionary era and is taught in French. Assignments are submitted in English. Prerequisite: AUFRE 202 or consent of the instructor. Note: Credit may be obtained for only one of AUFRE 391, 291 (2004), 293 (2004), 393.

**AUFRE 392 Introduction to French Literature I**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the study of French literature as a discipline. Texts chosen from different periods and genres of French literature are located in their socio-historical context and studied not only for their own intrinsic value, but also for their specific value in assisting a student to master techniques of textual analysis. The course focuses on the postrevolutionary period. Prerequisite: AUFRE 202 or consent of the instructor. Note: Credit may be obtained for only one of AUFRE 392, 290 (2004), 292 (2004), 390.

**AUFRE 393 Introduction to French Literature II**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the study of French literature as a discipline. Texts chosen from different periods and genres of French literature are located in their socio-historical context and studied not only for their own intrinsic value, but also for their specific value in assisting a student to master techniques of textual analysis. The course focuses on the prerevolutionary era. Prerequisite: AUFRE 202 or consent of the instructor. Note: Credit may be obtained for only one of AUFRE 393, 291 (2004), 293 (2004), 391.

**AUFRE 402 Directed Study: Language**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of the French language. Prerequisite: AUFRE 301 or consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

**AUFRE 403 Directed Reading**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of French literature and/or civilization as defined by the student and the instructor. Prerequisite: AUFRE 301. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

**AUFRE 496 Selected Topics in French Literature**

★3 (*fi 6*) (either term, 3-0-0). Study of selected authors, periods, works, methodologies, etc. Focus and content of each course are determined by the individual instructor in the light of student needs, and vary from year to year. Prerequisite: Fourth-year standing or consent of the instructor.

**AUFRE 497 Selected Topics in French Literature**

★3 (*fi 6*) (either term, 3-0-0). Study of selected authors, periods, works, methodologies, etc. Focus and content of each course are determined by the individual instructor in the light of student needs, and vary from year to year. Prerequisite: Fourth-year standing or consent of the instructor.

**AUFRE 498 Selected Topics in French Literature**

★3 (*fi 6*) (either term, 3-0-0). Study of selected authors, periods, works,

methodologies, etc. Focus and content of each course are determined by the individual instructor in the light of student needs, and vary from year to year. Prerequisite: Fourth-year standing or consent of the instructor.

**AUFRE 499 Selected Topics in French Literature**

★3 (*fi 6*) (either term, 3-0-0). Study of selected authors, periods, works, methodologies, etc. Focus and content of each course are determined by the individual instructor in the light of student needs, and vary from year to year. Prerequisite: Fourth-year standing or consent of the instructor.

## 221.37 Augustana Faculty - Geography, AUGEO

Department of Science  
Augustana Faculty

**Undergraduate Courses****AUGEO 120 Human Activities and the Natural Environment**

★3 (*fi 6*) (either term, 3-0-0). Introductory analysis of the interrelationships between society and the natural world, environmental consequences, and human perceptions. The characteristics and interactions of physical environmental systems and various facets of resource management (including forestry, agriculture, fisheries, protected areas, endangered species, and pollution) are described and analyzed. Note: Credit may be obtained for only one of AUGEO 120 and AUENV 120.

**AUGEO 132 Field Physical Geography**

★3 (*fi 6*) (Spring/Summer, variable). Examination, in an intensive three- to four-week outdoor practicum, of the physical geography of a selected region of Alberta, with emphasis on landforms and their origins, climate and weather, ecosystems, and human-environment relationships. Notes: Additional fees are assessed. Credit may be obtained for only one of AUGEO 132/232, AUBIO 105/205 (2002), AUENV 132/232.

**AUGEO 150 Introduction to Human Geography**

★3 (*fi 6*) (either term, 3-0-0). Study of the occurrence and distribution of people on the earth's surface, using geographical concepts, models, and techniques to organize and explain spatial patterns of human activity.

**AUGEO 210 Geography and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of Geography. Prerequisite: Second-year standing in a Geography minor. Corequisite: Any senior course in Geography that requires library research. Notes: The corequisite must be taken concurrently. Credit may be obtained for only one of AUGEO 210, AUBIO 210, AUCHE 210, AUENV 210.

**AUGEO 218 Introduction to Geographic Information Systems**

★3 (*fi 6*) (either term, 3-0-3). Introduction to fundamentals and applications of Geographic Information Systems. Topics include the nature of geographic data, geo-referencing systems, geographic modelling, data collection and management, and spatial analysis. Practical applications of GIS will be emphasized with the use of appropriate computer software. Prerequisite: Any 100-level science course.

**AUGEO 230 Geomorphology**

★3 (*fi 6*) (either term, 3-0-3). Analysis of (1) geomorphological processes and agents (such as movement of the earth's crust, volcanism, water, glaciers, waves, currents, wind, and gravity) that create and modify the earth's surface and (2) landforms.

**AUGEO 231 Climatology**

★3 (*fi 6*) (either term, 3-0-3). Study of (1) elements and processes of climate and weather; (2) distributions and regional patterns of climates; and (3) interrelationships among climates, plants, animals, and people. Note: AUGEO 230 need not precede AUGEO 231.

**AUGEO 232 Field Physical Geography**

★3 (*fi 6*) (Spring/Summer, variable). Examination, in an intensive three- to four-week outdoor practicum, of the physical geography of a selected region of Alberta, with emphasis on landforms and their origins, climate and weather, ecosystems, and human-environment relationships. Notes: Additional fees are assessed. Credit may be obtained for only one of AUGEO 132/232, AUBIO 105/205 (2002), AUENV 132/232.

**AUGEO 242 Cultural Geography of Scandinavia**

★3 (*fi 6*) (either term, 3-0-0). Survey of Scandinavian life and achievement, past and present, with emphasis on social and cultural conditions against a geographical and historical background. All lectures and readings are in English. Note: Credit may be obtained for only one of AUGEO 242 and AUSCA 231.

**AUGEO 320 Parks and Wilderness**

★3 (*fi 6*) (either term, 3-0-0). Examination of scientific principles and concepts underlying parks, wilderness, and other protected area systems with emphasis on Canada. Topics include history, philosophy, conceptual frameworks, roles in sustainability, and types of biological and geographical designations. Prerequisite:

One of AUBIO 253, AUENV 120, AUGEO 120, consent of the instructor. Note: Credit may be obtained for only one of AUGEO 320 and AUENV 320.

### **AUGEO 324 Resource and Environmental Management**

★3 (*fi 6*) (either term, 3-0-0). Integration of both physical and human phenomena in understanding natural resources, their dimensions and boundaries. Basic concepts in resource analysis and management are explored: the decision making process, management frameworks and strategies, legislation and regulation, impact assessment, the role of perceptions, attitudes and behaviour, and the impact of public participation/interest groups in the development of natural resources. Prerequisite: One of AUBIO 253, AUENV 120, AUGEO 120, 230, 231, consent of the instructor. Note: Credit may be obtained for only one of AUGEO 324 and AUENV 324.

### **AUGEO 341 Geography of the Canadian North**

★3 (*fi 6*) (variable, 3-0-0). Examination, involving a three- to four-week expedition in the summer, of the biophysical environments, resources, economics, and settlements of northern regions of Canada. Prerequisites: ★3 credits in Geography and consent of the instructor. Corequisite: AUPED 388. Notes: A student must participate in the winter-term seminar and the expedition to receive credit. Expedition costs, as well as course tuition, are the student's responsibility.

### **AUGEO 351 Biogeography**

★3 (*fi 6*) (either term, 3-0-3). Analysis of the spatial patterns of biotic systems and species. The course examines their past and present distribution patterns in the context of biological and ecological processes and human impacts. The course employs several methods of analysis, including geographic information systems. Prerequisite: AUBIO 253. Note: Credit may be obtained for only one of AUGEO 351 and AUBIO 351.

### **AUGEO 401 Directed Studies**

★3 (*fi 6*) (variable, 1-0-3). Supervised research project and intensive study of a specific area of geography as defined by the student and a supervising instructor. Prerequisite: ★6 in science Geography. Notes: Admission to the course normally requires a minimum GPA of 3.0 in Geography. An "Application for Individual Study" must be completed and approved before registration in the course.

### **AUGEO 402 Directed Reading**

★3 (*fi 6*) (variable, 1-0-0). Supervised research project and intensive study of a specific area of geography as defined by the student and a supervising instructor. Prerequisite: ★6 in Geography. Notes: Admission to the course normally requires a minimum GPA of 3.0 in Geography. An "Application for Individual Study" must be completed and approved before registration in the course.

### **AUGEO 421 Environmental Science: History and Impacts**

★3 (*fi 6*) (either term, 3-0-0). Overview of the historical developments, past and current impacts, and changing roles of the field of environmental science. Prerequisites: One of AUBIO 350, 353, 450; AUENV 320, 324, 350, 353, 450; AUGEO 320, 324 and at least fourth-year standing. Note: Credit may be obtained for only one of AUGEO 421 and AUENV 421.

## 221.38 Augustana Faculty - German, AUGER

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### **AUGER 91 Beginners' German I**

★3 (*fi 6*) (first term, 4-0-0). First in a 2-course sequence for the student who lacks high school credit. AUGER 091 and 092 are designed to develop ability in reading and writing German, with a strong emphasis on the development of comprehension and oral communication skills. During this process, the student participates in a wide variety of interactive activities and is also exposed to contemporary culture of German-speaking countries. These two courses not only encourage the student to think critically about the principles of grammar as they relate to the German language, but also stimulate an in-depth understanding of the principles by which language functions in general. These two courses also lead the student through the steps of reflective learning as he or she considers and discuss language learning strategies. Notes: The course is not open to a student with credit in German 30. AUGER 091 does not count toward the major in Modern Languages or the minor in German. Credit may be obtained for only one of AUGER 091, 101, 103 (2003).

#### **AUGER 92 Beginners' German II**

★3 (*fi 6*) (second term, 4-0-0). Continuation of AUGER 091. Prerequisite: AUGER 091. Notes: The course is not open to a student with credit in German 30. AUGER 092 does not count toward the major in Modern Languages or the minor in German. Credit may be obtained for only one of AUGER 092, 102, 104 (2003).

#### **AUGER 101 Beginners' German I**

★3 (*fi 6*) (first term, 4-0-0). German 101 and 102 are designed to develop ability in reading and writing German, with a strong emphasis on the development of comprehension and oral communication skills. During this process, the student participates in a wide variety of interactive activities and is also exposed to

contemporary culture of German-speaking countries. These two courses not only encourage the student to think critically about the principles of grammar as they relate to the German language, but also stimulate an in-depth understanding of the principles by which language functions in general. These two courses also lead the student through the steps of reflective learning as he or she considers and discusses language learning strategies. Notes: The course is not open to a student with credit in German 30. AUGER 101 does not count toward the major in Modern Languages or the minor in German. Credit may be obtained for only one of AUGER 091, 101, 103 (2003).

#### **AUGER 102 Beginners' German II**

★3 (*fi 6*) (second term, 4-0-0). Continuation of AUGER 101. Prerequisite: AUGER 101. Notes: The course is not open to a student with credit in German 30. AUGER 102 does not count toward the major in Modern Languages or the minor in German. Credit may be obtained for only one of AUGER 102, 092, 104 (2003).

#### **AUGER 200 Intermediate German I and II**

★6 (*fi 12*) (Spring/Summer, variable). Intensive course designed to develop further the comprehension, speaking, writing, reading skills acquired in Beginners' German through classroom instruction, excursions, and immersion experience, including living in a German home. Improvement in overall fluency, enhanced knowledge of the culture of the German-speaking countries and review of key grammatical concepts are integral to the course. Prerequisite: One of AUGER 092, 102, demonstration of AUGER 102 equivalency by means of a placement exam administered by the instructor, one year Beginners' German at a Canadian university. Note: Credit may be obtained for only one of AUGER 200, 201, 202, 111(2003), and 112 (2003).

#### **AUGER 201 Intermediate German I**

★3 (*fi 6*) (first term, 4-0-0). Designed to develop fluency in speaking, with emphasis on comprehension and writing skills. The essential rules of grammar are studied. Prerequisite: One of AUGER 092, 102, demonstration of AUGER 102 equivalency by means of a placement examination administered by the instructor. Note: Credit may be obtained for only one of AUGER 201, 111 (2003), 200.

#### **AUGER 202 Intermediate German II**

★3 (*fi 6*) (second term, 4-0-0). Continuation of AUGER 201. Prerequisite: AUGER 201. Note: Credit may be obtained for only one of AUGER 202, 112 (2003), 200.

#### **AUGER 210 German Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of German. Prerequisite: Second-year standing in a Modern Languages degree program. Corequisite: Any senior course in German that requires library research. Notes: The corequisites must be taken concurrently. Credit may be obtained for only one of AUGER 210, AUENG 201 (2004), AUENG 204, AUDRA 228, AUFRE 210, AUSCA 210.

#### **AUGER 214 German Media Language: Comprehension and Translation**

★3 (*fi 6*) (either term, 3-1s-0). Intensive course in German media language acquisition through aural, visual, and written comprehension and translation exercises. Translation includes lyrics and radio plays (on cassettes) and videos on German/European history, geography, political science, economics, and philosophy. Prerequisite: AUGER 202.

#### **AUGER 231 German Culture and Civilization I**

★3 (*fi 6*) (either term, 3-0-0). Introduction to German culture and civilization, taught in English. Major cultural trends and movements from early times to 1800 are studied. Notes: The course does not count toward the minor in German or the major in Modern Languages. Credit may be obtained for only one of AUGER 231 and 233.

#### **AUGER 233 German Culture and Civilization I**

★3 (*fi 6*) (either term, 3-0-0). Introduction to German culture and civilization, taught in English. Major cultural trends and movements from early times to 1800 are studied. All assignments for the course are submitted in German. Prerequisite: AUGER 302. Note: Credit may be obtained for only one of AUGER 233 and 231.

#### **AUGER 236 German Culture and Civilization II**

★3 (*fi 6*) (either term, 3-0-0). Introduction to German culture and civilization, taught in English. Major cultural trends and movements from 1800 to the present time are studied. Notes: The course does not count toward the minor in German or the major in Modern Languages. Credit may be obtained for only one of AUGER 236 and 238.

#### **AUGER 238 German Culture and Civilization II**

★3 (*fi 6*) (either term, 3-0-0). Introduction to German culture and civilization, taught in English. Major cultural trends and movements from 1800 to the present time are studied. All assignments for the course are submitted in German. Prerequisite: AUGER 302. Note: Credit may be obtained for only one of AUGER 238 and 236.

#### **AUGER 291 German Drama in Translation**

★3 (*fi 6*) (either term, 3-0-0). Analysis of German drama in English translation from the eighteenth century to the present.

#### **AUGER 292 German Fiction in Translation**

★3 (*fi 6*) (either term, 3-0-0). Analysis of German prose fiction in English translation from the eighteenth century to the present.

**AUGER 293 Women and German Literature in Translation**

★3 (fi 6) (either term, 3-0-0). Analysis of German literature in English translation written by women, and the role of women in German literature in general. Feminist literary theory is employed to analyze the texts.

**AUGER 300 Advanced German I and II**

★6 (fi 12) (Spring/Summer, variable). Intensive course designed to develop further the comprehension, speaking, writing, reading skills acquired in Intermediate German through classroom instruction, excursions, and immersion experience, including living in a German home. Improvement in overall fluency, enhanced knowledge of the culture of the German-speaking countries and review of key grammatical concepts are integral to the course. Prerequisite: AUGER 202; or two years of German study at a Canadian university, including one year Beginners' level and one year Intermediate level. Note: Credit may be obtained for only one of AUGER 300, 203 (2003) and 204(2003), 301 and 302.

**AUGER 301 Advanced German I**

★3 (fi 6) (first term, 4-0-0). Thorough review of German grammar and study of refined stylistics and idioms as represented in selections of twentieth-century short stories. Colloquial expressions presently in use are studied through discussion and audiovisual presentation. Prerequisite: AUGER 202. Note: Credit may be obtained for only one of AUGER 301, 203 (2003), 300.

**AUGER 302 Advanced German II**

★3 (fi 6) (second term, 4-0-0). Continuation of AUGER 301. Prerequisite: AUGER 301. Note: Credit may be obtained for only one of AUGER 302, 204 (2003), 300.

**AUGER 313 Advanced German Grammar and Stylistics: Journalistic Literature**

★3 (fi 6) (either term, 3-0-1.5). Theoretical and practical study of the more complex areas of grammar, style, and idiomatic usage in journalistic writings. Emphasis is on contemporary media language. Prerequisite: AUGER 301 or consent of the instructor.

**AUGER 314 Advanced Translation**

★3 (fi 6) (either term, 3-0-0). Theory and practice of translation of texts in contemporary German writing. Prerequisite: AUGER 302.

**AUGER 317 Business German**

★3 (fi 6) (either term, 3-0-0). Study of the German language (oral and written) as used in the German business milieu and in the administrative sector. The student is introduced to the technical vocabulary required to function competently in situations revolving around business life. Prerequisite: AUGER 302 or consent of the instructor.

**AUGER 321 Survey of Literary Periods I**

★3 (fi 6) (either term, 3-0-0). Introduction to German literary periods from the beginning of recorded German literature to the Romantic period (ca. 1800). Prerequisite: AUGER 202. Corequisite: AUGER 301.

**AUGER 322 Survey of Literary Periods II**

★3 (fi 6) (either term, 3-0-0). Introduction to German literary periods from "Biedermeier" (ca. 1830) to the present. Prerequisite: AUGER 321. Corequisite: AUGER 302.

**AUGER 351 Eighteenth-Century Literature**

★3 (fi 6) (either term, 3-0-0). Analysis of selected representative works by poets of the following literary periods: Enlightenment, "Empfindsamkeit", "Sturm und Drang", classicism, and romanticism. Prerequisite: AUGER 322.

**AUGER 361 Nineteenth-Century Literature**

★3 (fi 6) (either term, 3-0-0). Analysis of selected representative works of Biedermeier, realism, and naturalism. Prerequisite: AUGER 322.

**AUGER 371 Twentieth-Century Literature**

★3 (fi 6) (either term, 3-0-0). Analysis of selected representative works by writers of the following periods: expressionism, post-World War I, World War II, up to the end of the century. Prerequisite: AUGER 322.

**AUGER 400 Advanced German III & IV**

★6 (fi 12) (Spring/Summer, variable). Intensive course designed to develop further the comprehension, speaking, writing, reading skills acquired in Advanced German through classroom instruction, excursions, and immersion experience, including living in a German home. Improvement in overall fluency, enhanced knowledge of the culture of the German-speaking countries and review of key grammatical concepts are integral to the course. Prerequisite: AUGER 302; or three years of German study at a Canadian university, including one year Beginners' level, one year Intermediate level and one year Advanced level.

**AUGER 401 Selected Topics in German Literature**

★3 (fi 6) (either term, 1-0-0). Content varies from year to year, but in general it introduces a specific literary period, or the selected works of some prominent authors who are significant because of their role in the emergence of a new literary genre or a new philosophy. Prerequisite: One of AUGER 302, 313, consent of the instructor.

**AUGER 402 Directed Study: Translation Techniques**

★3 (fi 6) (variable, 1.5-0-0). Intensive study in translation techniques (German-English, English-German). Specific literature (e.g., reports, sermons, essays,

philosophical or business writings) is chosen by the student and a supervising instructor. Prerequisites: AUGER 302 and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

**AUGER 403 Directed Reading**

★3 (fi 6) (variable, 1.5-0-0). Intensive study of a specific area of German as defined by the student and a supervising instructor. Prerequisites: AUGER 222 and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

**221.39 Augustana Faculty - Greek, AUGRE**

Department of Humanities  
Augustana Faculty

**Undergraduate Courses****AUGRE 101 Beginners' Hellenistic Greek I**

★3 (fi 6) (first term, 4-0-0). Introduction to the basic grammar and vocabulary of Hellenistic Greek.

**AUGRE 102 Beginners' Hellenistic Greek II**

★3 (fi 6) (second term, 4-0-0). Continuation of AUGRE 101. Prerequisite: AUGRE 101.

**AUGRE 203 Intermediate Greek I (Hellenistic)**

★3 (fi 6) (either term, 3-0-0). Readings in the Hellenistic Greek of the New Testament, Septuagint, Apostolic Fathers, and other Hellenistic works. Review of Greek grammar. Prerequisite: AUGRE 102.

**AUGRE 204 Intermediate Greek II (Classical)**

★3 (fi 6) (either term, 3-0-0). Selected readings in classical Greek literature. Classical Greek is introduced through prose composition. Prerequisite: AUGRE 203.

**AUGRE 298 Directed Reading I**

★3 (fi 6) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek to be defined by the student and a supervising instructor. Prerequisites: AUGRE 203 for Hellenistic Greek texts, AUGRE 204 for classical Greek texts, and consent of the instructor. An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUGRE 299 Directed Reading II**

★3 (fi 6) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek to be defined by the student and a supervising instructor. Prerequisites: AUGRE 203 for Hellenistic Greek texts, AUGRE 204 for classical Greek texts, and consent of the instructor. An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUGRE 303 Directed Reading III**

★3 (fi 6) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek as defined by the student and a supervising instructor. Prerequisites: AUGRE 298 for Hellenistic Greek texts, AUGRE 299 for classical Greek texts, and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUGRE 304 Directed Reading IV**

★3 (fi 6) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek as defined by the student and a supervising instructor. Prerequisites: AUGRE 298 for Hellenistic Greek texts, AUGRE 299 for classical Greek texts, and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUGRE 305 Directed Reading V**

★3 (fi 6) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek as defined by the student and a supervising instructor. Prerequisites: AUGRE 298 for Hellenistic Greek texts, AUGRE 299 for classical Greek texts, and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUGRE 306 Directed Reading VI**

★3 (fi 6) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek as defined by the student and a supervising instructor. Prerequisites: GRE AU298 for Hellenistic Greek texts, AUGRE 299 for classical Greek texts, and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUGRE 307 Directed Reading VII**

★3 (fi 6) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek as defined by the student and a supervising instructor. Prerequisites: AUGRE 298 for Hellenistic Greek texts, AUGRE 299 for classical Greek texts, and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUGRE 308 Directed Reading VIII**

★3 (fi 6) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek as defined by the student and a supervising instructor. Prerequisites: AUGRE 298 for Hellenistic Greek texts, AUGRE 299 for classical Greek texts, and consent



of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

#### **AUGRE 309 Directed Reading IX**

★3 (*fi 6*) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek as defined by the student and a supervising instructor. Prerequisites: AUGRE 298 for Hellenistic Greek texts, AUGRE 299 for classical Greek texts, and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

#### **AUGRE 310 Directed Reading X**

★3 (*fi 6*) (variable, 1.5-0-0). Readings from a specific area of Hellenistic or classical Greek as defined by the student and a supervising instructor. Prerequisites: AUGRE 298 for Hellenistic Greek texts, AUGRE 299 for classical Greek texts, and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

## 221.40 Augustana Faculty - History, AUHIS

Department of Social Sciences  
Augustana Faculty

### Undergraduate Courses

#### **AUHIS 104 World History: The West**

★3 (*fi 6*) (either term, 3-0-0). Introduction to understanding our world: aspects of European, North American, and Islamic history.

#### **AUHIS 105 World History: The East and the South**

★3 (*fi 6*) (either term, 3-0-0). Introduction to understanding our world: aspects of Asian, African, and Latin American history.

#### **AUHIS 190 The Historian's Craft: Research Skills and Tools**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the skills and methods needed for the study of history. The course familiarizes students with the specialized vocabulary of the discipline. It guides students through all the steps necessary to write a research paper: the choice and delineation of a research topic, the elaboration of the thesis, the collection of data and the treatment of the information, the outline and the writing of the paper. Note: This course is only open to students with a major or a minor in History.

#### **AUHIS 201 European History I: Fall of the Roman Empire to the French Revolution**

★3 (*fi 6*) (either term, 3-0-0). Major themes in the development of European society from the fall of the Roman Empire in the West to the eve of the French Revolution.

#### **AUHIS 202 European History II: French Revolution to the Present**

★3 (*fi 6*) (either term, 3-0-0). Survey of the social, political, and military history of Europe from the French Revolution to the present. Topics include the causes and results of revolutions, strategy and diplomacy of the two World Wars, and the emergence of a new postwar Europe.

#### **AUHIS 203 History of Ancient Greece I**

★3 (*fi 6*) (either term, 3-0-0). History of Greece from the Bronze Age to the Persian Wars. Note: Credit may be obtained for only one of AUHIS 203 and AUCLA 221.

#### **AUHIS 204 History of Ancient Greece II**

★3 (*fi 6*) (either term, 3-0-0). History of Greece from the Persian Wars to the end of the Hellenistic Age. Note: Credit may be obtained for only one of AUHIS 204 and AUCLA 222.

#### **AUHIS 207 History of the Roman Republic**

★3 (*fi 6*) (either term, 3-0-0). History of the Roman Republic from its beginnings to the Battle of Actium in 31 B.C. Note: Credit may be obtained for only one of AUHIS 207 and AUCLA 223.

#### **AUHIS 208 History of the Roman Empire**

★3 (*fi 6*) (either term, 3-0-0). History of the Roman Empire from the time of Augustus to the fall of the West in the fifth century A.D. Note: Credit may be obtained for only one of AUHIS 208 and AUCLA 224.

#### **AUHIS 242 British History to 1688**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the salient features of British history from the Roman conquest to 1688.

#### **AUHIS 243 British History since 1688**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the salient features of British history from 1688 to the present.

#### **AUHIS 250 United States History to 1865**

★3 (*fi 6*) (either term, 3-0-0). Survey of the social, political, and military history of the United States from Colonial times to the Civil War. Topics include European settlement, the War of Independence, making a new country, westward expansion, slavery, and the disruption of the Union.

#### **AUHIS 251 United States History since 1865**

★3 (*fi 6*) (either term, 3-0-0). Survey of the social, political, and military history of the United States from the Civil War to the present. Topics include Reconstruction, industrial and economic development, Indian wars, the Great Depression, World Wars and the Cold War, and early twenty-first century American exceptionalism.

#### **AUHIS 260 An Introduction to the Study of Canadian History to 1867**

★3 (*fi 6*) (either term, 3-0-0). Canada's political, social and economic development from life before European Contact to Confederation. Lectures, assigned readings, films and discussions will provide factual background on Canadian history and stimulate critical thinking.

#### **AUHIS 261 An Introduction to the Study of Canadian History, 1867 to the Present**

★3 (*fi 6*) (either term, 3-0-0). Political, social, economic and cultural questions of Canada since 1867. Taking a thematic approach, lectures, assigned readings, films and discussions will provide factual background on Canadian history and stimulate critical thinking.

#### **AUHIS 262 History of Canadian Economic Development**

★3 (*fi 6*) (either term, 3-0-0). Survey of Canada's economic development from before Confederation until the present. Note: Credit may be obtained for only one of AUHIS 262 and AUCEO 251.

#### **AUHIS 271 The History of Women in Canadian Society**

★3 (*fi 6*) (either term, 3-0-0). History of Canadian women from the seventeenth century to the present, looking at how Canadian women were affected by, and how they contributed to, changes in Canadian society. Corequisite: AUHIS 260 or 261 or consent of the instructor.

#### **AUHIS 285 Historical Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of History. Prerequisite: Second year standing in a History degree program. Corequisite: Any senior course in History that requires library research. Notes: The corequisites must be taken concurrently. Credit may be obtained for only one of AUHIS 285, AUART 228, AUPHI 228, AUREL228.

#### **AUHIS 291 Twentieth-Century Cuban History**

★3 (*fi 6*) (second term, 3-0-0). Study of Cuban history from the War of Independence (1895-1898) to the present. Note: The course is available only as part of the Augustana-in-Cuba Program.

#### **AUHIS 316 Europe in the Eighteenth Century**

★3 (*fi 6*) (either term, 3-0-0). Royal absolutism from Russia to France, the Enlightenment, and the French Revolution. Prerequisite: None, but AUHIS 201 and 202 would be useful.

#### **AUHIS 322 Nineteenth-Century Europe to 1849**

★3 (*fi 6*) (either term, 3-0-0). Restoration, liberalism, nationalism, and revolution. Prerequisite: None, but AUHIS 202 would be useful.

#### **AUHIS 323 Nineteenth-Century Europe since 1849**

★3 (*fi 6*) (first term, 3-0-0). Industrialization and modernization of continental Europe; origins of World War I. Prerequisite: None, but AUHIS 202 would be useful.

#### **AUHIS 325 Twentieth-Century Europe**

★6 (*fi 12*) (two term, 3-0-0). Social, economic, national, intellectual, and military development of Europe from World War I to the end of the twentieth century. Prerequisite: None, but AUHIS 202 would be useful.

#### **AUHIS 328 Germany since Frederick the Great**

★3 (*fi 6*) (either term, 3-0-0). Survey of modern German history from Frederick the Great (1740) to the defeat of Hitler in 1945.

#### **AUHIS 329 Topics in the History and Culture of Southern France**

★3 (*fi 6*) (either term, 3-0-0). Aspects of the social, political and religious history, as well as the arts, architecture and literature of Southern France. All lectures and readings are in English. Note: Credit may be obtained for only one of AUHIS 329 and AUFRE 307.

#### **AUHIS 330 Foundations of East European History**

★3 (*fi 6*) (either term, 3-0-0). Ethnic, religious, social, and political factors that shaped the development of the peoples of east central Europe from the Middle Ages through the Age of Enlightenment.

#### **AUHIS 332 Eastern Europe since World War I**

★3 (*fi 6*) (either term, 3-0-0). Independent East European states, Nazi domination, Soviet conquest, "real-socialism." Prospects for the future are considered.

#### **AUHIS 333 Tour of Southern France**

★2 (*fi 4*) (Spring/Summer, variable). Tour of Southern France: History and culture. To complement the topics covered in AUHIS 329. Prerequisite: AUHIS 329. Notes: Enrolment limited to a maximum of 10 students. Credit may be obtained for only one of AUHIS 333 and AUFRE 308.

#### **AUHIS 337 History of the Soviet Union, 1917 to 1941**

★3 (*fi 6*) (either term, 3-0-0). Historical survey of Soviet domestic and foreign policy from 1917 to 1941.

#### **AUHIS 338 History of the Soviet Union, 1941 to 1991**

★3 (*fi 6*) (either term, 3-0-0). Historical survey of Soviet domestic and foreign policy from 1941 to 1991.

**AUHS 347 The Industrial Revolution in Britain**

★3 (fi 6) (either term, 3-0-0). Intellectual, social, and economic history of Britain, ca. 1750 to 1850. Prerequisite: AUHS 243 or consent of the instructor.

**AUHS 356 History of the United States West**

★3 (fi 6) (either term, 3-0-0). Study of the western United States from the late eighteenth through the twentieth century. Special emphasis is given to the west's integration into the industrial and urban life of the nation. Prerequisite: AUHS 251 or consent of the instructor.

**AUHS 358 History of United States Foreign Relations to 1914**

★3 (fi 6) (either term, 3-0-0). Survey of United States foreign relations from 1774 to 1914, the problems of winning and maintaining independence, a century of expansion at home and overseas, Civil War diplomacy, the emergence of the United States as a world power. Prerequisite: AUHS 250 or consent of the instructor.

**AUHS 359 History of United States Foreign Relations since 1914**

★3 (fi 6) (either term, 3-0-0). Emphasis upon United States leadership in world affairs in the twentieth century, United States relations with the Far East and Latin America, the breakdown of neutrality in the two World Wars, the search for collective security. Prerequisite: AUHS 251 or consent of the instructor.

**AUHS 360 Selected Topics in Canadian History**

★3 (fi 6) (either term, 3-0-0). Seminar course which deals with selected topics in Canadian history. Topics vary from year to year. They are announced before registration. Subjects are selected from, but not limited to, politics, labour, education, ideas, family, the legal system, regional issues, ethnicity. Prerequisite: One of AUHS 260, 261.

**AUHS 361 Selected Topics in Canadian History**

★3 (fi 6) (either term, 3-0-0). Seminar course which deals with selected topics in Canadian history. Topics vary from year to year. They are announced before registration. Subjects are selected from, but not limited to, politics, labour, education, ideas, family, the legal system, regional issues, ethnicity. Prerequisite: One of AUHS 260, 261.

**AUHS 362 Selected Topics in Canadian History**

★3 (fi 6) (either term, 3-0-0). Seminar course which deals with selected topics in Canadian history. Topics vary from year to year. They are announced before registration. Subjects are selected from, but not limited to, politics, labour, education, ideas, family, the legal system, regional issues, ethnicity. Prerequisite: One of AUHS 260, 261.

**AUHS 363 Selected Topics in Canadian History**

★3 (fi 6) (either term, 3-0-0). Seminar course which deals with selected topics in Canadian history. Topics vary from year to year. They are announced before registration. Subjects are selected from, but not limited to, politics, labour, education, ideas, family, the legal system, regional issues, ethnicity. Prerequisite: One of AUHS 260, 261.

**AUHS 366 History of The Canadian West**

★3 (fi 6) (either term, 3-0-0). Economic, political and social development of western Canada. The course will compare and contrast the Canadian West with the American West, discussing the two distinct western myths. The seminar starts with the First Peoples and concludes with an assessment of western Canadian regionalism and "alienation" in present day. Prerequisite: AUHS 261 or consent of the instructor.

**AUHS 369 History of Canada's Aboriginal Peoples**

★3 (fi 6) (either term, 3-0-0). Examination of the history of Aboriginal Canada from the beginning of human occupation of what is now Canada to the present. Special attention is paid to the period after European contact, and to the relationship between Native peoples and the French, British, and Canadian governments. Prerequisite: One of AUHS 260, 261, consent of the instructor.

**AUHS 372 History of Quebec**

★3 (fi 6) (either term, 3-0-0). A general history of Quebec from the French Regime to the present-day. Lectures and tutorials will place particular emphasis on the development of French Canadian nationalism, and the relationship between Quebec and Canada. Prerequisite: AUHS 260 or 261.

**AUHS 375 Canadian Environmental History**

★3 (fi 6) (either term, 3-0-0). Historical examination of the dynamic interrelationships between the natural world and humans, with a focus on Canadian issues within a North American context. Topics and perspectives will include: Aboriginal peoples, colonization, fur trade, exploration, settlement, western agriculture, science, and the conservation movement. Note: Credit may be obtained for only one of AUENV 375 and AUHS 375.

**AUHS 378 Twentieth-Century Canada**

★3 (fi 6) (either term, 3-0-0). Social, political, economic, and intellectual developments in twentieth-century Canada. Prerequisite: One of AUHS 260, 261, consent of the instructor.

**AUHS 379 The History of Canadian Women's Religious Experience**

★3 (fi 6) (either term, 3-0-0). Exploration of themes important in understanding both the history of Canadian women's religious experience and feminist theology

from a Canadian perspective. Corequisite: One of AUHS 271, AUREL 348, consent of the instructor.

**AUHS 380 The Historian's Craft: Historiography**

★3 (fi 6) (variable, 3-0-0). How do historians do history? Problems of evidence, interpretation, methodologies, and various paradigms are investigated in the course as the student explores how historians research and write about the past. Prerequisite: ★6 in History.

**AUHS 401 Directed Reading I**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of history as defined by the student and a supervising instructor. Prerequisites: Fourth-year standing and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

**AUHS 402 Directed Reading II**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of history as defined by the student and a supervising instructor. Prerequisites: AUHS 401 and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

**AUHS 416 Europe in the Sixteenth Century**

★3 (fi 6) (either term, 3-0-0). Intellectual and social history of the Renaissance and Reformation. Prerequisite: ★3 at a senior level in European history.

**AUHS 425 Twentieth-Century Europe**

★6 (fi 12) (two term, 3-0-0). Social, economic, national, intellectual, and military development of Europe from World War I to the end of the twentieth century. Prerequisite: ★9 in European history.

**AUHS 453 Topics in United States Social History**

★3 (fi 6) (either term, 3-0-0). Topic to be considered and the format (seminar, lectures, or colloquia) are announced before registration. Subjects are selected from, but are not limited to, the first peoples, the African-American experience, women in the United States, intellectual and religious thought, immigration, sport, culture, industrialization, invention and technology, violence and death, the environment. Prerequisite: AUHS 250 or 251.

**AUHS 454 The United States Civil War Era, 1846 to 1877**

★3 (fi 6) (either term, 3-0-0). Political, military, and socio-economic history of the United States Civil War: its causes, prosecution, and aftermath. Prerequisite: AUHS 250.

**AUHS 460 Selected Topics in Canadian History**

★3 (fi 6) (either term, 3-0-0). Seminar course which deals with selected topics in Canadian history. Topics vary from year to year. They are announced before registration. Subjects are selected from, but not limited to, politics, labour, education, ideas, family, the legal system, regional issues, ethnicity. Prerequisite: One of AUHS 366, 369, 372, 378.

**AUHS 461 Selected Topics in Canadian History**

★3 (fi 6) (either term, 3-0-0). Seminar course which deals with selected topics in Canadian history. Topics vary from year to year. They are announced before registration. Subjects are selected from, but not limited to, politics, labour, education, ideas, family, the legal system, regional issues, ethnicity. Prerequisite: One of AUHS 366, 369, 372, 378.

**AUHS 462 Selected Topics in Canadian History**

★3 (fi 6) (either term, 3-0-0). Seminar course which deals with selected topics in Canadian history. Topics vary from year to year. They are announced before registration. Subjects are selected from, but not limited to, politics, labour, education, ideas, family, the legal system, regional issues, ethnicity. Prerequisite: One of AUHS 366, 369, 372, 378.

**AUHS 463 Selected Topics in Canadian History**

★3 (fi 6) (either term, 3-0-0). Seminar course which deals with selected topics in Canadian history. Topics vary from year to year. They are announced before registration. Subjects are selected from, but not limited to, politics, labour, education, ideas, family, the legal system, regional issues, ethnicity. Prerequisite: One of AUHS 366, 369, 372, 378.

**AUHS 470 Selected Topics in Canadian Social History**

★3 (fi 6) (either term, 3-0-0). Senior-level seminar for those already possessing a general knowledge of Canadian social history. Prerequisite: ★3 at a senior level in Canadian history.

**AUHS 479 The History of Canadian Women's Religious Experience**

★3 (fi 6) (either term, 3-0-0). Exploration of themes important in understanding both the history of Canadian women's religious experience and feminist theology from a Canadian perspective. Corequisite: One of AUHS 271, AUREL 348, consent of the instructor.

**AUHS 480 The Historian's Craft: Historiography**

★3 (fi 6) (first term, 3-0-0). How do historians do history? Problems of evidence, interpretation, methodologies, and various paradigms are investigated in the course as the student explores how historians research and write about the past. Prerequisite: ★6 in History.

## 221.41 Augustana Faculty - Interdisciplinary Studies, AIDS

Department of Social Sciences  
Augustana Faculty

### Undergraduate Courses

#### **AIDS 120 Orientation to the Development Studies Program**

★2 (*fi 4*) (either term, 3-0-0). Orientation to cross-cultural living and learning, focusing on the culture in which the program is to take place. Issues such as health and safety, travel preparations, dealing with “culture shock”, and the history and geography of the target region are covered. Prerequisite: Consent of the selection committee.

#### **AIDS 121 Introduction to Development Studies**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the political, economic, literary, cultural, gender, and spiritual aspects of development work and to various development paradigms. Note: Credit may be obtained for only one of AIDS 121/221 and AUSOC 218.

#### **AIDS 122 Development Studies Seminar (México)**

★6 (*fi 12*) (second term, 0-6s-0). Integrative study of development issues and strategies based on work experiences in rural communities in an African, Asian, or Latin American country (currently México). Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student. Credit may be obtained for only one of AIDS 122, 222, 226, 322.

#### **AIDS 123 Development Studies Practicum (México)**

★3 (*fi 6*) (second term, 0-0-6). By working in an African, Asian, or Latin American country (currently México) in projects dealing with such issues as health care, water aid, sustainable farming, developing co-operatives, and education, the student becomes familiar with various aspects of an integrated approach to development. Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student.

#### **AIDS 124 Development Studies Seminar (Canada)**

★6 (*fi 12*) (first term, 0-6s-0). Integrative study of development issues and strategies based on work experiences in rural communities in Canada. Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student. Credit may be obtained for only one of AIDS 124, 224, 226, 324.

#### **AIDS 125 Development Studies Practicum (Canada)**

★3 (*fi 6*) (first term, 0-0-6). By working in Canada in development projects dealing with such issues as health care, water aid, sustainable farming, developing co-operatives, and education, the student becomes familiar with various aspects of an integrated approach to development. Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student.

#### **AIDS 160 Introduction to Crime, Correction, and Community**

★3 (*fi 6*) (either term, 3-0-0). Introduction to crime and correction in Canada. The theory and practice accompanying law enforcement, trial, correctional intervention, and probation and parole are analyzed by drawing from a range of disciplinary traditions such as ethical reflection, psychological theory, social and political thought, and biological understandings of criminality. Note: Credit may be obtained for only one of AIDS 160 and AUCRI 160.

#### **AIDS 220 Orientation to the Development Studies Program**

★2 (*fi 4*) (either term, 3-0-0). Orientation to cross-cultural living and learning, focusing on the culture in which the program is to take place. Issues such as health and safety, travel preparations, dealing with “culture shock”, and the history and geography of the target region are covered. Prerequisite: Consent of the selection committee.

#### **AIDS 221 Introduction to Development Studies**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the political, economic, literary, cultural, gender, and spiritual aspects of development work and to various development paradigms. Note: Credit may be obtained for only one of AIDS 121/221 and AUSOC 218.

#### **AIDS 222 Development Studies Seminar (México)**

★6 (*fi 12*) (second term, 0-6s-0). Integrative study of development issues and strategies based on work experiences in rural communities in an African, Asian, or Latin American country (currently México). Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student. Credit may be obtained for only one of AIDS 122, 222, 226, 322.

#### **AIDS 223 Development Studies Practicum (México)**

★3 (*fi 6*) (second term, 0-0-6). By working in an African, Asian, or Latin American country (currently México) in projects dealing with such issues as health care, water aid, sustainable farming, developing co-operatives, and education, the student

becomes familiar with various aspects of an integrated approach to development. Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student.

#### **AIDS 224 Development Studies Seminar (Canada)**

★6 (*fi 12*) (first term, 0-6s-0). Integrative study of development issues and strategies based on work experiences in rural communities in Canada. Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student. Credit may be obtained for only one of AIDS 124, 224, 226, 324.

#### **AIDS 225 Development Studies Practicum (Canada)**

★3 (*fi 6*) (first term, 0-0-6). By working in Canada in development projects dealing with such issues as health care, water aid, sustainable farming, developing co-operatives, and education, the student becomes familiar with various aspects of an integrated approach to development. Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student.

#### **AIDS 226 Development Analysis and Reflection**

★3 (*fi 6*) (either term, 3-0-0). Introduction to development analysis and reflection techniques which facilitate community and global development analyses. Sustainable communities will be examined interdisciplinarily from socio-cultural, political-economic, and environmental perspectives. Students will be encouraged to view themselves as actors within a development context, at the local, national and international levels. Prerequisites: One of AIDS 121, AUSOC 105, consent of the instructor. Note: Credit may be obtained for only one of AIDS, 124, 224, 226, 324, 122, 222, 322.

#### **AIDS 230 Introduction to Women's Studies**

★3 (*fi 6*) (either term, 3-0-0). Survey and analysis of issues concerning women's lives, both historically and in the present; an account of the development of feminist theories and critiques, and an assessment of the contribution this new scholarship has made in transforming perceived knowledge in a variety of disciplines.

#### **AIDS 240 Bilingualism**

★3 (*fi 6*) (either term, 3-0-0). Exposure to the psychological processes relating to multilingualism, to various means of second language acquisition, and to the cultural and educational issues raised. Prerequisites: AUPSY 101 and ★6 in a second language.

#### **AIDS 250 Death and Dying**

★3 (*fi 6*) (either term, 3-0-0). Exploration of selected topics in the fields of death and dying, including experiences and perspectives drawn from ethical reflection, social theory, biological thought, medical practice, theology, philosophy, literary and artistic expression, education, law, and/or social policy.

#### **AIDS 260 Environmental Studies Practicum**

★3 (*fi 6*) (either term, 1-0-3). Practicum placement in a government, industry, or non-governmental organization to gain awareness and experience in an environmental field. Prerequisite: AUENV 120 or AUGEO 120. Notes: The course is open only to a student with a major in Environmental Studies/Science. Credit may be obtained for only one of AIDS 260 and AUENV 260.

#### **AIDS 270 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AIDS 271 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AIDS 272 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AIDS 273 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AIDS 274 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge

between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 275 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 276 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 277 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 278 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 279 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 290 Directed Reading**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area to be defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in one of these courses.

#### **AUIDS 291 Directed Reading**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area to be defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in one of these courses.

#### **AUIDS 300 Western Civilization I**

★3 (*fi 6*) (either term, 3-0-0). Integrated study of selected cultural developments of the Western world from Greek civilization to the Renaissance. Prerequisite: Third-year standing.

#### **AUIDS 310 Western Civilization II**

★3 (*fi 6*) (either term, 3-0-0). Integrated study of selected cultural developments of the Western world from the Renaissance to the present. Prerequisite: Third-year standing.

#### **AUIDS 311 Studies in the Renaissance**

★3 (*fi 6*) (either term, 3-0-0). Examination of essential intellectual and literary works written during the European Renaissance, a period of radical innovation and creativity. Works by such major authors as Erasmus, Machiavelli, Montaigne, Cervantes, and Luther are used to demonstrate the period's imaginative vitality.

#### **AUIDS 322 Development Studies Seminar (México)**

★6 (*fi 12*) (second term, 0-6s-0). Integrative study of development issues and strategies based on work experiences in rural communities in an African, Asian, or Latin American country (currently México). Prerequisite: Consent of the selection committee. Notes: Costs of the program beyond and including regular tuition are the responsibility of the student. Credit may be obtained for only one of AUIDS 122, 222, 226, 322.

#### **AUIDS 323 Development Studies Practicum (México)**

★3 (*fi 6*) (second term, 0-0-6). By working in an African, Asian, or Latin American country (currently México) in projects dealing with such issues as health care, water aid, sustainable farming, developing co-operatives, and education, the student becomes familiar with various aspects of an integrated approach to development. Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student.

#### **AUIDS 324 Development Studies Seminar (Canada)**

★6 (*fi 12*) (first term, 0-6s-0). Integrative study of development issues and strategies based on work experiences in rural communities in Canada. Prerequisite: Consent of the selection committee. Notes: Costs of the program beyond and including regular tuition are the responsibility of the student. Credit may be obtained for only one of AUIDS 124, 224, 226, 324.

#### **AUIDS 325 Development Studies Practicum (Canada)**

★3 (*fi 6*) (first term, 0-0-6). By working in Canada in development projects dealing with such issues as health care, water aid, sustainable farming, developing co-operatives, and education, the student becomes familiar with various aspects of an integrated approach to development. Prerequisite: Consent of the selection committee. Note: Costs of the program beyond and including regular tuition are the responsibility of the student.

#### **AUIDS 340 Politics and Writing**

★3 (*fi 6*) (either term, 3-0-0). Study of several political and literary works from two distinct Western cultures or epochs. The course combines political and literary perspectives by focusing on the political dimension of the literary work and on the rhetorical features of political writing.

#### **AUIDS 370 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 371 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 372 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 373 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 374 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 375 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 376 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 377 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 378 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course

are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 379 Topics in Integrative Studies**

★3 (*fi 6*) (either term, 3-0-0). Selected topics on the integration of knowledge between different disciplinary perspectives. The focus and content of each course are determined by student and faculty interests, and vary from year to year. Each course is team-taught by faculty from at least two distinct disciplines. Note: Even-numbered courses in this series are classified as arts courses; odd-numbered courses are classified as science courses.

#### **AUIDS 380 Science and Society**

★3 (*fi 6*) (either term, 3-0-0). Origins of science and the relationship between science and society. Prerequisite: Third-year standing.

#### **AUIDS 381 The Scientific Traditions**

★3 (*fi 6*) (either term, 3-0-0). Examination of the essence of scientific thought, the process of paradigm shift, and the influence on how people view the relationship of self to their world. Prerequisite: ★6 in science.

#### **AUIDS 382 Biology and Ethics**

★3 (*fi 6*) (either term, 3-0-0). Investigation of the role ethics plays in biological research and how biology influences societal and individual ethics. Prerequisites: AUPHI 260 or AUREL 257, and ★6 in Biology. Note: AUIDS 382 is classified as an arts course; AUIDS 383 is classified as a science course.

#### **AUIDS 383 Biology and Ethics**

★3 (*fi 6*) (either term, 3-0-0). Investigation of the role ethics plays in biological research and how biology influences societal and individual ethics. Prerequisites: AUPHI 260 or AUREL 257, and ★6 in Biology. Note: AUIDS 382 is classified as an arts course; AUIDS 383 is classified as a science course.

#### **AUIDS 384 Women and Science**

★3 (*fi 6*) (either term, 3-0-0). Examination of feminist critiques of science. The course reflects on the causes of the traditional absence of women from scientific endeavours, and compares the experiences and contributions of women in the natural and social sciences. Prerequisite: AUIDS 230 or consent of the instructor. Note: AUIDS 384 is classified as an arts course; AUIDS 385 is classified as a science course.

#### **AUIDS 385 Women and Science**

★3 (*fi 6*) (either term, 3-0-0). Examination of feminist critiques of science. The course reflects on the causes of the traditional absence of women from scientific endeavours, and compares the experiences and contributions of women in the natural and social sciences. Prerequisite: AUIDS 230 or consent of the instructor. Note: AUIDS 384 is classified as an arts course; AUIDS 385 is classified as a science course.

#### **AUIDS 390 Directed Reading**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area to be defined by the student and a supervising instructor. Prerequisite: Consent of the instructor; at least third-year standing or ★3 at a senior level in Interdisciplinary Studies. Note: An "Application for Individual Study" must be completed and approved before registration in one of these courses.

#### **AUIDS 391 Directed Reading**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area to be defined by the student and a supervising instructor. Prerequisite: Consent of the instructor; at least third-year standing or ★3 at a senior level in Interdisciplinary Studies. Note: An "Application for Individual Study" must be completed and approved before registration in one of these courses.

#### **AUIDS 427 Senior Global and Development Studies**

★3 (*fi 6*) (either term, 3-0-0). Preparation of a literature review, and research proposal, and presentation. Research may be participatory, qualitative, quantitative, archival, community-based, and may include a practical component. Classes will provide supportive and critical analysis throughout students' research process and examine issues, theories, and practices central to global and development studies and social change. This course integrates the varied disciplinary approaches and practices experienced throughout the program. Prerequisite: Third or fourth-year standing. Only open to majors in IDS-Global and Development Studies. Note: This course can only be taken by students also registered in AUIDS 428.

#### **AUIDS 428 Senior Global and Development Studies Research Seminar II**

★3 (*fi 6*) (either term, 3-0-0). Continuation of AUIDS 427. This course involves implementing research, presentation of results, and a final project. Research may be participatory, qualitative, quantitative, archival, community-based, and may include a practical component. Classes will provide supportive and critical analysis throughout students' research process and examine issues, theories, and practices central to global and development studies and social change. This course integrates the varied disciplinary approaches and practices experienced throughout the program. Prerequisites: IDS 427 and third or fourth-year standing. Only open to majors in AUIDS-Global and Development Studies.

## 221.42 Augustana Faculty - Language Studies, AULAN

Department of Social Sciences  
Augustana Faculty

### Undergraduate Courses

#### **AULAN 200 Introduction to Language**

★3 (*fi 6*) (either term, 3-0-0). General analysis of language, using illustrations from a variety of the world's languages. The course also addresses the relation among language, culture, and identity by looking at various language situations such as American Sign Language, creoles, and minority languages. See also AUPSY 271, 371, 471, and AUIDS 240.

## 221.43 Augustana Faculty - Latin, AULAT

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### **AULAT 101 Beginners' Latin I**

★3 (*fi 6*) (first term, 4-0-0). Introduction to the basic grammar and vocabulary of Latin.

#### **AULAT 102 Beginners' Latin II**

★3 (*fi 6*) (second term, 4-0-0). Continuation of AULAT 101. Prerequisite: AULAT 101.

## 221.44 Augustana Faculty - Management, AUMGT

Department of Social Sciences  
Augustana Faculty

### Undergraduate Courses

#### **AUMGT 200 Introduction to Management**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the basic concepts of management. Topics include the origins of management, functional areas of management, levels of management structure, relationship between structure and function of the organization. Note: Credit may be obtained for only one of AUMGT 200 and AUMGT 201 (2003).

#### **AUMGT 206 Mathematics for Economics and Finance**

★3 (*fi 6*) (either term, 3-0-0). Mathematical analysis of problems arising in economics and finance, including an introduction to economic modelling, simple, compound, and continuous rates of interest; statics and comparative-static analysis; optimization; annuities, mortgages, bonds, and other securities; dynamics. Prerequisites: AUECO 101 and one of AUMAT 110, 111, 120. Note: Credit may be obtained for only one of AUMGT 206, AUECO 206, 306 (2004), AUMAT 235.

#### **AUMGT 212 Business Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to Library research skills in the discipline of Business Studies. Prerequisite: Second-year standing in the Management Program. Corequisite: Any senior course in Management that requires library research. Notes: Credit may be obtained for only one of AUMGT 212 and AUECO 212. The corequisite must be taken concurrently.

#### **AUMGT 310 Corporate Finance**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the institutional environment of corporate finance. Topics include corporate financial analysis, planning and control, management of assets, time value of money, capital budgeting; short, medium, and long term financing; mergers, and reorganization/acquisitions. Prerequisites: AUSTA 153 and AUACC 311. Notes: Open only to a student in the Bachelor of Management in Business Economics Program. Credit may be obtained for only one of AUMGT 310 and AUMGT 311 (2003).

#### **AUMGT 320 Business Law**

★3 (*fi 6*) (either term, 3-0-0). Examines aspects of business/commercial law as it relates to business. Principles of law and its application to typical business situations are discussed. Notes: Open only to a student in the Bachelor of Management in Business Economics Program. Credit may be obtained for only one of AUMGT 320 and AUMGT 321 (2003).

**AUMGT 323 Industrial Organization**

★3 (fi 6) (either term, 3-0-0). Exploration of various patterns of internal organization in industries, focusing on the relations among the structure, conduct, and performance of the industries. Prerequisite: AUECO 100 or 101. Note: Credit may be obtained for only one of AUMGT 323, AUECO 322 (2004), 323.

**AUMGT 330 Introduction to Marketing**

★3 (fi 6) (either term, 3-0-0). Introduction to the theory of marketing and its practice. The role of marketing within the business environment is discussed. Topics include the product design and management, national and international marketing strategies, consumer behaviour, product distribution and pricing, and market research. Notes: Open only to a student in the Bachelor of Management in Business Economics Program. Credit may be obtained for only one of AUMGT 330 and AUMGT 331 (2003).

**AUMGT 340 Organizational Behaviour**

★3 (fi 6) (either term, 3-0-0). Study of individuals and groups in an organizational setting. The course will help the student develop an understanding of the organizational behaviour concepts and the interaction between individual determinants of behaviour and group dynamics. Prerequisites: One of AUMGT 200 and AUMGT 201 (2003). Notes: Open only to a student in the Bachelor of Management in Business Economics Program. Credit may be obtained for only one of AUMGT 340 and AUMGT 341 (2003).

**AUMGT 422 Industrial Organization and Policy**

★3 (fi 6) (either term, 3-0-0). Examination of oligopoly theory, the economics of mergers and takeovers, competition policy, and industry regulation. Prerequisites: AUECO 203 and AUECO/AUMGT 323. Note: Credit may be obtained for only one of AUMGT 422, AUECO 422.

**AUMGT 490 Business Policy and Strategy**

★3 (fi 6) (either term, 3-0-0). Capstone course for the Management in Business Economics program. The course helps the student develop overall directions of an organization and mobilize human and other resources to accomplish strategic goals. The skills, concepts, and tools learned in various courses form the framework for making strategic decision. Prerequisite: Completion of all other courses in the Management Foundations, or consent of program adviser. Notes: Open only to a student in the Bachelor of Management in Business Economics Program. Credit may be obtained for only one of AUMGT 490 and AUMGT 491 (2003).

## 221.45 Augustana Faculty - Mathematics, AUMAT

Department of Science  
Augustana Faculty

### Undergraduate Courses

**AUMAT 107 Higher Arithmetic**

★3 (fi 6) (either term, 3-0-0). Elementary number theory, numeration systems, number systems, sets, logic, and elementary probability theory. Prerequisite: One of Pure Mathematics 30, Applied Mathematics 30, AUMAT 092, 102, consent of the instructor. Notes: The course does not count toward the major in Mathematics and Physics or the minor in Mathematics. Credit may not be obtained for the course if credit has already been obtained for AUMAT 250.

**AUMAT 110 Elementary Calculus I**

★3 (fi 6) (either term, 4.5-0-0). Limits; differentiation and integration of algebraic, trigonometric, exponential, and logarithmic functions; applications. Prerequisite: One of Pure Mathematics 30, AUMAT 092, 102. Notes: The course is normally not open to a student with credit in Mathematics 31. Credit may be obtained for only one of AUMAT 110 and 111.

**AUMAT 111 Elementary Calculus I**

★3 (fi 6) (first term, 3-0-0). Limits; differentiation and integration of algebraic, trigonometric, exponential, and logarithmic functions; applications. Prerequisites: One of Pure Mathematics 30, AUMAT 092, 102; and Mathematics 31. Note: Credit may be obtained for only one of AUMAT 111 and 110.

**AUMAT 112 Elementary Calculus II**

★3 (fi 6) (second term, 3-0-0). Fundamental Theorem, inverse trigonometric functions and their derivatives, indeterminate forms, improper integrals, techniques of integration, applications. Prerequisite: AUMAT 110 or 111.

**AUMAT 120 Linear Algebra I**

★3 (fi 6) (either term, 3-0-0). Vector and matrix algebra, determinants, linear systems of equations, vector spaces, eigenvalues and eigenvectors, applications. Prerequisite: One of Pure Mathematics 30, AUMAT 092, 102.

**AUMAT 211 Intermediate Calculus I**

★3 (fi 6) (either term, 3-0-0). Infinite series, plane curves, polar coordinates, vectors and three-dimensional analytic geometry, cylindrical and spherical coordinates, elements of linear differential equations. Prerequisite: AUMAT 112.

**AUMAT 212 Intermediate Calculus II**

★3 (fi 6) (either term, 3-0-0). Functions of several variables, partial derivatives,

integration in two and three dimensions, vector functions, space curves, arc length, line integrals, Green's theorem, surface integrals, Stokes' theorem, the divergence theorem. Prerequisite: AUMAT 211.

**AUMAT 220 Linear Algebra II**

★3 (fi 6) (either term, 3-0-0). Vector spaces, bases, linear transformations, change of bases, eigenvectors, characteristic polynomials, diagonalization, inner products and Gram-Schmidt orthogonalization, orthogonal and unitary operators. Prerequisites: AUMAT 110 or 111, and 120.

**AUMAT 229 Introduction to Group Theory**

★3 (fi 6) (either term, 3-0-0). Groups as a measure of symmetry. Groups of rigid motions. Frieze groups, and finite groups in two and three dimensions. Groups of matrices. Group actions with application to counting problems. Permutation groups. Subgroups, cosets, and Lagrange's Theorem. Quotient groups and homomorphisms. Prerequisites: AUMAT 110, or 111 and 120. Note: Credit may be obtained for only one of AUMAT 229 and 225 (2003).

**AUMAT 235 Mathematics of Economics and Finance**

★3 (fi 6) (either term, 3-0-0). Mathematical analysis of problems arising in economics and finance, including an introduction to economic modelling; simple, compound, and continuous rates of interest; static and comparative-static analysis; optimization; annuities, mortgages, bonds, and other securities; and dynamics. Prerequisites: AUECO 101 and one of AUMAT 110, 111, 120. Note: Credit may be obtained for only one of AUMAT 235, AUECO 206, AUMGT 206, AUECO 306(2004).

**AUMAT 250 Discrete Mathematics**

★3 (fi 6) (first term, 3-0-0). Sets, functions, elementary propositional and predicate logic, Boolean algebra, elementary graph theory, proof techniques (including induction and contradiction), and combinatorics. Prerequisites: AUMAT 110 or 111, and 120.

**AUMAT 260 Topics in Geometry**

★3 (fi 6) (either term, 3-0-0). Axiomatic systems and finite geometries; Euclidean geometry and modern synthetic geometry, including Euclid's and Hilbert's axioms, Menelaus' and Ceva's theorems, the nine-point circle, and Morley's theorem; constructions; isometries of the plane and groups of transformations; non-Euclidean geometry; applications. Prerequisite: AUMAT 120 or consent of the instructor.

**AUMAT 315 Complex Variables**

★3 (fi 6) (either term, 3-0-0). Complex numbers, functions of a complex variable, analytic functions, Cauchy and related theorems, Taylor and Laurent expansions, the residue calculus and applications, harmonic functions, conformal mapping, applications. Prerequisite: AUMAT 212.

**AUMAT 330 Ordinary Differential Equations**

★3 (fi 6) (second term, 3-0-0). First- and higher-order equations; methods of solution, including complex variable techniques; series solutions; elementary transform techniques; oscillation theory; applications to biology and physics. Prerequisite: AUMAT 211.

**AUMAT 332 Mathematical Ecology and Dynamical Systems**

★3 (fi 6) (second term, 3-0-0). Mathematical analysis of problems associated with ecology, including models of population growth (e.g. discrete, continuous, age-structured, limited carrying capacity), the population dynamics of ecosystems, the spread of epidemics, the transport of pollutants, and the sustainable harvesting of vegetation and animal populations. Fundamental concepts of discrete and continuous dynamical systems, both linear and nonlinear. Prerequisites: AUMAT 120 and 211. Note: Credit may be obtained for only one of AUMAT 332 and 231 (2003).

**AUMAT 340 Numerical Methods**

★3 (fi 6) (either term, 3-0-1.5). Computer arithmetic and errors, solution of systems of linear equations, root finding, interpolation, numerical quadrature, and numerical solutions of ordinary differential equations. Applications from physics are included. Prerequisites: AUCSC 120, AUMAT 120, and 211; or consent of the instructor. Note: Credit may be obtained for only one of AUMAT 340, AUCSC 340, AUPHY 340.

**AUMAT 395 Directed Study**

★3 (fi 6) (variable, 1-0-3). Intensive study of a specific mathematical problem or other area of mathematics as defined by the student and a supervising instructor. Notes: Admission to AUMAT 395 normally requires a minimum GPA of 3.0 on the major in Mathematics and Physics. An "Application for Individual Study" must be completed and approved before registration in the course. Formerly AUMAT 393 (2004).

**AUMAT 480 History of Mathematics and Physics**

★3 (fi 6) (either term, 3-0-0). Integrated history of mathematics and physics, emphasizing the scientific revolution and the subsequent development of mathematics and physics as distinct disciplines. Prerequisite: AUMAT 211 and one of AUMAT 220, 229, 250. Note: Credit may be obtained for only one of AUMAT 480, 380, AUPHY 380, 480.

**AUMAT 495 Directed Study**

★3 (fi 6) (variable, 1-0-3). Intensive study of a specific problem or area of mathematics as defined by the student and a supervising instructor. Prerequisite: Fourth-year standing. Notes: Admission to AUMAT 495 normally requires a minimum GPA of 3.0 on the major in Mathematics and Physics. An "Application for Individual Study" must be completed and approved before registration in the course.

## 221.46 Augustana Faculty - Music, AUMUS

Department of Fine Arts  
Augustana Faculty

### Undergraduate Courses

#### AUMUS 91 Choral Ensemble

★3 (*fi 6*) (two term, 0-4.5L-0). Performance of choral music, including required participation in a performance tour following the winter term. Prerequisite: Consent of the instructor, based on audition. Notes: A 3-credit course over the full year. The course is normally not open to a student with credit in Music 30. It does not count toward the BA or BSc degree.

#### AUMUS 100 Introduction to Music Theory

★3 (*fi 6*) (either term, 3-0-0). Fundamentals of music, including notation, rudiments, and elementary harmonic progressions. Prerequisite: Completion of the Music Theory Placement Examination (MTPE) or consent of the instructor. Notes: The course is not open to a student scoring 70% or more on the MTPE. The course does not count toward any major, or minor in Music.

#### AUMUS 127 Voice Class

★2 (*fi 4*) (either term, 0-1.5L-0). Fundamental vocal and performance skills for those with little or no training. A weekly group lesson over two terms. Prerequisite: Consent of the Department. Notes: A fee is assessed; group lesson rate applies. Formerly AUMUS 128 (2000).

#### AUMUS 141 The Augustana Choir

★3 (*fi 6*) (two term, 0-4.5L-0). Performance of choral music for mixed choir, including required participation in a performance tour which may follow the winter term. Prerequisite: Consent of the instructor, based on audition. Notes: Not open to a part-time student who has less than one year of the degree program completed. A ★3 course over the full year.

#### AUMUS 143 Choral Ensemble

★1 (*fi 2*) (either term, 0-2L-0). Performance of choral music. Prerequisite: Consent of the instructor. Notes: A ★1 course over the fall or winter term. The course does not require participation in a performance tour. A student who wishes to register for both terms should register in AUMUS 144.

#### AUMUS 144 Choral Ensemble

★2 (*fi 4*) (two term, 0-2L-0). Performance of choral music. Prerequisite: Consent of the instructor. Notes: A ★2 course over the full year. The course does not require participation in a performance tour.

#### AUMUS 145 Encore

★2 (*fi 4*) (two term, 0-3L-0). Performance of traditional chamber and vocal jazz music for small mixed choir including required participation in scheduled mini-tour(s) which may occur during spring break. Prerequisite: Consent of the instructor, based on audition. Corequisite: AUMUS 141. Note: A ★2 course over the full year.

#### AUMUS 147 Chamber Ensemble

★3 (*fi 6*) (two term, 0-0.5L-0). Varies in constitution (e.g., voice and piano, woodwind trio, brass quartet) from year to year. The repertoire to be performed is decided by the students and instructor. The ensemble prepares and performs under the guidance of the instructor. Prerequisite: Consent of the Department. Notes: An Application for Chamber Ensemble Studies must be completed and approved before registration in the course. A ★3 course over the full year. Formerly AUMUS 148 (2000).

#### AUMUS 149 Instrumental Ensemble

★2 (*fi 4*) (two term, 0-1.5L-0). Includes participation in all scheduled concert events. Prerequisite: Consent of the Department. Notes: An "Application for Instrumental Ensemble Studies" must be completed and approved before registration in the course. A ★2 course over the full year.

#### AUMUS 160 Theoretical and Analytical Studies I

★3 (*fi 6*) (either term, 3-0-0). Study of common-practice harmony: scales and modes, intervals, triads, figured bass, cadences, nonharmonic tones, harmonic progression and rhythm, part-writing, seventh chords, diatonic modulation. Prerequisites: AUMUS 100 or a score higher than 70% in the Music Theory Placement Examination (MTPE), and completion of the Keyboard Skills Interview (KSI). Corequisite: AUMUS 162.

#### AUMUS 162 Aural and Sight Singing Skills I

★1.5 (*fi 3*) (either term, 2-1L-0). Development of listening and reading skills integral to the internalization of concepts covered in AUMUS 160. Prerequisites: AUMUS 100 or a score higher than 70% in the Music Theory Placement Examination (MTPE), and completion of the Keyboard Skills Interview (KSI). Corequisite: AUMUS 160. Note: Formerly AUMUS 166 (2000).

#### AUMUS 170 Tuning In: An Introduction to Music

★3 (*fi 6*) (first term, 3-0-0). Development of listening approaches and techniques for understanding and appreciating a variety of Western and non-Western music,

and an examination of the ideologies that prompt the sampling of such music. Music studied includes Western art music, African music, First Nations music, North Indian music, and popular music.

#### AUMUS 189 Service Playing

★2 (*fi 4*) (two term, 0-0.5L-0). Private keyboard lessons in the playing of hymns and chants, liturgies, conducting from the keyboard, transcription, improvisations, and transposition; a half-hour lesson weekly over two terms. Prerequisite: Consent of the Department. Notes: Restricted to Liturgical Arts majors. A student should consult the Fine Arts Department before registering. A fee is assessed.

#### AUMUS 190 Applied Music

★1 (*fi 2*) (either term, 0-0.5L-0). Private lessons in instrument or voice; a half-hour weekly lesson over one term. Prerequisite: Consent of the Department. Notes: Restricted to International Program students. A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 110 (2000).

#### AUMUS 191 Applied Music

★2 (*fi 4*) (two term, 0-0.5L-0). Private lessons in instrument or voice; a half-hour weekly lesson over two terms. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 111 (2000).

#### AUMUS 192 Applied Music

★1.5 (*fi 3*) (either term, 0-0.75L-0). Private lessons in instrument or voice; a three-quarter-hour weekly lesson over one term. Prerequisite: Consent of the Department. Notes: Restricted to International Program students. A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 112 (2000).

#### AUMUS 193 Applied Music

★3 (*fi 6*) (two term, 0-0.75L-0). Private lessons in instrument or voice; a three-quarter-hour weekly lesson over two terms. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 113 (2000).

#### AUMUS 194 Applied Music

★2 (*fi 4*) (either term, 0-1L-0). Private lessons in instrument or voice; a one-hour weekly lesson over one term. Prerequisite: Consent of the Department. Notes: Restricted to International Program students. A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 114 (2000).

#### AUMUS 195 Applied Music

★4 (*fi 8*) (two term, 0-1L-0). Private lessons in instrument or voice; a one-hour weekly lesson over two terms. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 115 (2000).

#### AUMUS 196 Applied Music

★3 (*fi 6*) (first term, 0-2.5L-0). Private lessons in instrument or voice; a one-hour weekly lesson in the fall term for a student exhibiting advanced abilities in music performance. Participation in group master classes is required. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. The following courses must be taken in consecutive fall/winter terms: AUMUS 196 and 197. Formerly AUMUS 116 (2000).

#### AUMUS 197 Applied Music

★3 (*fi 6*) (second term, 0-2.5L-0). Private lessons in instrument or voice; a one-hour weekly lesson in the winter term for a student exhibiting advanced abilities in music performance. Participation in group master classes is required. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. The following courses must be taken in consecutive fall/winter terms: AUMUS 196 and 197. Formerly AUMUS 117 (2000).

#### AUMUS 198 Fundamental Keyboard Skills

★1 (*fi 2*) (either term, 0-0.5L-0). Private piano lessons; a half-hour weekly lesson over one term. Prerequisite: Consent of the Department. Notes: Restricted to students who want to develop specific skills required to pass the Keyboard Skills Proficiency Examination (KSPE), and to International Program students. A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 118 (2000).

#### AUMUS 199 Fundamental Keyboard Skills

★2 (*fi 4*) (two term, 0-0.5L-0). Private piano lessons; a half-hour weekly lesson over two terms. Prerequisite: Consent of the Department. Notes: Restricted to students who want to develop specific skills required to pass the Keyboard Skills Proficiency Examination (KSPE). A student should consult the Fine Arts Department before registering. Formerly AUMUS 119 (2000).

#### AUMUS 223 Music of the Caribbean

★3 (*fi 6*) (second term, 3-0-0). Study of selected musical traditions within the Caribbean. How musical styles are shaped by their interactions with language, religion, economy, other arts, and the whole fabric of social life are explored. Prerequisite: AUMUS 170 or consent of the instructor. Note: The course is available only as part of the Augustana-in-Cuba Program.

#### AUMUS 224 Medieval and Renaissance Music

★3 (*fi 6*) (either term, 3-0-0). Study of Western European art music through

the medieval and Renaissance periods. Prerequisite: AUMUS 170 or consent of the instructor.

#### **AUMUS 225 Baroque and Classical Music**

★3 (*fi 6*) (either term, 3-0-0). Examination of Western European art music of the seventeenth and eighteenth centuries in the context of general cultural history. Prerequisite: AUMUS 170 or consent of the instructor.

#### **AUMUS 226 Romantic and Twentieth-Century Music**

★3 (*fi 6*) (either term, 3-0-0). Music from early Romanticism to the present. Both musicological and interdisciplinary analytical approaches are emphasized. Prerequisite: AUMUS 170 or consent of the instructor.

#### **AUMUS 227 History of Vocal Literature**

★3 (*fi 6*) (either term, 3-0-0). Survey of vocal literature from the seventeenth century to the present.

#### **AUMUS 228 Music Studies and Information Literacy**

★1.5 (*fi 3*) (either term, 1.5-0-0). Introduction to music research skills by a librarian with a graduate degree in Library and Information Studies. The course examines on-line catalogues, periodical indexes, the internet, general research skills, traditional library resources, style manuals, bibliography creation, plagiarism, and evolving technological issues in research. Implementing critical thinking skills to gain access to, evaluate, and use information is emphasized. Prerequisite: Second-year status in a Music degree program or consent of the instructor. Corequisite: Any senior course in Music that requires library research. Note: The corequisite must be taken concurrently.

#### **AUMUS 229 History of Piano Literature**

★3 (*fi 6*) (either term, 3-0-0). Survey of piano literature from the seventeenth century to the present.

#### **AUMUS 235 Introduction to Conducting**

★3 (*fi 6*) (either term, 3-0-0). Fundamental conducting techniques as applied to instrumental and vocal music. Prerequisite: AUMUS 160 or consent of the instructor.

#### **AUMUS 236 Introduction to Choral Techniques, Literature, and Interpretation**

★3 (*fi 6*) (either term, 3-0-0). Introduction to choral techniques, interpretation, and choral literature. Prerequisite: AUMUS 235 or consent of the instructor.

#### **AUMUS 238 Piano Pedagogy**

★3 (*fi 6*) (either term, 3-0-0). Principles, methods, and techniques for teaching piano with a survey of various pedagogical schools of thought. Prerequisite: AUMUS 160 or consent of the instructor.

#### **AUMUS 239 Vocal Pedagogy**

★3 (*fi 6*) (either term, 2-1L-0). Comprehensive study of the voice and how it functions, survey of current methods, and supervised practical instruction. Prerequisite: Applied music in voice at the 200 level, or consent of the instructor.

#### **AUMUS 241 The Augustana Choir**

★3 (*fi 6*) (two term, 0-4.5L-0). Performance of choral music for mixed choir, including required participation in a performance tour which may follow the winter term. Prerequisite: Consent of the instructor, based on audition. Notes: Not open to a part-time student who has less than one year of the degree program completed. A ★3 course over the full year.

#### **AUMUS 243 Choral Ensemble**

★1 (*fi 2*) (either term, 0-2L-0). Performance of choral music. Prerequisite: Consent of the instructor. Notes: A ★1 course over the fall or winter term. The course does not require participation in a performance tour. A student who wishes to register for both terms should register in AUMUS 244.

#### **AUMUS 244 Choral Ensemble**

★2 (*fi 4*) (two term, 0-2L-0). Performance of choral music. Prerequisite: Consent of the instructor. Notes: A ★2 course over the full year. The course does not require participation in a performance tour.

#### **AUMUS 245 Encore**

★2 (*fi 4*) (two term, 0-3L-0). Performance of traditional chamber and vocal jazz music for small mixed choir including required participation in scheduled mini-tour(s) which may occur during spring break. Prerequisite: Consent of the instructor, based on audition. Corequisite: AUMUS 241. Note: A ★2 course over the full year.

#### **AUMUS 247 Chamber Ensemble**

★3 (*fi 6*) (two term, 0-0.5L-0). Varies in constitution (e.g., voice and piano, woodwind trio, brass quartet) from year to year. The repertoire to be performed is decided by the students and instructor. The ensemble prepares and performs under the guidance of the instructor. Prerequisite: Consent of the Department. Notes: An "Application for Chamber Ensemble Studies" must be completed and approved before registration in the course. A ★3 course over the full year. Formerly AUMUS 248 (2000).

#### **AUMUS 249 Instrumental Ensemble**

★2 (*fi 4*) (two term, 0-1.5L-0). Includes participation in all scheduled concert events. Prerequisite: Consent of the Department. Notes: An "Application for Instrumental

Ensemble Studies" must be completed and approved before registration in the course. A ★2 course over the full year.

#### **AUMUS 260 Theoretical and Analytical Studies II**

★3 (*fi 6*) (either term, 3-0-0). Continuation of the study of common-practice harmony, including secondary dominants, borrowed chords, chromatic and enharmonic modulations, and extended chords. Prerequisite: AUMUS 160. Corequisite: AUMUS 262.

#### **AUMUS 261 Theoretical and Analytical Studies III**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of common-practice harmony, including Neapolitan sixths, augmented sixths, altered dominants, and chromatically altered chords; modulations to foreign keys and third-relation harmony; polychords, modal mixture, and extended chromaticism. Prerequisite: AUMUS 260. Corequisite: AUMUS 263.

#### **AUMUS 262 Aural and Sight Singing Skills II**

★1.5 (*fi 3*) (either term, 2-1L-0). Development of listening and reading skills integral to the internalization of concepts covered in AUMUS 260. Prerequisite: AUMUS 162. Corequisite: AUMUS 260. Note: Formerly AUMUS 266 (2000).

#### **AUMUS 263 Aural and Sight Singing Skills III**

★1.5 (*fi 3*) (either term, 2-1L-0). Development of listening and reading skills integral to the internalization of concepts covered in AUMUS 261. Prerequisites: AUMUS 260 and 262. Corequisite: AUMUS 261. Note: Formerly AUMUS 267 (2000).

#### **AUMUS 265 Introduction to Composition**

★3 (*fi 6*) (two term, 0-1.5L-0). Exploration, through written exercises and assignments, of the development of compositional systems, processes, and techniques related to twentieth-century musical idioms. Prerequisite: AUMUS 160 or consent of the instructor. Note: A ★3 course offered over the full year.

#### **AUMUS 270 Liturgical Arts I**

★3 (*fi 6*) (either term, 3-0-0). Introduction to ritual and its role within Christian celebration. An examination of the liturgical year, liturgies and hymns, contemporary styles of worship, ecumenism, cultural diversity, inclusive language, instruments in the service, and professional concerns of the church musician. Current rural, urban, English, French, multicultural, and First Nations communities are addressed, including their respective histories and futures within Canada. Projects include the designing of liturgies and composing of music for diverse communities. Prerequisite: AUMUS 260 or consent of the instructor.

#### **AUMUS 271 Liturgical Arts II**

★3 (*fi 6*) (either term, 3-0-0). Continuation of topics and projects introduced in AUMUS 270. Prerequisite: AUMUS 270.

#### **AUMUS 289 Service Playing**

★2 (*fi 4*) (two term, 0-0.5L-0). Private keyboard lessons in the playing of hymns and chants, liturgies, conducting from the keyboard, transcription, improvisations, and transposition; a half-hour lesson weekly over two terms. Prerequisite: Consent of the Department. Notes: Restricted to Liturgical Arts majors. A student should consult the Fine Arts Department before registering. A fee is assessed.

#### **AUMUS 290 Applied Music**

★1 (*fi 2*) (either term, 0-0.5L-0). Private lessons in instrument or voice; a half-hour weekly lesson over one term. Prerequisite: Consent of the Department. Notes: Restricted to International Program students. A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 210 (2000).

#### **AUMUS 291 Applied Music**

★2 (*fi 4*) (two term, 0-0.5L-0). Private lessons in instrument or voice; a half-hour weekly lesson over two terms. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 211 (2000).

#### **AUMUS 292 Applied Music**

★1.5 (*fi 3*) (either term, 0-0.75L-0). Private lessons in instrument or voice; a three-quarter-hour weekly lesson over one term. Prerequisite: Consent of the Department. Notes: Restricted to International Program students. A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 212 (2000).

#### **AUMUS 293 Applied Music**

★3 (*fi 6*) (two term, 0-0.75L-0). Private lessons in instrument or voice; a three-quarter-hour weekly lesson over two terms. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 213 (2000).

#### **AUMUS 294 Applied Music**

★2 (*fi 4*) (either term, 0-1L-0). Private lessons in instrument or voice; a one-hour weekly lesson over one term. Prerequisite: Consent of the Department. Notes: Restricted to International Program students. A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 214 (2000).

#### **AUMUS 295 Applied Music**

★4 (*fi 8*) (two term, 0-1L-0). Private lessons in instrument or voice; a one-hour weekly lesson over two terms. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 215 (2000).



**AUMUS 296 Applied Music**

★3 (*fi 6*) (either term, 0-2.5L-0). Private lessons in instrument or voice; a one-hour weekly lesson in the fall term for a student exhibiting advanced abilities in music performance. Participation in group master classes is required. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. The following courses must be taken in consecutive fall/winter terms: AUMUS 296 and 297. Formerly AUMUS 216 (2000).

**AUMUS 297 Applied Music**

★3 (*fi 6*) (either term, 0-2.5L-0). Private lessons in instrument or voice; a one-hour weekly lesson in the winter term for a student exhibiting advanced abilities in music performance. Participation in group master classes is required. Prerequisite: Consent of the Department. Notes: A student should consult the Fine Arts Department before registering. A fee is assessed. The following courses must be taken in consecutive fall/winter terms: AUMUS 296 and 297. Formerly AUMUS 217 (2000).

**AUMUS 298 Fundamental Keyboard Skills**

★1 (*fi 2*) (either term, 0-0.5L-0). Private piano lessons; a half-hour weekly lesson over one term. Prerequisite: Consent of the Department. Notes: Restricted to students who want to develop specific skills required to pass the Keyboard Skills Proficiency Examination (KSPE), and to International Program students. A student should consult the Fine Arts Department before registering. A fee is assessed. Formerly AUMUS 218 (2000).

**AUMUS 299 Fundamental Keyboard Skills**

★2 (*fi 4*) (two term, 0-0.5L-0). Private piano lessons; a half-hour weekly lesson over two terms. Prerequisite: Consent of the Department. Notes: Restricted to students who want to develop specific skills required to pass the Keyboard Skills Proficiency Examination (KSPE). A student should consult the Fine Arts Department before registering. Formerly AUMUS 219 (2000).

**AUMUS 320 Music and the Canadian Identity**

★3 (*fi 6*) (either term, 0-3s-0). Critical examination of four centuries of ways in which Canadians identify “themselves” and relate to “others”, as revealed through music and other artifacts of music making. Traditional musicological perspectives are integrated with those from ethnomusicology and post-colonial studies. Art music, country, pop, folk, and First Nations music in Canada are examined. Prerequisite: AUMUS 361 or consent of the instructor.

**AUMUS 321 Music and Gender**

★3 (*fi 6*) (either term, 0-3s-0). Criticism of Western art music has undergone a profound change as new modes of critical thought reveal new areas of meaning in the traditional repertoire. Well-known examples of Western art music and of issues related to this tradition are examined through the perspectives of feminist theory and queer theory (gay and lesbian studies). Prerequisite: AUMUS 170 or consent of the instructor.

**AUMUS 322 Rethinking Music: From Mozart to Madonna**

★3 (*fi 6*) (either term, 0-3s-0). Introduction to current issues in musicological thought. The course examines traditional ways of thinking about music, and considers issues such as the role of the symbol in language and music, cultural studies, ethnomusicology, the scholarly devaluation of popular music, feminist theory, and analyses of rock videos. Prerequisite: ★6 credits from AUMUS 224, 225, 226; or consent of the instructor. Note: Students from a variety of musical backgrounds (popular or classical) are encouraged to enrol.

**AUMUS 327 History of Vocal Literature**

★3 (*fi 6*) (either term, 3-0-0). Survey of vocal literature from the seventeenth century to the present.

**AUMUS 329 History of Piano Literature**

★3 (*fi 6*) (either term, 3-0-0). Survey of piano literature from the seventeenth century to the present.

**AUMUS 330 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

**AUMUS 331 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

**AUMUS 332 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

**AUMUS 333 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

**AUMUS 334 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

**AUMUS 335 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

**AUMUS 336 Advanced Conducting**

★3 (*fi 6*) (either term, 3-0-0). Continued development of conducting techniques as applied to choral music. Prerequisite: AUMUS 235.

**AUMUS 339 Vocal Pedagogy**

★3 (*fi 6*) (either term, 2-1L-0). Comprehensive study of the voice and how it functions, survey of current methods, and supervised practical instruction. Prerequisite: Applied music in voice at the 200 level, or consent of the instructor.

**AUMUS 341 The Augustana Choir**

★3 (*fi 6*) (two term, 0-4.5L-0). Performance of choral music for mixed choir, including required participation in a performance tour which may follow the winter term. Prerequisite: Consent of the instructor, based on audition. Notes: Not open to a part-time student who has less than one year of the degree program completed. A ★3 course over the full year.

**AUMUS 343 Choral Ensemble**

★1 (*fi 2*) (either term, 0-2L-0). Performance of choral music. Prerequisite: Consent of the instructor. Notes: A ★1 course over the fall or winter term. The course does not require participation in a performance tour. A student who wishes to register for both terms should register in AUMUS 344.

**AUMUS 344 Choral Ensemble**

★2 (*fi 4*) (two term, 0-2L-0). Performance of choral music. Prerequisite: Consent of the instructor. Notes: A ★2 course over the full year. The course does not require participation in a performance tour.

**AUMUS 345 Encore**

★2 (*fi 4*) (either term, 0-3L-0). Performance of traditional chamber and vocal jazz music for small mixed choir including required participation in scheduled mini-tour(s) which may occur during spring break. Prerequisite: Consent of the instructor, based on audition. Corequisite: AUMUS 341. Note: A ★2 course over the full year.

**AUMUS 347 Chamber Ensemble**

★3 (*fi 6*) (two term, 0-0.5L-0). Varies in constitution (e.g., voice and piano, woodwind trio, brass quartet) from year to year. The repertoire to be performed is decided by the students and instructor. The ensemble prepares and performs under the guidance of the instructor. Prerequisite: Consent of the Division. Notes: An “Application for Chamber Ensemble Studies” must be completed and approved before registration in the course. A ★3 course over the full year. Formerly AUMUS 348 (2000).

**AUMUS 349 Instrumental Ensemble**

★2 (*fi 4*) (two term, 0-1.5L-0). Includes participation in all scheduled concert events. Prerequisite: Consent of the Division. Notes: An “Application for Instrumental Ensemble Studies” must be completed and approved before registration in the course. A ★2 course over the full year.

**AUMUS 361 Form, Analysis, and the Construction of Musical Meaning**

★3 (*fi 6*) (either term, 3-0-0). Study of music through harmonic, contrapuntal and structural analysis of selected pieces from the Baroque to Romantic periods. Includes the examination of prominent musical features and harmonic devices within common small- and large-scale forms. Offers a critique of the applications and limitations of conventional musical analysis. Prerequisite: AUMUS 261. Note: Formerly AUMUS 269 (2003).

**AUMUS 367 Critical Discourse and the Fine Arts**

★3 (*fi 6*) (either term, 0-3s-0). Introduction to Theory and the Fine Arts. A critical study of historical and contemporary issues in the fine arts with an emphasis on themes common to the disciplines of drama, music and the visual arts as cultural processes. Discussions of various theoretical positions including critical and cultural theory, aesthetic theory, disciplinary history and a history of criticism.

Prerequisite: Third-year standing. Note: Credit may be obtained for only one of AUMUS 367, 467, AUART 367, 467, AUDRA 367, 467.

#### **AUMUS 368 Ethnomusicology: Issues and Concepts**

★3 (*fi 6*) (either term, 0-3s-0). Introduction to the discipline of ethnomusicology through the exploration of various related issues, theories and methodologies in regard to “world” and popular music. Topics may include fieldwork methodologies and issues, music and identity, definitions of “tradition”, issues of representation and appropriation, music and place, transmission processes, music and gender, the relationship of music to spiritual practices, the impact of contemporary recording technologies, and the intersections of musicology, music theory and ethnomusicology. Prerequisites: AUMUS 170 and third-year standing or consent of the instructor.

#### **AUMUS 369 Rethorizing Music: From Modernism to Postmodernism**

★3 (*fi 6*) (either term, 0-3s-0). Examination of technical and stylistic perspectives from Modernist art music techniques established before 1950 to those found in art, popular, and world music in the twenty-first century. Included are exercises in composition and performance as well as training in related listening, sight singing, and score-reading skills. Prerequisites: AUMUS 261 and 263.

#### **AUMUS 375 Co-op Education Studies I**

★1.5 (*fi 3*) (variable, 1-3.5L-0). Placement of a student with an employer organization for work experience. The practicum is designed by the student, supervising faculty member, and supervising organizational director, to integrate the liberal arts study of music with work experience in appropriate fields of business, industry, government, and the professions. Prerequisites: Third-year standing and consent of the instructor. Note: An “Application for Co-op Education Study” must be completed and approved before registration in the course.

#### **AUMUS 376 Directed Studies I**

★3 (*fi 6*) (variable, 1-0-0). Individual research project in a specific area of study as defined by the student and a supervising instructor. Prerequisites: Third- or fourth-year standing and consent of the instructor. Note: An “Application for Individual Study” must be completed and approved before registration in the course.

#### **AUMUS 389 Service Playing**

★2 (*fi 4*) (two term, 0-0.5L-0). Private keyboard lessons in the playing of hymns and chants, liturgies, conducting from the keyboard, transcription, improvisations, and transposition; a half-hour lesson weekly over two terms. Prerequisite: Consent of the Division. Notes: Restricted to Liturgical Arts majors. A student should consult the Fine Arts Division before registering. A fee is assessed.

#### **AUMUS 390 Applied Music**

★1 (*fi 2*) (either term, 0-0.5L-0). Private lessons in instrument or voice; a half-hour weekly lesson over one term. Prerequisite: Consent of the Division. Notes: Restricted to International Program students. A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 310 (2000).

#### **AUMUS 391 Applied Music**

★2 (*fi 4*) (two term, 0-0.5L-0). Private lessons in instrument or voice; a half-hour weekly lesson over two terms. Prerequisite: Consent of the Division. Notes: A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 311 (2000).

#### **AUMUS 392 Applied Music**

★1.5 (*fi 3*) (either term, 0-0.75L-0). Private lessons in instrument or voice; a three-quarter-hour weekly lesson over one term. Prerequisite: Consent of the Division. Notes: Restricted to International Program students. A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 312 (2000).

#### **AUMUS 393 Applied Music**

★3 (*fi 6*) (two term, 0-0.75L-0). Private lessons in instrument or voice; a three-quarter-hour weekly lesson over two terms. Prerequisite: Consent of the Division. Notes: A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 313 (2000).

#### **AUMUS 394 Applied Music**

★2 (*fi 4*) (either term, 0-1L-0). Private lessons in instrument or voice; a one-hour weekly lesson over one term. Prerequisite: Consent of the Division. Notes: Restricted to International Program students. A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 314 (2000).

#### **AUMUS 395 Applied Music**

★4 (*fi 8*) (two term, 0-1L-0). Private lessons in instrument or voice; a one-hour weekly lesson over two terms. Prerequisite: Consent of the Division. Notes: A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 315 (2000).

#### **AUMUS 396 Performance Studies I**

★3 (*fi 6*) (variable, 0-3L-0). Formal recital (minimum duration: 45 minutes) prepared under the guidance of the instructor and marked by a jury. Prerequisite: Consent of the instructor. Corequisite: AUMUS 395. Note: Formerly AUMUS 316 (2000).

#### **AUMUS 397 Applied Music**

★7 (*fi 14*) (two term, 0-2L-0). Private lessons in instrument or voice and the presentation of a formal recital (minimum duration: 45 minutes) prepared under the guidance of the instructor and marked by a jury. Participation in group

master classes is required. Prerequisite: Consent of the Department. Note: This course is restricted to Liturgical Arts, Musical Arts, Piano, and Voice majors in the Bachelor of Music program.

#### **AUMUS 398 Fundamental Keyboard Skills**

★1 (*fi 2*) (either term, 0-0.5L-0). Private piano lessons; a half-hour weekly lesson over one term. Prerequisite: Consent of the Division. Notes: Restricted to students who want to develop specific skills required to pass the Keyboard Skills Proficiency Examination (KSPE), and to International Program students. A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 318 (2000).

#### **AUMUS 399 Fundamental Keyboard Skills**

★2 (*fi 4*) (two term, 0-0.5L-0). Private piano lessons; a half-hour weekly lesson over two terms. Prerequisite: Consent of the Division. Notes: Restricted to students who want to develop specific skills required to pass the Keyboard Skills Proficiency Examination (KSPE). A student should consult the Fine Arts Division before registering. Formerly AUMUS 319 (2000).

#### **AUMUS 420 Music and the Canadian Identity**

★3 (*fi 6*) (either term, 0-3s-0). Critical examination of four centuries of ways in which Canadians identify “themselves” and relate to “others”, as revealed through music and other artifacts of music making. Traditional musicological perspectives are integrated with those from ethnomusicology and post-colonial studies. Art music, country, pop, folk, and First Nations musics in Canada are examined. Prerequisite: AUMUS 361 or consent of instructor

#### **AUMUS 421 Music and Gender**

★3 (*fi 6*) (either term, 0-3s-0). Criticism of Western art music has undergone a profound change as new modes of critical thought reveal new areas of meaning in the traditional repertoire. Well-known examples of Western art music and of issues related to this tradition are examined through the perspectives of feminist theory and queer theory (gay and lesbian studies). Prerequisite: AUMUS 170 or consent of the instructor.

#### **AUMUS 422 Rethinking Music: From Mozart to Madonna**

★3 (*fi 6*) (either term, 0-3s-0). Introduction to current issues in musicological thought. The course examines traditional ways of thinking about music, and considers issues such as the role of the symbol in language and music, cultural studies, ethnomusicology, the scholarly devaluation of popular music, feminist theory, and analyses of rock videos. Prerequisite: ★6 from AUMUS 224, 225, 226; or consent of the instructor. Note: Students from a variety of musical backgrounds (popular or classical) are encouraged to enrol.

#### **AUMUS 430 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

#### **AUMUS 431 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

#### **AUMUS 432 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

#### **AUMUS 433 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

#### **AUMUS 434 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

#### **AUMUS 435 Selected Topics in Music**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of selected topics related to music history, music theory, and ethnomusicology. Topics vary from year to year and may include such diverse areas as world music, cultural and critical theory, popular

music, music video, jazz, Eurowestern style periods, genres, composers, performers, audiences, set theory, and Schenkerian analysis. Prerequisites: AUMUS 261 and ★6 from AUMUS 224, 225, 226; or consent of the instructor.

#### **AUMUS 441 The Augustana Choir**

★3 (*fi 6*) (two term, 0-4.5L-0). Performance of choral music for mixed choir, including required participation in a performance tour which may follow the winter term. Prerequisite: Consent of the instructor, based on audition. Notes: Not open to a part-time student who has less than one year of the degree program completed. A ★3 course over the full year.

#### **AUMUS 443 Choral Ensemble**

★1 (*fi 2*) (either term, 0-2L-0). Performance of choral music. Prerequisite: Consent of the instructor. Notes: A ★1 course over the fall or winter term. The course does not require participation in a performance tour. A student who wishes to register for both terms should register in AUMUS 444.

#### **AUMUS 444 Choral Ensemble**

★2 (*fi 4*) (two term, 0-2L-0). Performance of choral music. Prerequisite: Consent of the instructor. Notes: A ★2 course over the full year. The course does not require participation in a performance tour

#### **AUMUS 445 Encore**

★2 (*fi 4*) (two term, 0-3L-0). Performance of traditional chamber and vocal jazz music for small mixed choir including required participation in scheduled mini-tour(s) which may occur during spring break. Prerequisite: Consent of the instructor, based on audition. Corequisite: AUMUS 441. Note: A ★2 course over the full year.

#### **AUMUS 447 Chamber Ensemble**

★3 (*fi 6*) (two term, 0-0.5L-0). Varies in constitution (e.g., voice and piano, woodwind trio, brass quartet) from year to year. The repertoire to be performed is decided by the students and instructor. The ensemble prepares and performs under the guidance of the instructor. Prerequisite: Consent of the Division. Notes: An "Application for Chamber Ensemble Studies" must be completed and approved before registration in the course. A ★3 course over the full year. Formerly AUMUS 448 (2000).

#### **AUMUS 449 Instrumental Ensemble**

★2 (*fi 4*) (two term, 0-1.5L-0). Includes participation in all scheduled concert events. Prerequisite: Consent of the Division. Notes: An "Application for Instrumental Ensemble Studies" must be completed and approved before registration in the course. A ★2 course over the full year.

#### **AUMUS 467 Critical Discourse and the Fine Arts**

★3 (*fi 6*) (either term, 0-3s-0). Introduction to Theory and the Fine Arts. A critical study of historical and contemporary issues in the fine arts with an emphasis on themes common to the disciplines of drama, music and the visual arts as cultural processes. Discussions of various theoretical positions including critical and cultural theory, aesthetic theory, disciplinary history and a history of criticism. Prerequisite: Third-year standing. Note: Credit may be obtained for only one of AUMUS 367, 467, AUART 367, 467, AUDRA 367, 467.

#### **AUMUS 468 Ethnomusicology: Issues and Concepts**

★3 (*fi 6*) (either term, 0-3s-0). Introduction to the discipline of ethnomusicology through the exploration of various related issues, theories and methodologies in regard to "world" and popular music. Topics may include fieldwork methodologies and issues, music and identity, definitions of "tradition", issues of representation and appropriation, music and place, transmission processes, music and gender, the relationship of music to spiritual practices, the impact of contemporary recording technologies, and the intersections of musicology, music theory and ethnomusicology. Prerequisites: AUMUS 170 and third-year standing or consent of the instructor.

#### **AUMUS 469 Rethorizing Music: From Modernism to Postmodernism**

★3 (*fi 6*) (second term, 0-3s-0). Examination of technical and stylistic perspectives from Modernist art music techniques established before 1950 to those found in art, popular, and world music in the twenty-first century. Included are exercises in composition and performance as well as training in related listening, sight singing, and score-reading skills. Prerequisites: AUMUS 261 and 263.

#### **AUMUS 475 Co-op Education Studies II**

★1.5 (*fi 3*) (variable, 1-3.5L-0). Placement of a student with an employer organization for work experience. The practicum is designed by the student, supervising faculty member, and supervising organizational director to integrate the liberal arts study of music with work experience in appropriate fields of business, industry, government, and the professions. Prerequisites: Fourth-year standing and consent of the instructor. Note: An Application for Co-op Education Study must be completed and approved before registration in the course.

#### **AUMUS 476 Directed Studies II**

★3 (*fi 6*) (variable, 1-0-0). Individual research project in a specific area of study as defined by the student and a supervising instructor. Prerequisites: AUMUS 376 and consent of the instructor. Note: An Application for Individual Study must be completed and approved before registration in the course.

#### **AUMUS 489 Service Playing**

★2 (*fi 4*) (two term, 0-0.5L-0). Private keyboard lessons in the playing of hymns

and chants, liturgies, conducting from the keyboard, transcription, improvisations, and transposition; a half-hour lesson weekly over two terms. Prerequisite: Consent of the Division. Notes: Restricted to Liturgical Arts majors. A student should consult the Fine Arts Division before registering. A fee is assessed.

#### **AUMUS 490 Applied Music**

★1 (*fi 2*) (either term, 0-0.5L-0). Private lessons in instrument or voice; a half-hour weekly lesson over one term. Prerequisite: Consent of the Division. Notes: Restricted to International Program students. A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 410 (2000).

#### **AUMUS 491 Applied Music**

★2 (*fi 4*) (two term, 0-0.5L-0). Private lessons in instrument or voice; a half-hour weekly lesson over two terms. Prerequisite: Consent of the Division. Notes: A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 411 (2000).

#### **AUMUS 492 Applied Music**

★1.5 (*fi 3*) (either term, 0-0.75L-0). Private lessons in instrument or voice; a three-quarter-hour weekly lesson over one term. Prerequisite: Consent of the Division. Notes: Restricted to International Program students. A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 412 (2000).

#### **AUMUS 493 Applied Music**

★3 (*fi 6*) (two term, 0-0.75L-0). Private lessons in instrument or voice; a three-quarter-hour weekly lesson over two terms. Prerequisite: Consent of the Division. Notes: A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 413 (2000).

#### **AUMUS 494 Applied Music**

★2 (*fi 4*) (either term, 0-1L-0). Private lessons in instrument or voice; a one-hour weekly lesson over one term. Prerequisite: Consent of the Division. Notes: Restricted to International Program students. A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 414 (2000).

#### **AUMUS 495 Applied Music**

★4 (*fi 8*) (two term, 0-1L-0). Private lessons in instrument or voice; a one-hour weekly lesson over two terms. Prerequisite: Consent of the Division. Notes: A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 415 (2000).

#### **AUMUS 496 Performance Studies II**

★3 (*fi 6*) (variable, 0-3L-0). Formal recital (minimum duration: 60 minutes) prepared under the guidance of the instructor and marked by a jury. Prerequisite: Consent of the instructor. Corequisite: AUMUS 495. Note: Formerly AUMUS 416 (2000).

#### **AUMUS 497 Applied Music**

★7 (*fi 14*) (two term, 0-2L-0). Private lessons in instrument or voice and the presentation of a formal recital (minimum duration: 60 minutes) prepared under the guidance of the instructor and marked by a jury. Participation in group master classes is required. Prerequisite: Consent of the Department. Note: This course is restricted to Liturgical Arts, Musical Arts, Piano, and Voice majors in the Bachelor of Music program.

#### **AUMUS 498 Fundamental Keyboard Skills**

★1 (*fi 2*) (either term, 0-0.5L-0). Private piano lessons; a half-hour weekly lesson over one term. Prerequisite: Consent of the Division. Notes: Restricted to students who want to develop specific skills required to pass the Keyboard Skills Proficiency Examination (KSPE), and to International Program students. A student should consult the Fine Arts Division before registering. A fee is assessed. Formerly AUMUS 418 (2000).

#### **AUMUS 499 Fundamental Keyboard Skills**

★2 (*fi 4*) (two term, 0-0.5L-0). Private piano lessons; a half-hour weekly lesson over two terms. Prerequisite: Consent of the Division. Notes: Restricted to students who want to develop specific skills required to pass the Keyboard Skills Proficiency Examination (KSPE). A student should consult the Fine Arts Division before registering. Formerly AUMUS 419 (2000).

## 221.47 Augustana Faculty - Philosophy, AUPHI

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### **AUPHI 101 Introduction to Western Philosophy I: Ancient and Medieval Philosophy**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the main problems and theories that have dominated philosophical thought, through study and critical discussion of selected classics of ancient and medieval philosophy.

#### **AUPHI 102 Introduction to Western Philosophy II: Modern Philosophy**

★3 (*fi 6*) (either term, 3-0-0). Continuation of an introduction to the main problems and theories that have dominated philosophical thought, through study and critical discussions of selected classics of modern philosophy.

**AUPHI 180 Critical Thinking**

★3 (fi 6) (either term, 3-0-0). Elementary methods and principles for distinguishing correct from incorrect reasoning. Topics may include informal fallacies, introduction to the scientific method, elementary formal logic, rational decision procedures, and analysis of arguments.

**AUPHI 200 Metaphysics**

★3 (fi 6) (either term, 3-0-0). Examination of traditional and contemporary topics such as Being and Nonbeing, the nature of time, freedom, appearance and reality, persons, and the mind-body problem.

**AUPHI 210 Theory of Knowledge**

★3 (fi 6) (either term, 3-0-0). Study of such central topics in epistemology as foundationalism, truth and rationality, skepticism and the limits of knowledge, relativism and the objectivity of knowledge, evidence and verifiability, and belief and justification.

**AUPHI 228 Philosophy Studies and Information Literacy**

★1 (fi 2) (either term, 1-0-0). Introduction to library research skills in the discipline of Philosophy. Prerequisite: Second year standing in a Philosophy and Religion degree program. Corequisite: Any senior course in Philosophy that requires library research. Notes: The corequisites must be taken concurrently. Credit may be obtained for only one of AUPHI 228, AUART 228, AUHIS 285, AUREL 228.

**AUPHI 250 History of Christian Thought**

★3 (fi 6) (either term, 3-0-0). Survey of the history of Christian thought from its Judaic and Hellenistic origins up to and including the twentieth century.

**AUPHI 260 Ethics**

★3 (fi 6) (either term, 3-0-0). Examination of questions of right and wrong, good and evil, and reasons for action, through study of ethical theories of philosophers such as Plato, Aristotle, Kant, and Mill.

**AUPHI 290 Philosophy of Contemporary Culture**

★3 (fi 6) (either term, 3-0-0). Investigation of contemporary culture, both “popular” and “literate” (film, theatre, music, writing).

**AUPHI 311 Ancient Greek Philosophy**

★3 (fi 6) (either term, 3-0-0). Survey of ancient Greek philosophy from its origins with the Pre-Socratics up to and including Plato and Aristotle. Prerequisites: AUPHI 101 and 102 preferred, but not necessary. Note: Credit may be obtained for only one of AUPHI 311 and AUCLA 310.

**AUPHI 326 Existentialism**

★3 (fi 6) (either term, 3-0-0). Introduction to the main themes and perspectives in recent existential philosophy. Authors such as Kierkegaard, Nietzsche, Sartre, and Heidegger are considered.

**AUPHI 336 Nineteenth-Century Philosophy**

★3 (fi 6) (either term, 3-0-0). Main currents of thought of the nineteenth century and the ideological conflicts that our own age has inherited from its predecessors. Particular attention is given to the social and political aspects of the philosophical systems of Hegel, Kierkegaard, Marx, Darwin, and Nietzsche.

**AUPHI 340 Social and Political Philosophy**

★3 (fi 6) (either term, 3-0-0). Survey of the major formulations and problems of Western political thought as developed by philosophers from the Greeks through the modern era.

**AUPHI 350 Philosophy of Science**

★3 (fi 6) (either term, 3-0-0). Philosophical approach to the presuppositions, attitudes, language, practices, and goals of the physical and social sciences. Topics may include theory evaluation, explanation, and the nature of scientific law.

**AUPHI 355 Philosophy, Technology, and the Environment**

★3 (fi 6) (either term, 3-0-0). Investigation of the philosophical and social issues related to technology and the environment. The natural/artificial distinction, different senses of “environment” and the ways we understand, package, and manage nature form the foundation of the course. Issues in environmental ethics are also addressed. Thinkers may include Marx, Heidegger, Marcel, Borgmann, Winner, Singer, Regan, and others. Prerequisite: None, but AUPHI 350 would be useful. Note: Credit may be obtained for only one of AUPHI 355 and AUENV 355.

**AUPHI 357 Philosophy of Religion I**

★3 (fi 6) (either term, 3-0-0). Introduction to the philosophy of religion by focusing on the question, “What is religion?” Through lectures, discussion, and reading of such thinkers as Schleiermacher, Feuerbach, Kierkegaard, and Otto, the course explores the concept of religion; the existence of God (and related proofs); meaning in religious language; and the relations between faith and reason, philosophy and religion. Prerequisite: None, but AUPHI 102 or 336 would be useful.

**AUPHI 358 Philosophy of Religion II**

★3 (fi 6) (either term, 3-0-0). Continuation of the exploration of religion and religious experience undertaken in AUPHI 357. Consideration is given to various forms of spirituality as found in the writings of Christian and non-Christian mystics and religious thinkers such as Eckhart, Shankara, and Starhawk. Prerequisite: AUPHI 357 or consent of the instructor.

**AUPHI 365 Aesthetics and Visual Culture**

★3 (fi 6) (either term, 3-0-0). Considerations of theoretical issues related to visual arts, broadly understood - painting, television, video, film, advertising, and

photography. Classical theories of the nature of the visual experience, as well as modern and postmodern theories and critiques. Note: Credit may be obtained for only one of AUPHI 365 and AUART 365.

**AUPHI 366 Representations of Place and Space**

★3 (fi 6) (either term, 3-0-0). Investigation of concepts and representations in art, architecture, literature and philosophy, of place and space from the Renaissance to the present. Prerequisite: None, but a course in Art history, Philosophy, Geography, or Canadian literature would be helpful. Note: Credit may be obtained for only one of AUPHI 366 and AUART 366.

**AUPHI 392 African Philosophy**

★3 (fi 6) (either term, 3-0-0). Aspects of contemporary African philosophy are investigated, including ethnophilosophy, negritude, sage philosophy, nationalistic philosophy, and professional philosophy. Questions of the relationship between philosophy and culture, tradition, reason, language, colonialism and post-colonialism, and community are also addressed. Prerequisite: AUPHI 101 or 102.

**AUPHI 420 Hermeneutics**

★3 (fi 6) (either term, 3-0-0). Study of the philosophical theories about the nature of interpretation and understanding. Themes and texts are selected from the writings of Schleiermacher, Dilthey, Heidegger, Gadamer, Ricoeur, Derrida, Foucault, and others.

**AUPHI 425 Phenomenology**

★3 (fi 6) (either term, 3-0-0). Introduction to the phenomenological method, its history, and its importance for twentieth-century philosophy. Themes and texts are selected from the writings of Husserl, Heidegger, Sartre, Gurwitsch, Schutz, Merleau-Ponty, and others.

**AUPHI 459 Philosophy of Western Mysticism**

★3 (fi 6) (either term, 3-0-0). Study of the mystic tradition in the West, including Plotinus, Pseudo-Dionysius, Bonaventure, Eckhart and the Rhineland mystics, Jacob Boehme, and the Kaballah. On the basis of these sources, questions such as the following are addressed: What is the nature of mystical experience? What is mystical “knowledge”? Is mysticism rational? Are there types of mysticism? How can mysticism and morality be related? Prerequisite: AUPHI 357 or consent of the instructor.

**AUPHI 490 Selected Topics in the History of Philosophy I**

★3 (fi 6) (either term, 3-0-0). In-depth study of a theme, philosopher, philosophical movement, or philosophical period. Prerequisite: AUPHI 102 or consent of the instructor.

**AUPHI 491 Selected Topics in the History of Philosophy II**

★3 (fi 6) (either term, 3-0-0). In-depth study of a theme, philosopher, philosophical movement, or philosophical period. Prerequisite: AUPHI 102 or consent of the instructor.

**AUPHI 492 Selected Topics in the History of Philosophy III**

★3 (fi 6) (either term, 3-0-0). In-depth study of a theme, philosopher, philosophical movement, or philosophical period. Prerequisite: AUPHI 102 or consent of the instructor.

**AUPHI 493 Selected Topics in the History of Philosophy IV**

★3 (fi 6) (either term, 3-0-0). In-depth study of a theme, philosopher, philosophical movement, or philosophical period. Prerequisite: AUPHI 102 or consent of the instructor.

**AUPHI 495 Directed Studies I**

★3 (fi 6) (variable, 3-0-0). Intensive study of a specific area of Philosophy as defined by a student and a supervising instructor. Prerequisites: 9 at a senior level in Philosophy and consent of the instructor. Note: An “Application for Individual Study” must be completed and approved before registration in the course.

**AUPHI 496 Directed Studies II**

★3 (fi 6) (variable, 3-0-0). Intensive study of a specific area of Philosophy as defined by a student and a supervising instructor. Prerequisites: 9 at a senior level in Philosophy and consent of the instructor. Note: An “Application for Individual Study” must be completed and approved before registration in the course.

**AUPHI 497 Directed Studies III**

★3 (fi 6) (variable, 3-0-0). Intensive study of a specific area of Philosophy as defined by a student and a supervising instructor. Prerequisites: 9 at a senior level in Philosophy and consent of the instructor. Note: An “Application for Individual Study” must be completed and approved before registration in the course.

## 221.48 Augustana Faculty - Physical Activity, AUPAC

Department of Physical Education  
Augustana Faculty

Augustana Faculty AUPAC courses are not equivalent to PAC courses offered in the Faculty of Physical Education and Recreation in credit value or hours of instruction and thus may not be applicable to degree programs offered by that Faculty.

## Undergraduate Courses

### AUPAC 103 Tennis

★1 (fi 2) (first term, 0-3L-0).

### AUPAC 109 Cross-Country Skiing

★1 (fi 2) (second term, 0-3L-0).

### AUPAC 114 Dance

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 123 Aquatics

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 124 Badminton

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 125 Canoeing

★1 (fi 2) (first term, 0-3L-0).

### AUPAC 131 Curling

★1 (fi 2) (second term, 0-3L-0).

### AUPAC 133 Strength Training

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 134 Indoor Climbing

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 151 Track and Field

★1 (fi 2) (first term, 0-3L-0).

### AUPAC 152 Luge

★1 (fi 2) (second term, 0-3L-0).

### AUPAC 161 Gymnastics

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 173 Football

★1 (fi 2) (first term, 0-3L-0).

### AUPAC 177 Soccer

★1 (fi 2) (first term, 0-3L-0).

### AUPAC 178 Basketball

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 179 Volleyball

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 180 Softball (Fast Pitch)

★1 (fi 2) (first term, 0-3L-0).

### AUPAC 181 Team Handball

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 209 Advanced Cross-Country Skiing

★1 (fi 2) (second term, 0-3L-0). Prerequisite: AUPAC 109.

### AUPAC 224 Advanced Badminton

★1 (fi 2) (either term, 0-3L-0). Prerequisite: AUPAC 124.

### AUPAC 225 Advanced Canoeing

★1 (fi 2) (first term, 0-3L-0). Prerequisite: AUPAC 125.

### AUPAC 253 Advanced Luge

★1 (fi 2) (second term, 0-3L-0). Prerequisite: AUPAC 152

### AUPAC 270 Adventure Games

★1 (fi 2) (either term, 0-3L-0).

### AUPAC 277 Advanced Soccer

★1 (fi 2) (first term, 0-3L-0). Prerequisite: AUPAC 177.

### AUPAC 278 Advanced Basketball

★1 (fi 2) (either term, 0-3L-0). Prerequisite: AUPAC 178.

### AUPAC 279 Advanced Volleyball

★1 (fi 2) (either term, 0-3L-0). Prerequisite: AUPAC 179.

### AUPAC 325 Moving Water Canoeing

★2 (fi 4) (spring/summer, 0-3L-0). Prerequisite: AUPAC 125 or AUPED 184 or consent of instructor.

## 221.49 Augustana Faculty - Physical Education, AUPED

Department of Physical Education  
Augustana Faculty

### Undergraduate Courses

#### AUPED 105 Intercollegiate Hockey

★2 (fi 4) (two term, 0-6L-0). Athletic performance in hockey, including required

participation in exhibition and league schedules as well as in competitive tours of the intercollegiate hockey team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### AUPED 106 Intercollegiate Basketball

★2 (fi 4) (two term, 0-6L-0). Athletic performance in basketball, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate basketball team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Credit may be obtained for only one of AUPED 106 and AUPAC 178. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### AUPED 107 Intercollegiate Cross-Country Skiing

★2 (fi 4) (two term, 0-6L-0). Athletic performance in cross-country skiing, including required participation in exhibition and conference events as well as in competitive tours of the intercollegiate cross-country skiing team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Credit may be obtained for only one of AUPED 107 and AUPAC 109. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### AUPED 108 Competitive Biathlon

★2 (fi 4) (two term, 0-6L-0). Athletic performance in biathlon, including required participation in exhibition and provincial schedules as well as in competitive tours of the biathlon team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Credit may be obtained for only one of PED 108 and PAC 109. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### AUPED 109 Competitive Curling

★2 (fi 4) (two term, 0-6L-0). Athletic performance in curling, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate curling team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Credit may be obtained for only one of AUPED 109 and AUPAC 131. Some costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### AUPED 112 Structural Human Anatomy

★3 (fi 6) (either term, 3-0-2). Study of structure and function of selected systems of the human body (skeletal, muscular, circulatory, respiratory, nervous, and others).

#### AUPED 160 Sociocultural Aspects of Sport and Physical Activity

★3 (fi 6) (either term, 3-0-0). Introduction to the sociocultural dimensions of sport and physical activity. The course examines a variety of social institutions, processes, issues, and their relationship to sport and physical education in Canada and the United States. Topics include the emergence of modern sport, sport and culture, socialization, class and gender relations, race and ethnicity, government and politics, commercialization, the mass media, schools and universities, drugs and violence.

#### AUPED 184 Introduction to Outdoor Education

★3 (fi 6) (either term, 3-0-3). Opportunity for self-awareness and personal and group leadership development through outdoor tripping and small-group living. The skills associated with backpacking, river canoe tripping, and Leave No Trace camping are developed and practised. In addition, educational and recreational use of wilderness and wildlands is examined. Notes: The course requires participation in field trips. A student must furnish his or her own outdoor clothing, footwear, and sleeping bag. Additional fees may be assessed. Credit may be obtained for only one of AUPED 184 and 284 (2003).

#### AUPED 205 Intercollegiate Hockey

★2 (fi 4) (two term, 0-6L-0). Athletic performance in hockey, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate hockey team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 105. Notes: A ★2 course over the full year. Not open to a part-time student. A student

who is placed on disciplinary probation may be required to withdraw from the course. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 206 Intercollegiate Basketball**

★2 (fi 4) (two term, 0-6L-0). Athletic performance in basketball, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate basketball team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 106. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Credit may be obtained for only one of AUPED 206 and AUPAC 278. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 207 Intercollegiate Cross-Country Skiing**

★2 (fi 4) (two term, 0-6L-0). Athletic performance in cross-country skiing, including required participation in exhibition and conference events as well as in competitive tours of the intercollegiate cross-country skiing team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 107. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Credit may be obtained for only one of AUPED 207 and AUPAC 209. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 208 Competitive Biathlon**

★2 (fi 4) (two term, 0-6L-0). Athletic performance in biathlon, including required participation in exhibition and provincial schedules as well as in competitive tours of the biathlon team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 108. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Credit may be obtained for only one of AUPED 208 and AUPAC 209. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 209 Competitive Curling**

★2 (fi 4) (two term, 0-6L-0). Athletic performance in curling, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate curling team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 109. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 214 Exercise Physiology**

★3 (fi 6) (either term, 3-0-0). Study of the physiological response of the human body to acute exercise and to chronic exercise (training). Prerequisite: AUPED 112.

#### **AUPED 220 Human Growth and Development**

★3 (fi 6) (either term, 3-0-0). Study of the sequential changes in physical growth and motor development with emphasis on individual differences.

#### **AUPED 222 Introduction to Movement Activities of Youth (Ages 5 - 12)**

★3 (fi 6) (either term, 3-0-0). Study of a variety of movement activities, including play, games, gymnastics, and dance, in which children participate.

#### **AUPED 232 Introduction to Biomechanics**

★3 (fi 6) (either term, 3-0-0). Study of the application of physical laws to movement and structure. Principles of motion, force, and equilibrium are stressed. Various sport skills are examined from a biomechanical perspective. Prerequisite: AUPED 112.

#### **AUPED 241 Lifetime Fitness and Wellness**

★3 (fi 6) (either term, 2-2s-0). Study of the theory and practice of adult physical fitness as it relates to health enhancement and preventive medicine. Emphasis is on opportunities to experience a variety of activities potentially capable of enriching lifestyle. Notes: The course does not count toward the major or minor in Physical Education. Credit may be obtained for only one of AUPED 241 and 342.

#### **AUPED 261 Psychology of Sport**

★3 (fi 6) (either term, 3-0-0). Study of the psychological aspects of the competitive sports experience, with emphasis on the multidimensional factors involved in the psychology of sport.

#### **AUPED 262 Sport, Physical Activity, and the Body: Historical Perspectives**

★3 (fi 6) (either term, 3-0-0). Examination of major themes in the history of sport, physical activity, and the body. Beginning with the ancient civilizations of Greece and Rome, the course explores the social, cultural, political, philosophical,

religious, and economic factors that have influenced sport, physical education, and attitudes toward the body in various time periods.

#### **AUPED 266 Women in Sport and Physical Activity**

★3 (fi 6) (either term, 3-0-0). Biomechanics, physiology, and psychology, along with related concerns of nutrition, injuries, menstrual function, and aging, as they affect women who participate in sport and physical activity. The relationship among sport, femininity, and sexuality is investigated.

#### **AUPED 275 Introduction to Coaching Studies**

★3 (fi 6) (either term, 3-0-0). Comprehensive introduction to coaching principles, including sport psychology, training principles, sport pedagogy, ethics, and risk management. Prerequisite: AUPED 214.

#### **AUPED 285 Winter Outdoor Education**

★3 (fi 6) (either term, 3-0-3). Opportunity for self-awareness and personal and group leadership development through outdoor tripping, small-group living, and leading adventure games and activities. The skills associated with ski touring, travel in avalanche terrain, telemark skiing, and Leave No Trace camping. Prerequisites: One of AUPED 184, 186 (2003), 284 (2003), 286, and successful completion of a ski competency test. Notes: A student must demonstrate basic competency in skiing (downhill or cross-country). The course requires participation in field trips. A student must furnish his or her own outdoor clothing and sleeping bag. Additional fees may be assessed.

#### **AUPED 286 Outdoor Education and Leadership**

★3 (fi 6) (spring/summer, variable). Opportunity for self-awareness and personal and group leadership development through extended outdoor tripping and small-group living. The skills associated with intermediate/advanced backpacking, wilderness navigation, white water canoeing, and Leave No Trace camping are developed and practised. Prerequisites: AUPED 184 or equivalent, and consent of the instructor. Corequisite: AUPAC 325. Notes: The course requires participation in field trips. A student must furnish his or her own outdoor clothing, footwear, and sleeping bag. Additional fees may be assessed. Credit may be obtained for only one of AUPED 286 and 186 (2003).

#### **AUPED 290 Studies in Leadership Theory**

★3 (fi 6) (either term, 3-0-0). Examination of the current theories, concepts, and issues of leadership. The course provides a student with a foundation for leadership practica.

#### **AUPED 294 Physical Education Studies and Information Literacy**

★1 (fi 2) (either term, 1-0-0). Introduction to Physical Education research skills. Prerequisite: Second-year standing or consent of the instructor. Corequisite: Any senior course in Physical Education that requires library research. Note: The corequisite must be taken concurrently.

#### **AUPED 305 Intercollegiate Hockey**

★2 (fi 4) (two term, 0-6L-0). Athletic performance in hockey, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate hockey team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 205. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 306 Intercollegiate Basketball**

★2 (fi 4) (two term, 0-6L-0). Athletic performance in basketball, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate basketball team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 206. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 307 Intercollegiate Cross-Country Skiing**

★2 (fi 4) (two term, 0-6L-0). Athletic performance in cross-country skiing, including required participation in exhibition and conference events as well as in competitive tours of the intercollegiate cross-country skiing team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 207. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 308 Competitive Biathlon**

★2 (fi 4) (two term, 0-6L-0). Athletic performance in biathlon, including required participation in exhibition and provincial schedules as well as in competitive tours of the biathlon team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 208. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some tour

costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 309 Competitive Curling**

★2 (*fi 4*) (two term, 0-6L-0). Athletic performance in curling, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate curling team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 209. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 342 Training Methodologies and Athletic Performance**

★3 (*fi 6*) (either term, 3-0-0). Study of current training and conditioning methodologies used to prepare athletes. The course emphasizes physiological adaptation, specificity, and factors that influence the training process. Notes: Open only to a student with a major, or minor in Physical Education. Credit may be obtained for only one of AUPED 342 and 241.

#### **AUPED 351 Prevention and Care of Athletic Injuries**

★3 (*fi 6*) (either term, 3-0-1). Study in the recognition and treatment of athletic injuries and vulnerable body structures, with emphasis on evaluation, modalities of treatment, rehabilitation, and current issues. Prerequisites: AUPED 112 and 214. Note: Additional fees may be assessed for supplies and clinics.

#### **AUPED 368 History of Sport and Physical Education in Canada**

★3 (*fi 6*) (either term, 3-0-0). Examination of the history of sport and physical education in Canadian society, from colonial times to the present. The course links developments in sport and physical education to wider changes in Canadian society and social relations.

#### **AUPED 369 The Modern Olympic Games**

★3 (*fi 6*) (either term, 3-0-0). Examination of the historical development of the modern Olympic Games. Topics include politics, nationalism, culture, commercialism, media, gender, race and identity. Prerequisite: AUPED 160.

#### **AUPED 370 Selected Topics in Physical Education and Sport**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of a particular dimension of physical education and sport. Topics vary from year to year, depending on instructor and student interest. Prerequisite: Vary according to topic; third-year standing.

#### **AUPED 371 Selected Topics in Physical Education and Sport**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of a particular dimension of physical education and sport. Topics vary from year to year, depending on instructor and student interest. Prerequisite: Vary according to topic; third-year standing.

#### **AUPED 372 Selected Topics in Physical Education and Sport**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of a particular dimension of physical education and sport. Topics vary from year to year, depending on instructor and student interest. Prerequisite: Vary according to topic; third-year standing.

#### **AUPED 373 Selected Topics in Physical Education and Sport**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of a particular dimension of physical education and sport. Topics vary from year to year, depending on instructor and student interest. Prerequisite: Vary according to topic; third-year standing.

#### **AUPED 374 Selected Topics in Physical Education and Sport**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of a particular dimension of physical education and sport. Topics vary from year to year, depending on instructor and student interest. Prerequisite: Vary according to topic; third-year standing.

#### **AUPED 375 Selected Topics in Physical Education and Sport**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of a particular dimension of physical education and sport. Topics vary from year to year, depending on instructor and student interest. Prerequisite: Vary according to topic; third-year standing.

#### **AUPED 383 Programming and Processing the Adventure Experience**

★3 (*fi 6*) (either term, 3-0-0). Examination of the concepts and theories of adventure program planning and design as well as the concepts and theories of adventure program processing such as briefing and debriefing. Prerequisites: AUPED 389; one of AUPED 184, 285, 286

#### **AUPED 388 Arctic Canoe Expedition**

★3 (*fi 6*) (variable, 3-0-0). Study of the many factors involved in extended Arctic canoe expeditions. The course uses an interdisciplinary approach to explore the biological, geographical, historical, and sociological aspects of the Canadian North. A student has the opportunity to plan, prepare, and carry out an extended Arctic canoe expedition. Prerequisites: One of AUPED 184, 186 (2003), 284 (2003), 286; consent of the instructor(s). Corequisite: AUGEO 341. Notes: A student must participate in both the winter-term seminar and the canoe expedition in order to receive credit. Expedition costs, as well as course tuition, are the student's responsibility.

#### **AUPED 389 Foundations of Outdoor, Adventure, and Experiential Education**

★3 (*fi 6*) (either term, 3-0-0). Examination of the historical and philosophical

roots of outdoor, adventure, and experiential education. Prerequisite: One of AUPED 184, 285, 286.

#### **AUPED 405 Intercollegiate Hockey**

★2 (*fi 4*) (two term, 0-6L-0). Athletic performance in hockey, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate hockey team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 305. Notes: A ★2 course over the full year. Not open to part-time students. A student who is placed on disciplinary probation may be required to withdraw from the course. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 406 Intercollegiate Basketball**

★2 (*fi 4*) (two term, 0-6L-0). Athletic performance in basketball, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate basketball team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 306. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 407 Intercollegiate Cross-Country Skiing**

★2 (*fi 4*) (two term, 0-6L-0). Athletic performance in cross-country skiing, including required participation in exhibition and conference events as well as in competitive tours of the intercollegiate cross-country skiing team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 307. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 408 Competitive Biathlon**

★2 (*fi 4*) (two term, 0-6L-0). Athletic performance in biathlon, including required participation in exhibition and provincial schedules as well as in competitive tours of the biathlon team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 308. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some tour costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 409 Competitive Curling**

★2 (*fi 4*) (two term, 1.5-0-0). Athletic performance in curling, including required participation in exhibition and league schedules as well as in competitive tours of the intercollegiate curling team. Prerequisite: Consent of the instructor, based on successful completion of the team selection process and AUPED 309. Notes: A ★2 course over the full year. Not open to a part-time student. A student who is placed on disciplinary probation may be required to withdraw from the course. Some costs are the responsibility of the student. Augustana Faculty performance-based athletics courses cannot be applied to degree programs offered in the Faculty of Physical Education and Recreation.

#### **AUPED 462 Issues in Physical Education**

★3 (*fi 6*) (either term, 3-0-0). Study of issues as they relate to physical education and athletics. The emphasis is on developing a capability to reason and think critically on issues of importance to the discipline of Physical Education. Prerequisite: ★12 in Physical Education

#### **AUPED 469 Sport and Canadian Popular Culture**

★3 (*fi 6*) (either term, 3-0-0). Examination of the role of sport in Canadian popular culture, historically and in the present. Topics include the power of the media to create audiences for sport; the role of sport in the construction of local, regional, and national identities; the continental dimensions of professional sport; the place of sport in the negotiation of gender relations; the use of sport by the Canadian government; and the position of sport in an increasingly global economy and culture.

#### **AUPED 490 Directed Study I**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of Physical Education as defined by the student and a supervising instructor. Prerequisites: Third-year standing and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUPED 491 Directed Study II**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of Physical Education as defined by the student and a supervising instructor. Prerequisites: Third-year standing and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUPED 492 Directed Study III**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of Physical Education

as defined by the student and a supervising instructor. Prerequisites: Third-year standing and consent of the instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUPED 493 Introduction to Research in Physical Education**

★3 (fi 6) (either term, 3-0-0). Introduction to a set of skills that can be used to better comprehend the research literature and to recognize new questions that need to be researched. Concepts of validity, reliability, experimental design, statistical applications, and construction of proposals and theses are studied. Prerequisite: Fourth-year standing.

## 221.50 Augustana Faculty - Physics, AUPHY

Department of Science  
Augustana Faculty

### Undergraduate Courses

#### **AUPHY 91 Introductory General Physics I (Mechanics)**

★3 (fi 6) (first term, 3-2L-3/2). Noncalculus course in physics for a student without credit in Physics 30. Topics include vectors, forces in equilibrium, linear and rotational motion, dynamics of particles, and oscillations. Prerequisite: One of Pure Mathematics 30, AUMAT 091, 101, consent of the instructor. Notes: The course is normally not open to a student with credit in Physics 30. AUPHY 091 does not count toward the BA or BSc degree. The course is intended to be taken in sequence with AUPHY 106. Credit may be obtained for only one of AUPHY 091, 102, 104, 110.

#### **AUPHY 102 Introductory General Physics I (Mechanics)**

★3 (fi 6) (first term, 3-2L-3/2). Noncalculus course in physics for a student without credit in Physics 30. Topics include vectors, forces in equilibrium, linear and rotational motion, dynamics of particles, and oscillations. Prerequisite: One of Pure Mathematics 30, AUMAT 091,101, consent of the instructor. Notes: AUPHY 102 does not count toward the major in Mathematics and Physics or the minor in Physics. The course is intended to be taken in sequence with AUPHY 106. Credit may be obtained for only one of AUPHY 102, 091, 104, 110.

#### **AUPHY 104 Introductory General Physics I (Mechanics)**

★3 (fi 6) (first term, 3-0-3/2). Content is the same as that of AUPHY 102, but is designed for a student who has credit in Physics 30. Prerequisites: Physics 30; one of Pure Mathematics 30, AUMAT 092, 102. Notes: The course does not count toward the major in Mathematics and Physics or the minor in Physics. Credit may be obtained for only one of AUPHY 104, 091, 102, 110.

#### **AUPHY 106 Introductory General Physics II (Wave Motion, Sound, Heat, and Optics)**

★3 (fi 6) (second term, 3-0-3/2). Properties of gases, liquids, and solids; wave motion and sound; heat and thermodynamics; geometrical and physical optics. Prerequisite: One of AUPHY 091, 102, 104, 110. Notes: The course does not count toward the major in Mathematics and Physics or the minor in Physics. Credit may be obtained for only one of AUPHY 106, 120.

#### **AUPHY 110 Mechanics**

★3 (fi 6) (either term, 3-0-3/2). Vectors, kinematics, work, energy, momentum, dynamics, and periodic motion. Prerequisites: Physics 30; Pure Mathematics 30. Corequisite: AUMAT 110 or 111. Note: Credit may be obtained for only one of AUPHY 110, 091, 102, 104.

#### **AUPHY 120 Waves, Thermodynamics, and Optics**

★3 (fi 6) (either term, 3-0-3/2). Oscillatory motion, waves on a string, sound waves, interference of waves, temperature, heat, entropy, first and second laws of thermodynamics, geometric optics, interference of light. Prerequisites: AUPHY 102 or 104 or 110; AUMAT 110 or 111. Note: Credit may be obtained for only one of AUPHY 120, 106.

#### **AUPHY 250 Electricity and Magnetism**

★3 (fi 6) (either term, 3-0-3/2). Electric fields, Gauss's law, magnetic fields, Ampere's law, Faraday's law, induction, direct and alternating currents. Prerequisites: AUPHY 110 and AUMAT 112.

#### **AUPHY 260 Introduction to Relativity and Quantum Mechanics**

★3 (fi 6) (either term, 3-0-0). Special relativity; photons and matter waves; Bohr atom model; Heisenberg Uncertainty Principle; Schrödinger equation; one-dimensional systems; hydrogen atom; spin; Pauli Exclusion Principle; many-electron atoms; molecules. Prerequisites: AUPHY 120 and AUMAT 112. Corequisite: AUMAT 211. Note: Credit may be obtained for only one of AUPHY 260, AUCHE 277.

#### **AUPHY 291 Advanced Laboratory I**

★3 (fi 6) (either term, 0-0-3). Experiments in classical mechanics and other senior physics topics. Prerequisites: AUPHY 120. Corequisite: Any senior Physics course.

#### **AUPHY 310 Classical Mechanics**

★3 (fi 6) (either term, 4-0-0). Vector calculus, Newtonian mechanics, oscillations,

gravitation, Lagrangian and Hamiltonian dynamics. Prerequisites: AUPHY 120 and 250. Corequisites: AUMAT 212; AUMAT 330 is recommended.

#### **AUPHY 321 Statistical Mechanics and Thermodynamics**

★3 (fi 6) (either term, 3-0-0). Microscopic behaviour and quantum states; statistics of small and large systems; internal energy and equipartition; the laws of thermodynamics; thermal, mechanical, and diffusive interactions; introduction to classical and quantum statistics; Gibbs' paradox; Maxwell's relations. Prerequisites: AUPHY 120 and AUMAT 211. Corequisite: AUMAT 212 or 330 is recommended. Note: Credit may be obtained for only one of AUPHY 321 and 220 (2004).

#### **AUPHY 340 Numerical Methods in Physics**

★3 (fi 6) (either term, 3-0-1.5). Computer arithmetic and errors, solution of systems of linear equations, root finding, interpolation, numerical quadrature, and numerical solutions of ordinary differential equations. Applications from physics are included. Prerequisites: AUCSC 120, AUMAT 120, 211; or consent of the instructor. Corequisite: AUPHY 120 or 250. Note: Credit may be obtained for only one of AUPHY 340, AUCSC 340, AUMAT 340.

#### **AUPHY 350 Electromagnetic Theory**

★3 (fi 6) (either term, 3-0-0). A vector calculus formulation of electrostatics, magnetostatics, and electrodynamics in free space, and an introduction to electromagnetic waves. Topics include: Lorentz force, Maxwell's equations in differential form, potential formulations, and work, energy, and momentum. Prerequisite: AUPHY 250. Corequisite: AUMAT 212.

#### **AUPHY 360 Quantum Mechanics**

★3 (fi 6) (either term, 3-0-0). The breakdown of classical physics. Topics include: wave packets and uncertainty relations, the Schrodinger equation and simple systems, postulates and interpretation of quantum mechanics, operator methods, angular momentum and spin, central force problems and the hydrogen atom. Prerequisites: AUPHY 260 and AUMAT 212. Corequisites: AUPHY 310 and AUMAT 330 are recommended.

#### **AUPHY 391 Advanced Laboratory II**

★3 (fi 6) (either term, 0-0-3). Experiments in optics, atomic and/or molecular physics, and other senior physics topics. Prerequisites: AUPHY 291. Corequisite: AUPHY 260. Note: Credit may be obtained for only one of AUPHY 391 and 292 (2004).

#### **AUPHY 395 Directed Study**

★3 (fi 6) (variable, 1-0-3). Intensive study of a specific problem or area of physics as defined by the student and a supervising instructor. Notes: Admission to AUPHY 395 normally requires a minimum GPA of 3.0 on the major in Mathematics and Physics. An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUPHY 480 History of Physics and Mathematics**

★3 (fi 6) (either term, 3-0-0). Integrated history of mathematics and physics, emphasizing the scientific revolution and the subsequent development of mathematics and physics as distinct disciplines. Prerequisite: AUMAT 211 and one of AUPHY 250, 260, or AUCHE 277. Note: Credit may be obtained for only one of AUPHY 480, 380, AUMAT 380, 480.

#### **AUPHY 495 Directed Study**

★3 (fi 6) (variable, 1-0-3). Intensive study of a specific problem or area of physics as defined by the student and a supervising instructor. Prerequisite: Fourth-year standing. Notes: Admission to AUPHY 495 normally requires a minimum GPA of 3.0 on the major in Mathematics and Physics. An "Application for Individual Study" must be completed and approved before registration in the course.

## 221.51 Augustana Faculty - Political Studies, AUPOL

Department of Social Sciences  
Augustana Faculty

### Undergraduate Courses

#### **AUPOL 103 Introduction to Politics: Ideas and Ideologies**

★3 (fi 6) (either term, 3-0-0). Introduction to the ideas and ideologies that comprise the vocabulary of political life. The course considers such ideas as democracy, order, power, authority, justice, freedom and equality. It also surveys the major ideological traditions - e.g., liberalism, socialism, conservatism, populism, feminism - asking how each understands politics, the "good life," and the problems to be fixed.

#### **AUPOL 104 Introduction to Politics: Processes and Institutions of Government**

★3 (fi 6) (either term, 3-0-0). Introduction to the design and operation of political institutions as well as the electoral and policy processes of liberal-democratic government. Topics include legislatures, executives, constitutions, courts, interest groups, and the media and politics.



**AUPOL 201 Political Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of Political Studies. Prerequisite: Second-year standing in a Political Studies degree program. Corequisite: Any senior course in Political Studies that requires library research. Notes: The corequisite must be taken concurrently. Credit may be obtained for only one of AUPOL 201, AUCRI 260, AUSOC 231.

**AUPOL 210 History of Political Thought I**

★3 (*fi 6*) (either term, 3-0-0). Historical and critical survey of the development of political and social philosophy focusing on classical Greece and Rome, with selected readings from such major political writers as Plato, Aristotle, and Thucydides. Prerequisite: One of AUPOL 103, 104, consent of the instructor.

**AUPOL 211 History of Political Thought II**

★3 (*fi 6*) (either term, 3-0-0). Historical and critical survey of the political ideas of early-modern Europe, with readings from such selected major writers as Hobbes, Locke, Marx, and de Tocqueville. The course treats issues of authority, liberty, property, equality, and democracy. Prerequisite: One of AUPOL 103, 104, 210, consent of the instructor.

**AUPOL 215 Political Ideology**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the history of political ideas and the movements formed around them from the French Revolution to the present. Included are liberalism, socialism, nationalism, fascism; and contemporary social movements, environmental and otherwise.

**AUPOL 221 Canadian National Government and Politics**

★3 (*fi 6*) (either term, 3-0-0). Structure and function of the Government of Canada, especially the crown, cabinet, public service, House of Commons, Senate, and judiciary. Prerequisite: One of AUPOL 103, 104, consent of the instructor.

**AUPOL 228 Politics in Alberta**

★3 (*fi 6*) (either term, 3-0-0). Aspects of politics and governance in Alberta. Emphasis is given to any or all of political economy, political culture, parties and institutions, federal-provincial relations, prairie political ideas, the particular experience of rural Alberta, and comparative study of other prairie and/or resource-based provinces and United States states. Prerequisite: One of AUPOL 103, 104, consent of the instructor.

**AUPOL 233 United States Government and Politics**

★3 (*fi 6*) (either term, 3-0-0). Institutions of the United States government with emphasis on the national level. The course covers the constitution, presidency, Congress, national bureaucracy, judiciary, and public policy-making. Prerequisite: AUPOL 103 or 104.

**AUPOL 239 Cuban Government and Politics**

★3 (*fi 6*) (second term, 3-0-0). Survey of Cuban state institutions, political ideas, the Organs of Popular Power, the Communist Party of Cuba, and mass organizations. Note: The course is available only as part of the Augustana-in-Cuba Program.

**AUPOL 240 International Relations**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the structures of power, the practices, and the ideas that together constitute international relations in the modern era. One major emphasis is the changing nature and place of war or the threat of war, culminating in the "balance of terror" of the nuclear age. Another is the changing relationship between political and economic power.

**AUPOL 247 Model United Nations I**

★1.5 (*fi 3*) (either term, 1-0-0). Preparation for and participation in a multiple-university Model United Nations Assembly. Prerequisite: Consent of the instructor, by application.

**AUPOL 300 Third-Year Seminar**

★3 (*fi 6*) (either term, 3-0-0). Seminar organized around one or more concepts central to the study of politics - e.g., power, freedom, security, revolution, nationalism, justice - and approached through classic and contemporary texts as well as films. Prerequisite: Third-year standing.

**AUPOL 312 Selected Topics in the History of Political Thought**

★3 (*fi 6*) (either term, 3-0-0). In-depth examination of the texts of a particular theorist or of an issue central to the history of political thought. Topics vary from year to year. Prerequisite: One of AUPOL 210, 211, consent of the instructor.

**AUPOL 324 Selected Topics in Canadian Politics**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of a particular dimension of Canadian politics. Topics may vary from year to year, depending on instructor and student interest. Prerequisite: AUPOL 221.

**AUPOL 325 Contemporary Issues in the Politics of Native Peoples**

★3 (*fi 6*) (either term, 3-0-0). Contemporary politics of aboriginal rights and demands for self-government, primarily in Canada, set within the context of traditional conceptions of governance, the history of state policy and legal decisions, and comparative experience in the United States and México.

**AUPOL 327 Canadian Federalism**

★3 (*fi 6*) (either term, 3-0-0). Analysis of the development and theories of Canadian federalism. Attention is given to current problems of the federal system. Prerequisite: AUPOL 103 or 104.

**AUPOL 328 Environmental Politics**

★3 (*fi 6*) (either term, 3-0-0). Examination of contemporary debates in, and the evolution of, environmental policy and politics. This course will focus on Canadian issues in a comparative perspective, exploring topics such as environmental political theory, the policy cycle, social movements, international issues, and related case studies. Prerequisite: ★3 credits in either Environmental Studies/Science or Political Studies. Note: Credit may be obtained for only one of AUPOL 328 and AUENV 328.

**AUPOL 341 The Third World in International Relations**

★3 (*fi 6*) (either term, 3-0-0). Entry of the non-Western world into international relations, economic and political relations between "North" and "South," and diplomacy in an age of tremendous inequality, cultural diversity, and pressing global problems such as the environment.

**AUPOL 344 Selected Topics in International Relations**

★3 (*fi 6*) (either term, 3-0-0). Topics vary from year to year. The focus is on contemporary issues in world politics. Prerequisite: AUPOL 240 or consent of the instructor.

**AUPOL 345 Canadian Foreign Policy**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the debates concerning Canada's place and foreign policy in the contemporary world. Prerequisite: One of AUPOL 103, 240, consent of the instructor.

**AUPOL 346 United States Foreign Policy**

★3 (*fi 6*) (either term, 3-0-0). United States foreign policy in the postwar era of predominance in international relations, viewed through a range of theoretical perspectives.

**AUPOL 347 Model United Nations II**

★1.5 (*fi 3*) (either term, 1-0-0). Preparation for and participation in a multiple-university Model United Nations Assembly. Prerequisite: Consent of the instructor, by application.

**AUPOL 349 Ethics in World Politics**

★3 (*fi 6*) (either term, 3-0-0). Examination of ethical questions that emerge out of political practice at a time when ideas of global governance, economy, and culture are increasingly commonplace. Subjects may include war, genocide and humanitarian intervention, human rights, refugees, reconciliation in post-conflict societies, the distribution of wealth, citizenship and moral responsibility; and the historic tension between statist-nationalist, cosmopolitan, and other expressions of identity and ethical orientation. Prerequisite: One of AUPOL 240, senior standing in a related discipline, consent of the instructor. Note: Credit may be obtained for only one of AUPOL 349, 449.

**AUPOL 350 Comparative European Politics**

★3 (*fi 6*) (either term, 3-0-0). Comparative analysis of selected issues in western European politics, focusing on Britain, Germany, and other countries. Prerequisite: AUPOL 103 or 104.

**AUPOL 353 Law, Politics, and the Judicial Process**

★3 (*fi 6*) (either term, 3-0-0). Examination of the Canadian judicial branch of government in comparative perspective. The course probes court structures; judicial independence, appointment, discipline, and removal; judicial decision making processes; and courts and the public policy process. Prerequisite: One of AUPOL 103, 104, 221, AUCRI 160, AUIDS 160. Note: Credit may be obtained for only one of AUPOL 253 (2005), 353, AUCRI 253 (2005), 353.

**AUPOL 399 Political Internship**

★3 (*fi 6*) (either term, 1-0-0). Students have the opportunity to combine work experience with academic study through the development and completion of an internship program related to politics. As part of the internship, students are required to complete a major research paper related to their work. Prerequisites: Third-year standing in a Political Studies major and consent of the instructor. Notes: Students must develop an internship program and have it approved by a supervisor. Normally, students must also have a GPA of 3.5 or better in Political Studies to be eligible for this course.

**AUPOL 401 Directed Reading I**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of political studies as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies.

**AUPOL 402 Directed Reading II**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of political studies as defined by the student and a supervising instructor. Prerequisites: AUPOL 401 and consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies.

**AUPOL 405 Research Seminar**

★3 (*fi 6*) (two term, 0-1.5s-0). A capstone course for students to conduct in-depth, independent research projects within a seminar setting. The course involves instruction on research methods, building research proposals and conducting research projects, as well as on approaches to the study of politics. Prerequisites:

Fourth-year standing in a Political Studies major or consent of the instructor. Note: A three credit course offered over the full year.

#### **AUPOL 410 Contemporary Political Thought**

★3 (*fi 6*) (either term, 3-0-0). Exploration into the prospects of democratic governance and political community through the reading of selected twentieth-century writings: liberal, neo-Marxist, feminist, conservative-communitarian, and postmodern. Prerequisites: AUPOL 210 and 211, or consent of the instructor.

#### **AUPOL 411 International Relations Theory**

★3 (*fi 6*) (either term, 3-0-0). Critical survey of the principal contemporary theoretical approaches to the study of international politics. Prerequisite: AUPOL 240.

#### **AUPOL 412 Selected Topics in the History of Political Thought**

★3 (*fi 6*) (either term, 3-0-0). In-depth examination of the texts of a particular theorist or of an issue central to the history of political thought. Topics vary from year to year. Prerequisite: One of AUPOL 210, 211, consent of the instructor.

#### **AUPOL 422 The Canadian Charter of Rights and Freedoms**

★3 (*fi 6*) (either term, 3-0-0). Study of the Canadian Charter and its effect on Canadian politics and government. The course traces the development of Charter jurisprudence and examines the Charter's effect on federalism, public policy (including criminal law), and political culture. Prerequisite: One of AUPOL 103, 104, 221, AUCRI 160, AUIDS 160. Note: Credit may be obtained for only one of AUPOL 322 (2005), 422, AUCRI 322 (2005), 422.

#### **AUPOL 424 Selected Topics in Canadian Politics**

★3 (*fi 6*) (either term, 3-0-0). Advanced study of a particular dimension of Canadian politics. Topics may vary from year to year, depending on instructor and student interest. Prerequisite: AUPOL 221.

#### **AUPOL 444 Selected Topics in International Relations**

★3 (*fi 6*) (either term, 3-0-0). Topics vary from year to year. The focus is on contemporary issues in world politics. Prerequisite: AUPOL 240 or consent of the instructor.

#### **AUPOL 449 Ethics in World Politics**

★3 (*fi 6*) (either term, 3-0-0). Examination of ethical questions that emerge out of political practice at a time when ideas of global governance, economy, and culture are increasingly commonplace. Subjects may include war, genocide and humanitarian intervention, human rights, refugees, reconciliation in post-conflict societies, the distribution of wealth, citizenship and moral responsibility; and the historic tension between statist-nationalist, cosmopolitan, and other expressions of identity and ethical orientation. Prerequisite: One of AUPOL 240, senior standing in a related discipline, consent of the instructor. Note: Credit may be obtained for only one of AUPOL 349, 449.

## 221.52 Augustana Faculty - Psychology, AUPSY

Department of Social Sciences  
Augustana Faculty

### Undergraduate Courses

#### **AUPSY 101 Basic Psychological Processes**

★3 (*fi 6*) (either term, 3-0-1/4). Introduction to the discipline of Psychology and its methods. The course focuses on the basic principles underlying human behaviour. Topics include the central nervous system, perception, learning, memory, sleep, and dreams.

#### **AUPSY 102 Individual and Social Behaviour**

★3 (*fi 6*) (either term, 3-0-1/4). Introduction to the discipline of Psychology and its methods. The course focuses on the study of human development, personality, psychological disorders and their treatment, and social psychology.

#### **AUPSY 203 Psychological Research: Skills and Methods**

★3 (*fi 6*) (either term, 3-0-0). Examination of various experimental and non-experimental research methods used in psychology. Topics include the scientific method, quantitative and qualitative research designs, sampling and measuring techniques, biases in experimentation, and ethical issues. Emphasis is placed on the acquisition and interpretation of data, and the critical evaluation of psychological research. A student becomes familiar with the American Psychological Association (APA) standards for research and writing. Prerequisites: AUPSY 101 and 102. Note: Open only to a student with a major or minor in Psychology.

#### **AUPSY 207 Psychology Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of Psychology. Prerequisite: Second-year standing in a Psychology degree program. Corequisite: Any senior course in Psychology that requires library research. Notes: The corequisite must be taken concurrently. Students are encouraged to take this course in their second year of studies.

#### **AUPSY 213 Statistical Methods for Psychological Research**

★3 (*fi 6*) (either term, 3-0-3). Application of statistical methods to psychological problems; description of psychological data in terms of averages, measures of variability, and measures of relationship; problems of sampling theory and tests of

statistical hypotheses. Prerequisite: One of Pure Mathematics 30, AUMAT 092, 102, consent of the instructor. Note: Credit may be obtained for only one of AUPSY 213, AUSTA 213, AUCEO 153 (2004), AUSTA 153. Formerly AUPSY 211 (2001).

#### **AUPSY 220 Personality**

★3 (*fi 6*) (either term, 3-0-0). Introductory survey including representative theoretical points of view and research relevant to the major problems of the study of personality. Prerequisite: AUPSY 102.

#### **AUPSY 240 Social Psychology**

★3 (*fi 6*) (either term, 3-0-0). Survey of theories and research on the individual in a social context. Topics may include self presentation, values/attitudes/beliefs, leadership, group dynamics, interpersonal attraction, and aggression. Prerequisite: AUPSY 102.

#### **AUPSY 256 Developmental Psychology**

★3 (*fi 6*) (either term, 3-0-0). Biological, cognitive, and social aspects of psychological development, with special emphasis on infancy, childhood, and adolescence. Prerequisite: AUPSY 102.

#### **AUPSY 263 Memory and Attention**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the study of mental processes in memory, attention, and cognition. Topics include visual information processing, attention, and short- and long-term memory phenomena. Prerequisite: AUPSY 101.

#### **AUPSY 271 Psychology of Language**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the field: the structure of language, brain bases of language, and production and processing requirements for adult language use. Issues such as the ape language debate, bilingualism, and critical periods for language acquisition are also covered. Prerequisite: AUPSY 101.

#### **AUPSY 275 An Introduction to the Brain and Nervous System**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the structure and function of the nervous system, with a special emphasis on the brain. Prerequisite: AUPSY 101.

#### **AUPSY 301 Psycholinguistics Seminar**

★3 (*fi 6*) (either term, 0-3s-0). Detailed examination of issues in the psychology of language. The course adopts a seminar style that focuses on discussion, oral presentation, and writing skills. Prerequisites: AUPSY 271 and third-year standing. Note: Open only to a student with a major in Psychology.

#### **AUPSY 302 Developmental Seminar**

★3 (*fi 6*) (either term, 0-3s-0). Detailed examination of issues in developmental psychology. The course adopts a seminar style that focuses on discussion, oral presentation, and writing skills. Prerequisites: AUPSY 256 and third-year standing. Note: Open only to a student with a major in Psychology.

#### **AUPSY 303 Physiological Psychology Seminar**

★3 (*fi 6*) (either term, 0-3s-0). Detailed examination of issues in physiological psychology. The course adopts a seminar style that focuses on discussion, oral presentation, and writing skills. Prerequisites: AUPSY 275 and third-year standing. Note: Open only to a student with a major in Psychology.

#### **AUPSY 304 Personality Seminar**

★3 (*fi 6*) (either term, 0-3s-0). Detailed examination of issues in personality psychology. The course adopts a seminar style that focuses on discussion, oral presentation, and writing skills. Topics include qualitative methods, cross-situational consistency, and the relationship between personality and psychotherapy. Prerequisites: AUPSY 220; third-year standing. Note: Open only to a student with a major in Psychology.

#### **AUPSY 307 Cognitive Psychology Seminar**

★3 (*fi 6*) (either term, 0-3s-0). Detailed examination of issues in cognitive psychology. The course adopts a seminar style that focuses on discussion, oral presentation, and writing skills. Prerequisites: AUPSY 263 and third-year standing. Note: Open only to a student with a major in Psychology.

#### **AUPSY 308 Social/Personality Seminar**

★3 (*fi 6*) (either term, 0-3s-0). Detailed examination of issues in social/personality psychology. The course adopts a seminar style that focuses on discussion, oral presentation, and writing skills. Topics include units of social psychological analysis, social research methodology, and the crisis literature. Prerequisites: AUPSY 220 or 240; third-year standing. Note: Open only to a student with a major in Psychology.

#### **AUPSY 313 Advanced Experimental Design**

★3 (*fi 6*) (either term, 3-0-3). Examination of advanced research designs in psychology. Topics include planning experiments, internal and external validity, interpretation of statistical results, and 2- and 3-factor factorial designs. Prerequisites: AUPSY 203 and 213.

#### **AUPSY 331 Psychological Assessment: Theory and Practice**

★3 (*fi 6*) (either term, 3-0-0). Theory and use of test data in counselling children and adults. Topics include the theory, administration and interpretation of selected tests associated with self-exploration (e.g. personality, psychopathology), intelligence and decision-making (e.g. career choices). Emphasis is placed on the selection and ethical use of tests. Prerequisite: AUPSY 203. AUPSY 213 is recommended.

#### **AUPSY 344 Environmental Psychology**

★3 (*fi 6*) (either term, 3-0-0). Systematic study of the dynamic interchange

between people and their social and physical environmental contexts. Topics include theories of environmental perception, the effects of crowding, the impact of natural/urban settings, the effects of building design and colours, and managing limited resources. Prerequisite: AUPSY 240.

#### **AUPSY 346 Community Psychology**

★3 (fi 6) (either term, 3-0-0). Examination of the theories, approaches, and values behind social intervention intended to ameliorate, or prevent, psychological difficulty. Examples of community change are drawn from a Canadian context whenever possible. Prerequisite: AUPSY 102.

#### **AUPSY 354 Psychology of Adulthood and Aging**

★3 (fi 6) (either term, 3-0-0). Survey of psychological development during the period from young adulthood through old age, with emphasis upon changes in behaviour associated with the aging process. Prerequisite: AUPSY 256.

#### **AUPSY 362 Cognitive Development**

★3 (fi 6) (either term, 3-0-0). Survey of the development of memory, perception, conceptual thought, and academic skills from birth through the school years. Prerequisite: AUPSY 256 or 263.

#### **AUPSY 369 Principles of Learning**

★3 (fi 6) (second term, 3-0-0). In-depth examination of classical and operant conditioning. Prerequisites: AUPSY 101 and ★3 at a senior level in Psychology.

#### **AUPSY 377 Human Neuropsychology**

★3 (fi 6) (either term, 3-0-0). Study of changes in mood, motivation, perception, attention, memory, and cognition, as revealed by structural alterations in the human brain. Prerequisite: AUPSY 275 or consent of the instructor.

#### **AUPSY 382 Family Violence: Dynamics and Prevention**

★3 (fi 6) (either term, 3-0-0). Dynamics and prevention of abuse in the family (i.e., child abuse and couple violence). Topics include theories and controversies, assessment and screening of abuse, psychological consequences of abuse on all family members, and family violence prevention and treatment programs. Prerequisite: AUPSY 240.

#### **AUPSY 391 Directed Reading**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of psychology as defined by the student and a supervising instructor. Prerequisite: Consent of the Instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. AUPSY 391 is classified as a science course; AUPSY 392 is classified as an arts course.

#### **AUPSY 392 Directed Reading**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of psychology as defined by the student and a supervising instructor. Prerequisite: Consent of the Instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. AUPSY 391 is classified as a science course; AUPSY 392 is classified as an arts course.

#### **AUPSY 403 Selected Topics in Psychology**

★3 (fi 6) (either term, 3-0-0). Content of each course in this series varies from year to year, but in general it entails either a specific topic of prominent interest in psychology, or a review and discussion of a novel or emerging research area in contemporary psychology. Prerequisite: AUPSY 102. Note: AUPSY 403 is classified as a science course.

#### **AUPSY 404 Selected Topics in Psychology**

★3 (fi 6) (either term, 3-0-0). Content of each course in this series varies from year to year, but in general it entails either a specific topic of prominent interest in psychology, or a review and discussion of a novel or emerging research area in contemporary psychology. Prerequisite: AUPSY 102. Note: AUPSY 404 is classified as an arts course.

#### **AUPSY 405 Selected Topics in Psychology**

★3 (fi 6) (either term, 3-0-0). Content of each course in this series varies from year to year, but in general it entails either a specific topic of prominent interest in psychology, or a review and discussion of a novel or emerging research area in contemporary psychology. Prerequisite: AUPSY 102. Note: AUPSY 405 is classified as a science course.

#### **AUPSY 406 Selected Topics in Psychology**

★3 (fi 6) (either term, 3-0-0). Content of each course in this series varies from year to year, but in general it entails either a specific topic of prominent interest in psychology, or a review and discussion of a novel or emerging research area in contemporary psychology. Prerequisite: AUPSY 102. Note: AUPSY 406 is classified as an arts course.

#### **AUPSY 408 History and Systems of Psychology**

★3 (fi 6) (either term, 3-0-0). Survey of major theoretical approaches to psychology, especially in the last two centuries, emphasizing the historical antecedents and contemporary significance of each. Prerequisites: AUPSY 101 or 102, and fourth-year standing. Notes: Open only to a student with a major in Psychology. AUPSY 408 is classified as an arts course.

#### **AUPSY 409 History and Systems of Psychology**

★3 (fi 6) (either term, 3-0-0). Survey of major theoretical approaches to psychology, especially in the last two centuries, emphasizing the historical antecedents and contemporary significance of each. Prerequisites: AUPSY 101 or 102, and fourth-

year standing. Notes: Open only to a student with a major in Psychology. AUPSY 409 is classified as a science course.

#### **AUPSY 471 Language Acquisition**

★3 (fi 6) (either term, 3-0-0). In-depth look at the language acquisition process from birth through the preschool years. The stages of language development are discussed, as well as theoretical issues such as the role of the environment versus genetic predisposition. Prerequisite: AUPSY 271 or consent of the instructor.

#### **AUPSY 477 The Neurobiology of Learning, Memory, and Addiction**

★3 (fi 6) (either term, 3-0-0). Investigation of the neural mechanisms that underlie learning, memory, and addiction. Prerequisite: AUPSY 275.

#### **AUPSY 483 Psychological Disorders**

★3 (fi 6) (either term, 3-0-0). Advanced-level course that focuses on the research related to the etiology, classification, assessment, and treatment of a variety of psychological disorders in children and adults (e.g., anxiety, addictions, depression, schizophrenia, and personality disorders). A student becomes acquainted with the Diagnostic Statistical Manual of Mental Disorders (DSM). Prerequisites: AUPSY 220 and 275. AUPSY 331 and 486 are highly recommended.

#### **AUPSY 486 Clinical and Counselling Psychology**

★3 (fi 6) (either term, 3-0-0). Overview of the major approaches to counselling, providing the foundation for the counselling process. The student is involved in a variety of experiences in order to understand the basic concepts of each approach. Issues within the counselling profession such as ethical behaviour and career opportunities are also covered. Prerequisites: AUPSY 220 or 256; ★3 in 300 level Psychology. AUPSY 331 or AUPSY 346 is highly recommended.

#### **AUPSY 488 Forensic Psychology**

★3 (fi 6) (either term, 3-0-0). Examination of the psychology of criminal conduct. Topics include theories of antisocial and criminal behaviour, the psychological effects of incarceration, values and beliefs of offenders, eyewitness testimony, and the assessment and treatment of offenders, in particular, sexual offenders. Prerequisite: AUPSY 220. Corequisite: AUPSY 483 or 486. Note: Credit may be obtained for only one of AUPSY 488 and AUCRI 488.

#### **AUPSY 490 Counselling Skills and Field Experience**

★3 (fi 6) (either term). Interpersonal communication and counselling skills for the student preparing for a career in the helping professions. The emphasis is on developing empathic listening and on applying basic counselling skills (e.g., rapport building, goal setting, starting/ending a session). In addition, the student gains practical work experience in a human service agency. Ethical, legal, and professional issues related to counselling are addressed. Prerequisites: AUPSY 331 and 486. Requires a Psychology grade point average of at least 3.3. Corequisite: AUPSY 483.

#### **AUPSY 491 Directed Reading**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of psychology as defined by the student and a supervising instructor. Prerequisite: Consent of the Instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. AUPSY 491 is classified as a science course.

#### **AUPSY 492 Directed Reading**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of psychology as defined by the student and a supervising instructor. Prerequisite: Consent of the Instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. AUPSY 492 is classified as an arts course.

#### **AUPSY 497 Individual Study I**

★3 (fi 6) (variable, 3-0-0). Literature review and proposal (including an oral report) for fourth-year thesis. Prerequisites: AUPSY 313, fourth-year standing, and consent of the Instructor. Notes: Admission to AUPSY 497 normally requires a grade point average of at least 3.3. An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended for a student planning to pursue graduate studies in Psychology. AUPSY 497 is to be followed by AUPSY 499.

#### **AUPSY 499 Individual Study II**

★3 (fi 6) (variable, 3-0-0). Fourth-year thesis research, report, and oral presentation. Prerequisite: AUPSY 497. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

## 221.53 Augustana Faculty - Religion, AUREL

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### **AUREL 100 Exploring Religious Meaning**

★3 (fi 6) (either term, 3-0-0). Exploration of religious meaning through the

examination of selected themes from Christian theology and from other religions. The themes include ways of conceiving of the divine, the problem of evil, the human predicament, the relationship of religion and society, and ideas of salvation. Note: Credit may be obtained for only one of AUREL 100, 103 (2004), 107, 108.

#### **AUREL 107 Jesus of Nazareth in Biblical Scholarship**

★3 (*fi 6*) (either term, 3-0-0). Introduction to religious studies through the interpretation of texts relating to one central figure, Jesus of Nazareth. The course focuses primarily on the Biblical texts about Jesus but also includes other relevant texts from a variety of times and traditions. Note: Credit may be obtained for only one of AUREL 100, 103 (2004), 107, 108.

#### **AUREL 108 Jesus of Nazareth in Contemporary Theology**

★3 (*fi 6*) (either term, 3-0-0). Introduction to religious studies through an examination of contemporary theological interpretations of one central figure, Jesus of Nazareth. Note: Credit may be obtained for only one of AUREL 100, 103 (2004), 107, 108.

#### **AUREL 207 Jesus of Nazareth in Biblical Scholarship**

★3 (*fi 6*) (either term, 3-0-0). Introduction to religious studies through the interpretation of texts relating to one central figure, Jesus of Nazareth. The course focuses primarily on the Biblical texts about Jesus but also includes other relevant texts from a variety of times and traditions. Note: Credit may be obtained for only one of AUREL 207, 107 (2005), 108 (2005), 208.

#### **AUREL 208 Jesus of Nazareth in Contemporary Theology**

★3 (*fi 6*) (either term, 3-0-0). Introduction to religious studies through an examination of contemporary theological interpretations of one central figure, Jesus of Nazareth. Note: Credit may be obtained for only one of AUREL 208, 107 (2005), 108 (2005), 207.

#### **AUREL 212 Introduction to the Hebrew Bible in Translation**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the history and theology of the Hebrew Bible (Old Testament). Note: Credit may be obtained for only one of AUREL 212 and 112 (2000).

#### **AUREL 216 The Hebrew Prophets**

★3 (*fi 6*) (either term, 3-0-0). Attempt to interpret selected prophets within their historical context. The course explores the relevance of the prophetic mode of analyzing contemporary society.

#### **AUREL 221 Johannine Literature**

★3 (*fi 6*) (either term, 3-0-0). Survey of the distinctive characteristics in structure and content of John's Gospel and letters and the book of Revelation. The course concludes with a comparison of this literature with the rest of the New Testament writings.

#### **AUREL 222 Introduction to the New Testament**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the history and theology of the New Testament. Note: Credit may be obtained for only one of AUREL 222 and 122 (2000).

#### **AUREL 223 Synoptic Gospels**

★3 (*fi 6*) (either term, 3-0-0). Comparative and historical analysis of the purpose, characteristics, and problems of the first three Gospels.

#### **AUREL 226 Pauline Epistles**

★3 (*fi 6*) (either term, 3-0-0). Critical literary, historical, and theological study of the Pauline writings.

#### **AUREL 228 Religious Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of Religious Studies. Prerequisite: Second year standing in Philosophy and Religion degree program. Corequisite: Any senior course in Religion that requires library research. Note: The corequisite must be taken concurrently. Credit may be obtained for only one of AUREL 228, AUART 228, AUHIS 285, AUPHI 228.

#### **AUREL 235 The Reformation Era**

★3 (*fi 6*) (either term, 3-0-0). Survey of the history of the Reformation from the advocates of reform in the fourteenth century through the Counter-Reformation up to the compilation of the Book of Concord in 1580 with special emphasis on the basic religious questions of that time. The lives and writings of the chief reformers are examined in their historical and cultural contexts, and relationships to common twentieth-century issues are emphasized.

#### **AUREL 241 Basic Themes in Christian Thought**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the basic themes of Christianity. Attention is given to the expression of these themes in the Bible, creedal statements, and contemporary theological literature. Note: Credit may be obtained for only one of AUREL 241 and 141 (2000).

#### **AUREL 247 Theology of Luther**

★3 (*fi 6*) (either term, 3-0-0). Critical study of the genesis, development, and structure of Luther's theology.

#### **AUREL 252 Christian Understanding of Human Nature**

★3 (*fi 6*) (either term, 3-0-0). Survey of the place of human nature in Western thought since the Enlightenment of the eighteenth century, showing the relationship between the development of various non-Christian views and the responses of religious thinkers, primarily Christians. Emphasis is placed on the twentieth century.

#### **AUREL 257 Modern Ethics**

★3 (*fi 6*) (either term, 3-0-0). Contemporary problems in religious ethics and their impact on individual and collective decision-making in the areas of personal and social issues.

#### **AUREL 262 Spiritual Awareness**

★3 (*fi 6*) (either term, 3-0-0). Examination of the nature and function of religious language that leads to spiritual awareness. Confrontation of two problems in relation to religious language: how to relate the infinite to the finite, and how to relate and discover one's subjective inwardness. Attention is focused on various views regarding the nature of humanity and the human spirit. Special attention is given to the nature and function of parables.

#### **AUREL 263 Spirituality and Globalization**

★3 (*fi 6*) (either term, 3-0-0). Critical investigation of the values and views of human nature implicit in the discourse of corporate globalization and of those within the alternative visions of Jesus and the Hebrew prophets.

#### **AUREL 265 India Tour Orientation**

★1 (*fi 2*) (second term, 2-0-0). Examination of the intersection between religion and development in India. Students research and present on a particular topic relevant to the intersection of religion and development, as well as participate in team building exercises. Issues such as health and safety, travel preparations, dealing with culture shock, and the regional geography of India will be covered. Prerequisite: One of AUREL 100, 283, AUECO 101, Consent of the Instructor. Notes: This is a prerequisite course for the India Tour (AUREL 266/AUECO 254). Costs associated with the India Tour (3-weeks) and applicable tuition are the responsibility of the student. Enrolment is limited to 15 students. This course can only be taken by students who also register in AUREL 266/AUECO 254. Credit may be obtained for only one of AUREL 265, AUECO 253.

#### **AUREL 266 India Tour**

★3 (*fi 6*) (Spring/Summer, variable). Three-week study tour of India that focuses on a chosen region of India in order to examine the intersection between religious belief and practice and development challenges. Students will be exposed to various development projects as well as an array of religious sites. It is expected that students will gain an in depth understanding of India, its cultural and religious diversity, and the challenges it faces in the 21st century. Students will be exposed to both rural and urban life. Prerequisite: AUREL 265 or AUECO 253. Notes: Costs associated with this India Tour course and applicable tuition are the responsibility of the students. Enrolment is limited to 15 students. Credit may be obtained for only one of AUREL 266, 264 (2004), AUECO 254.

#### **AUREL 282 Major Religious Traditions: Middle East**

★3 (*fi 6*) (either term, 3-0-0). Major religious traditions originating in the Middle East: Judaism, Christianity, and Islam. Note: Credit may be obtained for only one of AUREL 282 and 182 (2000).

#### **AUREL 283 Major Religious Traditions: South Asia**

★3 (*fi 6*) (either term, 3-0-0). Major religious traditions of India, China, and Japan: Hinduism, Buddhism, Confucianism, and Taoism. Note: Credit may be obtained for only one of AUREL 283 and 183 (2000).

#### **AUREL 321 Johannine Literature**

★3 (*fi 6*) (either term, 3-0-0). Survey of the distinctive characteristics in structure and content of John's Gospel and letters and the book of Revelation. The course concludes with a comparison of this literature with the rest of the New Testament writings.

#### **AUREL 335 The Reformation Era**

★3 (*fi 6*) (either term, 3-0-0). Survey of the history of the Reformation from the advocates of reform in the fourteenth century through the Counter-Reformation up to the compilation of the Book of Concord in 1580 with special emphasis on the basic religious questions of that time. The lives and writings of the chief reformers are examined in their historical and cultural contexts, and relationships to common twentieth-century issues are emphasized.

#### **AUREL 345 Religion and Ecology**

★3 (*fi 6*) (either term, 3-0-0). Examination of the relationship between ecology and religion from Christian and non-Christian perspectives. The course looks at ecological spirituality, ecotheology, animal rights, deep ecology, ecoactivism, and ecofeminism. It also devotes substantial time to ecological themes in Asian (Hindu, Buddhist, and Chinese) and traditional (native American and Australian aboriginal) religions. Note: Credit may be obtained for only one of AUREL 345 and ENV 345.

#### **AUREL 347 Theology of Luther**

★3 (*fi 6*) (either term, 3-0-0). Critical study of the genesis, development, and structure of Luther's theology.

#### **AUREL 348 Justice Theologies of the Twentieth Century**

★3 (*fi 6*) (either term, 3-0-0). Examination of modern theologies that focus on the Biblical call for justice and offer a critique of Christianity's alignment with modern culture. These theologies of revitalization and dissent seek to change modern Christendom from within. Among those discussed are liberation, political, ecological, and feminist theologies.

**AUREL 349 Contemporary Theology**

★3 (fi 6) (either term, 3-0-0). Brief survey of major trends in twentieth-century theology followed by a more in-depth study of one or two major theologians or "schools" of theology.

**AUREL 352 Christian Understanding of Human Nature**

★3 (fi 6) (either term, 3-0-0). Survey of the place of human nature in Western thought since the Enlightenment of the eighteenth century, showing the relationship between the development of various non-Christian views and the responses of religious thinkers, primarily Christians. Emphasis is placed on the twentieth century.

**AUREL 384 Gods, Goddesses, and Gurus: An Introduction to Hinduism**

★3 (fi 6) (either term, 3-0-0). Introduction to the broad range of religious phenomena commonly referred to as "Hinduism," especially as expressed in contemporary India. The course explores the ways Hindus think about and visualize the divine. It examines Hindu sacred texts and popular religious literature, images and stories of the major Hindu gods and goddesses, how the divine is embodied in Hindu holy men and women, and the importance of sacred geography as the basis for religious pilgrimage. It also explores the ways this religious complex is being used by various political movements within India as a vehicle for shaping national identity.

**AUREL 391 Directed Reading in Religion I**

★3 (fi 6) (variable, 1-0-0). Intensive study in a specific area of religion as defined by the student and a supervising instructor. Prerequisite: Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUREL 392 Directed Reading in Religion II**

★3 (fi 6) (variable, 1-0-0). Intensive study in a specific area of religion as defined by the student and a supervising instructor. Prerequisite: Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUREL 393 Directed Reading in Religion III**

★3 (fi 6) (variable, 1-0-0). Intensive study in a specific area of religion as defined by the student and a supervising instructor. Prerequisite: Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUREL 394 Directed Reading in Religion IV**

★3 (fi 6) (variable, 1-0-0). Intensive study in a specific area of religion as defined by the student and a supervising instructor. Prerequisite: Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUREL 395 Directed Reading in Religion V**

★3 (fi 6) (variable, 1-0-0). Intensive study in a specific area of religion as defined by the student and a supervising instructor. Prerequisite: Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUREL 396 Directed Reading in Religion VI**

★3 (fi 6) (variable, 1-0-0). Intensive study in a specific area of religion as defined by the student and a supervising instructor. Prerequisite: ★3 at a senior level in Religion or Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUREL 397 Directed Reading in Religion VII**

★3 (fi 6) (variable, 1-0-0). Intensive study in a specific area of religion as defined by the student and a supervising instructor. Prerequisite: ★3 at a senior level in Religion or Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUREL 398 Directed Reading in Religion VIII**

★3 (fi 6) (variable, 1-0-0). Intensive study in a specific area of religion as defined by the student and a supervising instructor. Prerequisite: ★3 at a senior level in Religion or Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUREL 399 Directed Reading in Religion IX**

★3 (fi 6) (variable, 1-0-0). Intensive study in a specific area of religion as defined by the student and a supervising instructor. Prerequisite: ★3 at a senior level in Religion or Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in each of these courses.

**AUREL 400 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 401 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 402 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 403 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 404 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 405 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 406 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 407 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 408 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 409 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 412 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

**AUREL 413 Selected Topics in Religion**

★3 (fi 6) (either term, 3-0-0). Advanced study of selected authors, periods, works, methodologies, theological genres, and religious themes. Focus and content of each course are determined by student and faculty interests, and vary from year to year.

## 221.54 Augustana Faculty - Scandinavian, AUSCA

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

**AUSCA 91 Beginners' Norwegian I**

★3 (fi 6) (first term, 4-0-0). First in a 2-course sequence of beginners' Norwegian for a student who is lacking high school credits. AUSCA 091 and 092 are designed to develop ability in reading and writing Norwegian, with a strong emphasis on the development of comprehension and oral communication skills. During this process, the student participates in a wide variety of interactive activities and is also exposed to contemporary Norwegian culture. These two courses not only encourage the student to think critically about the principles of grammar as they relate to the Norwegian language, but also stimulate an in-depth understanding of the principles by which language functions in general. These two courses also lead the student through the steps of reflective learning as he or she considers and discusses language learning strategies. Notes: The course does not count toward the BA or BSc degree. Credit may be obtained for only one of AUSCA 091 and 101.

**AUSCA 92 Beginners' Norwegian II**

★3 (fi 6) (second term, 4-0-0). Continuation of AUSCA 091. Prerequisite: AUSCA

091 or Consent of the Instructor. Notes: The course does not count for credit toward the BA. or BSc degree. Credit may be obtained for only one of AUSCA 092 and 102..

#### **AUSCA 101 Beginners' Norwegian I**

★3 (fi 6) (first term, 4-0-0). AUSCA 101 and 102 are designed to develop ability in reading and writing Norwegian, with a strong emphasis on the development of comprehension and oral communication skills. During this process, the student participates in a wide variety of interactive activities and is also exposed to contemporary Norwegian culture. These two courses not only encourage the student to think critically about the principles of grammar as they relate to the Norwegian language, but also stimulate an in-depth understanding of the principles by which language functions in general. These two courses also lead the student through the steps of reflective learning as he or she considers and discusses language learning strategies. Note: Credit may be obtained for only one of AUSCA 101 and 091.

#### **AUSCA 102 Beginners' Norwegian II**

★3 (fi 6) (second term, 4-0-0). Continuation of AUSCA 101. Prerequisite: AUSCA 101. Note: Credit may be obtained for only one of AUSCA 102 and 092.

#### **AUSCA 141 Viking-Age Prose Literature**

★3 (fi 6) (either term, 3-0-0). Selected family and historical sagas (Njal's saga, Egil's saga, Grettir's saga, Laxdæla saga, the Vinland sagas, and others), and an introduction to Viking-age history. All lectures and readings are in English.

#### **AUSCA 151 Modern Norwegian Literature**

★3 (fi 6) (either term, 3-0-0). Dramas of Ibsen and representative prose works (e.g., Hamsun, Undset). All lectures and readings are in English.

#### **AUSCA 152 Modern Danish and Swedish Literature**

★3 (fi 6) (either term, 3-0-0). Dramas of Strindberg and representative prose works (e.g., Andersen, Jacobsen, and Lagerkvist). All lectures and readings are in English.

#### **AUSCA 161 Scandinavian Folk Literature**

★3 (fi 6) (either term, 3-0-0). Introduction to the three major genres of Scandinavian folk literature: the fictional folk tale, the legend, and the ballad. Folk literature as a cultural mirror and the impact of folk literature on nineteenth- and twentieth-century Scandinavian literature are also explored. All lectures and readings are in English.

#### **AUSCA 201 Intermediate Norwegian I**

★3 (fi 6) (first term, 4-0-0). Reading and study of selected texts in Norwegian literature and culture. Composition and conversation are emphasized. Prerequisite: AUSCA 102 or Consent of the Instructor.

#### **AUSCA 202 Intermediate Norwegian II**

★3 (fi 6) (second term, 4-0-0). Continuation of AUSCA 201. Prerequisite: AUSCA 201.

#### **AUSCA 210 Scandinavian Studies and Information Literacy**

★1 (fi 2) (either term, 1-0-0). Introduction to library research skills in the discipline of Scandinavian Studies. Prerequisite: Second-year standing in a Modern Languages degree program. Corequisite: Any senior course in Scandinavian Studies that requires library research. Notes: The corequisite must be taken concurrently. Credit may be obtained for only one of AUSCA 210, AUENG 201(2004), AUENG 204, AUDRA 228, AUFRE 210, AUGER 210.

#### **AUSCA 221 Scandinavian Women Writers**

★3 (fi 6) (either term, 3-0-0). Analysis of Scandinavian literature in English translation written by women, and the role of women in Scandinavian literature in general. Feminist literary theory is employed to analyze the texts.

#### **AUSCA 231 Scandinavian Culture and Civilization**

★3 (fi 6) (either term, 3-0-0). Survey of Scandinavian life and achievement, past and present, with emphasis on social and cultural conditions against a geographical and historical background. All lectures and readings are in English. Note: Credit may be obtained for only one of AUSCA 231 and AUGEO 242.

#### **AUSCA 241 Viking-Age Prose Literature**

★3 (fi 6) (either term, 3-0-0). Selected family and historical sagas (Njal's saga, Egil's saga, Grettir's saga, Laxdæla saga, the Vinland sagas, and others), and an introduction to Viking-age history. All lectures and readings are in English.

#### **AUSCA 251 Modern Norwegian Literature**

★3 (fi 6) (either term, 3-0-0). Dramas of Ibsen and representative prose works (e.g., Hamsun, Undset). All lectures and readings are in English.

#### **AUSCA 252 Modern Danish and Swedish Literature**

★3 (fi 6) (either term, 3-0-0). Dramas of Strindberg and representative prose works (e.g., Andersen, Jacobsen, and Lagerkvist). All lectures and readings are in English.

#### **AUSCA 261 Scandinavian Folk Literature**

★3 (fi 6) (either term, 3-0-0). Introduction to the three major genres of Scandinavian folk literature: the fictional folk tale, the legend, and the ballad. Folk literature as a cultural mirror and the impact of folk literature on nineteenth- and twentieth-century Scandinavian literature are also explored. All lectures and readings are in English.

#### **AUSCA 271 Personal Narratives of the North**

★3 (fi 6) (either term, 3-0-0). Analysis of personal narratives from the Canadian North and northern Scandinavia, with a focus on texts linking these regions. Narratives written from a variety of perspectives are read, including those of aboriginal peoples, explorers, professionals, adventurers and families. Texts which explore gender roles and gender myths in the North are also examined. Autobiographical theory is employed to analyse the texts. All lectures and readings are in English.

#### **AUSCA 371 Eighteenth- and Nineteenth-Century Scandinavian Prose and Drama**

★3 (fi 6) (either term, 3-0-0). Scandinavian prose and drama from 1720 to the beginning of Expressionism, in the original languages. Special emphasis is placed on Holberg's comedies, Ibsen's social dramas, Bjørnson's peasant novels, Realism, Naturalism, and Neo-Romanticism. Prerequisite: AUSCA 202 or Consent of the Instructor.

#### **AUSCA 372 Eighteenth- and Nineteenth-Century Scandinavian Poetry and Short Stories**

★3 (fi 6) (either term, 3-0-0). Scandinavian poetry and short prose forms from 1720 to the beginnings of Expressionism, in the original languages. Special emphasis is placed on Det Norske Selskab, Carl M. Bellman, Norwegian National Romanticism, Andersen's fairy tales, post-Romantic poetry in Sweden, and symbolist poetry in Denmark. Prerequisite: AUSCA 202 or Consent of the Instructor.

#### **AUSCA 381 Modern Scandinavian Prose and Drama**

★3 (fi 6) (either term, 3-0-0). Scandinavian prose and drama from 1900 to the present in the original languages. Special emphasis is placed on Strindberg's plays, and novels by Undset, Hoel, Sandemose, Vesaas, Martin A. Hansen, Sven Delblanc, and others. Prerequisite: AUSCA 202 or Consent of the Instructor.

#### **AUSCA 382 Modern Scandinavian Poetry and Short Stories**

★3 (fi 6) (either term, 3-0-0). Scandinavian poetry, short stories, and essays from 1900 to the present in the original languages, including Arnulf Øverland, Rolf Jacobsen, Inger Hagerup, Otto Gelsted, Benny Andersen, Nels Ferlin, Edith Södergrän, and others. Prerequisite: AUSCA 202 or Consent of the Instructor.

#### **AUSCA 401 Directed Study: Language**

★3 (fi 6) (variable, 1-0-0). Intensive study of the Norwegian language. Prerequisite: AUSCA 202 or Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUSCA 403 Directed Reading**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of Scandinavian literature as defined by the student and a supervising instructor. Prerequisite: A 200-level Scandinavian literature course or Consent of the Instructor. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

#### **AUSCA 405 Directed Study: Area Studies**

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of Scandinavian culture as defined by the student and a supervising instructor. Prerequisite: AUSCA 231. Note: An "Application for Individual Study" must be completed and approved before registration in the course.

## 221.55 Augustana Faculty - Sociology, AUSOC

Department of Social Sciences  
Augustana Faculty

### Undergraduate Courses

#### **AUSOC 101 Introducing Sociology: Principles and Practice**

★3 (fi 6) (either term, 3-0-0). Introduction to sociology focusing on understanding the relation between the individual and society using concepts like social control, class, role, self, reference group, ideology, and world view. Through the use of some popular films, specific attention is paid to understanding the way we (as particular individuals) are, in taken-for-granted ways, shaped by our membership in large and small groupings. The implications of this shaping for our ideas of freedom, individuality, and morality are debated and examined.

#### **AUSOC 103 Introducing Sociology: Institutions and Insight**

★3 (fi 6) (either term, 3-0-0). Introduction to sociology focusing on the relation between social institutions and everyday life. Through an examination of institutions like law, family, education, politics, religion, and economy, the course develops an understanding of themes such as changes in family organization, the relation between delinquency and power, and the relation between religion and economy. Prerequisite: AUSOC 101 or 105.

#### **AUSOC 105 Social Anthropology**

★3 (fi 6) (either term, 3-0-0). Ethnographic materials from non-Western societies are utilized to examine culture, social structure, and social process. Particular attention

is paid to everyday life within various types of societies and how sociological ways of knowing are enriched by an attentiveness to cross-cultural research.

#### **AUSOC 200 Young Offenders and the Law**

★3 (*fi 6*) (either term, 3-0-0). Integrative examination of theories of delinquency, the relationship of the young offender to Canadian criminal law, family, drug abuse, child abuse, and recent developments in community-based treatment programs. Note: Credit may be obtained for only one of AUSOC 200 and AUCRI 200.

#### **AUSOC 218 Sociology of Global and Development Issues**

★3 (*fi 6*) (either term, 3-0-0). Introductory exploration of the issues of global economic development, global wealth and poverty, and global inequality. Alternative theoretical perspectives are introduced. Prerequisite: One of AUSOC 101, 103, 105, any 3 credits in Development Studies Stream A (Canadian and International Issues) or Stream B (Rural Development Exchange). Notes: Credit may be obtained for only one of AUSOC 218, 118 (2001) and AIDS 121/221. Formerly AUSOC 118 (2001).

#### **AUSOC 222 Canadian Social Issues**

★3 (*fi 6*) (either term, 3-0-0). Introduction to sociological perspectives on social problems. Various theoretical orientations are applied to contemporary Canadian social issues such as poverty, gender issues, aboriginal rights, human sexuality, and regionalism. Note: Credit may be obtained for only one of AUSOC 222 and AUCRI 222.

#### **AUSOC 224 Sociology of Deviant Behaviour**

★3 (*fi 6*) (either term, 3-0-0). Interactionist analysis of processes accompanying the definition of deviance, subculture formation, careers of involvement in deviant activities, and the formal and informal regulation of deviance. Prerequisite: One of AUSOC 101, 103, 105. Note: Credit may be obtained for only one of AUSOC 224 and AUCRI 224.

#### **AUSOC 225 Criminology: A Canadian Perspective**

★3 (*fi 6*) (either term, 3-0-0). Examination of sociological explanations of crime and criminality. The course focuses on criminality as defined under Canadian criminal law and the traditional legal systems of Canada's aboriginal peoples. Prerequisite: One of AUSOC 101, 103, 105. Note: Credit may be obtained for only one of AUSOC 225 and AUCRI 225.

#### **AUSOC 231 Sociological Studies and Information Literacy**

★1 (*fi 2*) (either term, 1-0-0). Introduction to library research skills in the discipline of Sociology. Prerequisite: Second-year standing in a Sociology degree program. Corequisite: Any senior Sociology course that requires library research. Notes: The corequisite must be taken concurrently. Credit may be obtained for only one of AUSOC 231, AUCRI 260, AUPOL 201.

#### **AUSOC 232 Theoretic Developments in Sociology I**

★3 (*fi 6*) (either term, 3-0-0). Survey of the origin and the development of classical sociological theory, with particular emphasis on Marx, Durkheim, and Weber. Prerequisite: One of AUSOC 101, 103, 105.

#### **AUSOC 233 Theoretic Developments in Sociology II**

★3 (*fi 6*) (either term, 3-0-0). Survey of the contributions of modern and contemporary sociological theorists, particularly Weber, Parsons, Mead, and others. Prerequisite: One of AUSOC 101, 103, 105.

#### **AUSOC 236 Research Design and Qualitative Methods**

★3 (*fi 6*) (either term, 3-0-0). Examination of the relation between the method of inquiry and the problem which inquiry addresses. It is designed to acquaint students with numerous approaches to social research, covering all phases of the research process including formulation of a research problem, design of instruments, collection of data and analysis of results. Particular attention is given to qualitative methods, including interviewing, observation, focus groups, and unobtrusive measures. Students will be expected to conduct original research assignments. Prerequisite: One of AUSOC 101, 103, 105.

#### **AUSOC 262 Mass Communication and Contemporary Society**

★3 (*fi 6*) (either term, 3-0-0). What kind of communication is mass communication, and in what ways in particular is this different from other forms of communication? What does it mean to live in an age of mass culture? The construction and character of mass society as one organizational and communicative possibility, using notions of postmodernism and post-industrialism. Prerequisite: ★3 at a senior level in Sociology or consent of the instructor.

#### **AUSOC 263 The Social Theory of Community**

★3 (*fi 6*) (either term, 3-0-0). Inquiry into the nature of the social, moral, and theoretic ground of human communities, taking as its starting point an examination of the sociological research on the urban/rural difference. Involved in this is an examination of the kinds of social theories that best help us understand the nature of community. For all of the above, Canada is the case study. Prerequisite: One of AUSOC 101, 103, 105, consent of the instructor.

#### **AUSOC 267 Knowledge and Human Society**

★3 (*fi 6*) (either term, 3-0-0). Nature and assessment of knowledge (e.g., values and belief systems manifest in art, science, technology) in the context of social systems; the connection between competing systems of knowledge and social change. Prerequisite: One of AUSOC 101, 103, 105.

#### **AUSOC 271 The Family**

★3 (*fi 6*) (either term, 3-0-0). Examination of the Western family from ancient Hebrew to contemporary times. It involves the study of the development of the modern nuclear family organization and the controversy over its demise. The relation of the family to wider social structures and society is also considered. Prerequisite: One of AUSOC 101, 103, 105, consent of the instructor.

#### **AUSOC 275 Sex, Gender, and Society**

★3 (*fi 6*) (either term, 3-0-0). Examination of the relation between gender as a social institution and our experiences of sexual identity and gender. The way gender differences are constructed and sustained as part of the reality of everyday life is also examined. Prerequisite: One of AUSOC 101, 103, 105, consent of the instructor.

#### **AUSOC 279 Women in Contemporary Cuba**

★3 (*fi 6*) (second term, 3-0-0). Sociological examination of the life of women in contemporary Cuba, focusing on the experience of women within families, workplaces, and education. Note: The course is available only as part of the Augustana-in-Cuba Program.

#### **AUSOC 283 Sociology of Religion**

★3 (*fi 6*) (either term, 3-0-0). Examination of sociological approaches to religion. Religiously grounded moral claims are examined relative to the social functions of religion, religion in relation to other social institutions, and religious experience in everyday life. Prerequisite: One of AUSOC 101, 103, 105.

#### **AUSOC 301 Directed Reading I**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of sociology as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in sociology.

#### **AUSOC 302 Directed Reading II**

★3 (*fi 6*) (variable, 1-0-0). Intensive study of a specific area of sociology as defined by the student and a supervising instructor. Prerequisites: AUSOC 301 or 401, and consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in sociology.

#### **AUSOC 303 Selected Topics in Sociology**

★3 (*fi 6*) (either term, 3-0-0). Study of selected topics at an advanced level that allows for a focus that is both specific and deep. Prerequisites: Two of AUSOC 101, 103, 105; and consent of the instructor.

#### **AUSOC 304 Selected Topics in Sociology**

★3 (*fi 6*) (either term, 3-0-0). Study of selected topics at an advanced level that allows for a focus that is both specific and deep. Prerequisites: Two of AUSOC 101, 103, 105; and consent of the instructor.

#### **AUSOC 305 Selected Topics in Sociology**

★3 (*fi 6*) (either term, 3-0-0). Study of selected topics at an advanced level that allows for a focus that is both specific and deep. Prerequisites: Two of AUSOC 101, 103, 105; and consent of the instructor.

#### **AUSOC 306 Selected Topics in Sociology**

★3 (*fi 6*) (either term, 3-0-0). Study of selected topics at an advanced level that allows for a focus that is both specific and deep. Prerequisites: Two of AUSOC 101, 103, 105; and consent of the instructor.

#### **AUSOC 307 Directed Research I**

★3 (*fi 6*) (variable, 1-0-0). Original research project as developed by the student and supervising instructor. Prerequisite: Consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in sociology.

#### **AUSOC 308 Directed Research II**

★3 (*fi 6*) (variable, 1-0-0). Original research project as developed by the student and supervising instructor. Prerequisite: Consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in sociology.

#### **AUSOC 327 Crimes of the Powerful**

★3 (*fi 6*) (either term, 3-0-0). Why is it that so much attention is paid to "street crime" while the crimes of the powerful go virtually unpunished and sometimes unnoticed? A comprehensive examination of the prevalence and impact of crime committed by the powerful, including white collar occupational crime, corporate crimes, and crimes committed by the state. Prerequisite: One of AUCRI/AIDS 160, AUSOC/AUCRI 224, AUSOC/AUCRI 225, AUSOC/AUCRI 323. Note: Credit may be obtained for only one of AUSOC 327/427 and AUCRI 327/427.

#### **AUSOC 339 Fieldwork Methodology**

★3 (*fi 6*) (either term, 3-0-0). Examination of fieldwork as it pertains to a qualitative sociology. Topics include epistemology, participant observation, unstructured interviews, managing and interpreting data, and research ethics. Each student completes an original field research project. Prerequisite: One of

AUSOC 234/334, AUSOC 236. Note: Credit may be obtained for only one of AUSOC 339 and 239 (2001).

### AUSOC 358 Environmental Sociology

★3 (fi 6) (either term, 3-0-0). Theoretical and empirical examination of the connection between the natural environment and the social world. This involves inquiry into the sociological dimensions of some major contemporary environmental problems including air, water and soil pollution, decreased biodiversity, deforestation, climate change, and ozone depletion. Particular attention is paid to the social and political connections among issues of industrialization, development, globalization, inequality, gender, social change and environmental destruction. Prerequisites for AUSOC 358: Third- year standing and one of the following: any Environmental Studies course or its cross-listed equivalent, participation in either the Rural Development Exchange Program or the Augustana-in-Cuba Program, AUSOC 118, AUSOC 391. Note: Credit may be obtained for only one of AUSOC 358/458 and AUENV 358/458.

### AUSOC 367 Knowledge and Human Society

★3 (fi 6) (either term, 3-0-0). Nature and assessment of knowledge (e.g., values and belief systems manifest in art, science, technology) in the context of social systems; the connection between competing systems of knowledge and social change. Prerequisite: One of AUSOC 101, 103, 105. ★3 at a senior level in Sociology.

### AUSOC 371 Film and Contemporary Culture

★3 (fi 6) (either term, 3-1L-0). Critical examination of both film as sophisticated text and sociological theories of film and contemporary culture. Prerequisite: One of AUSOC 101, 103, 105. Corequisite: AUSOC 262.

### AUSOC 377 Contemporary Theories of Gender

★3 (fi 6) (either term, 3-0-0). Examination of gender from the perspective of contemporary theories (in particular, feminist theories). The liberal, socialist, radical, and post-structuralist feminist perspectives on gender are addressed. As well, the course looks at gender from ethnomethodological and hermeneutic perspectives. Prerequisite: One of AUSOC 232, 233, 275, any course listed in the Women's Studies program.

### AUSOC 391 Social Change from Development to Globalization

★3 (fi 6) (either term, 3-0-0). Examination of some of the global processes of social change, including theoretical perspectives of development and globalization, such as modernization theory, World Systems theory and sustainable development. Prerequisite: ★3 at a senior level in Sociology or participation in the Prairies-Mexico Rural Development Exchange.

### AUSOC 393 Political Sociology

★3 (fi 6) (either term, 3-0-0). Political process seen as social action. An examination of the sociological import of themes such as the forms of power (e.g., authority, force), political organization (e.g., democracy, totalitarianism, the nation state), and political processes (e.g., leadership, party formation, political recruitment). Prerequisites: One of AUSOC 101, 103, 105; and ★3 at a senior level in Sociology. Note: Formerly AUSOC 293 (2001).

### AUSOC 401 Directed Reading I

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of sociology as defined by the student and a supervising instructor. Prerequisite: Consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in sociology.

### AUSOC 402 Directed Reading II

★3 (fi 6) (variable, 1-0-0). Intensive study of a specific area of sociology as defined by the student and a supervising instructor. Prerequisites: AUSOC 301 or 401, and consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in sociology.

### AUSOC 403 Selected Topics in Sociology

★3 (fi 6) (either term, 3-0-0). Study of selected topics at an advanced level that allows for a focus that is both specific and deep. Prerequisites: Two of AUSOC 101, 103, 105; and consent of the instructor.

### AUSOC 404 Selected Topics in Sociology

★3 (fi 6) (either term, 3-0-0). Study of selected topics at an advanced level that allows for a focus that is both specific and deep. Prerequisites: Two of AUSOC 101, 103, 105; and consent of the instructor.

### AUSOC 405 Selected Topics in Sociology

★3 (fi 6) (either term, 3-0-0). Study of selected topics at an advanced level that allows for a focus that is both specific and deep. Prerequisites: Two of AUSOC 101, 103, 105; and consent of the instructor.

### AUSOC 406 Selected Topics in Sociology

★3 (fi 6) (either term, 3-0-0). Study of selected topics at an advanced level that allows for a focus that is both specific and deep. Prerequisites: Two of AUSOC 101, 103, 105; and consent of the instructor.

### AUSOC 407 Directed Research I

★3 (fi 6) (variable, 1-0-0). Original research project as developed by the student and supervising instructor. Prerequisite: Consent of the instructor. Notes: An

"Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in sociology.

### AUSOC 408 Directed Research II

★3 (fi 6) (either term, 1-0-0). Original research project as developed by the student and supervising instructor. Prerequisite: Consent of the instructor. Notes: An "Application for Individual Study" must be completed and approved before registration in the course. The course is intended primarily for a student planning to pursue graduate studies in sociology.

### AUSOC 427 Crimes of the Powerful

★3 (fi 6) (either term, 3-0-0). Why is it that so much attention is paid to "street crime" while the crimes of the powerful go virtually unpunished and sometimes unnoticed? A comprehensive examination of the prevalence and impact of crime committed by the powerful, including white collar occupational crime, corporate crimes, and crimes committed by the state. Prerequisite: One of AUCRI/AUIDS 160, AUSOC/AUCRI 224, AUSOC/AUCRI 225, AUSOC/AUCRI 323. Note: Credit may be obtained for only one of AUSOC 327/427 and AUCRI 327/427.

### AUSOC 437 Symbolic Interactionism

★3 (fi 6) (either term, 3-0-0). Review of the theoretic contributions that symbolic interactionism has made to sociological inquiry. Taking a review of the conceptual groundwork laid by the pragmatists as its point of departure, the course confronts the work of theorists such as C. H. Cooley, W. I. Thomas, G. H. Mead, and H. Blumer. Classic debates within this tradition are examined relative to more contemporary responses. Prerequisite: ★6 at a senior level in Sociology.

### AUSOC 439 Seminar in Contemporary Sociological Theory

★3 (fi 6) (either term, 3-0-0). Issues in contemporary theory. Central concepts and arguments proposed by a variety of theorists are examined. Topics covered vary by instructor. A student confronts primary texts. Prerequisite: ★6 at a senior level in Sociology.

### AUSOC 458 Environmental Sociology

★3 (fi 6) (either term, 3-0-0). Theoretical and empirical examination of the connection between the natural environment and the social world. This involves inquiry into the sociological dimensions of some major contemporary environmental problems including air, water and soil pollution, decreased biodiversity, deforestation, climate change, and ozone depletion. Particular attention is paid to the social and political connections among issues of industrialization, development, globalization, inequality, gender, social change and environmental destruction. Prerequisites: Fourth- year standing and one of the following: any Environmental Studies course or its cross-listed equivalent, participation in either the Rural Development Exchange Program or the Augustana-in-Cuba Program, AUSOC 118, AUSOC 391. Note: Credit may be obtained for only one of AUSOC 358/458 and AUENV 358/458.

## 221.56 Augustana Faculty - Spanish, AUSPA

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

#### AUSPA 100 Introductory Spanish

★6 (fi 12) (two term, 2-0-0 12 weeks immersion). Introduction to the Spanish language designed to develop functional oral skills and a rudimentary reading and writing ability in Spanish through class instruction, seminars, and immersion experience, including living with Spanish speakers. Prerequisite: Consent of the Development Studies selection committee. Corequisites: One of AUIDS 122, 124, 222, 224, 322, 324; and one of IDS 123, 125, 223, 225, 323, 325. Notes: The course is not open to a student with prior university credit in or native knowledge of Spanish. Credit may be obtained for only one of AUSPA 100, 101, 102.

#### AUSPA 101 Beginners' Spanish I

★3 (fi 6) (either term, 4-0-0). Introduction to the essentials of the Spanish language designed to develop ability in speaking and writing, with a strong emphasis on the development of oral communication skills. Note: Credit may be obtained for only one of AUSPA 101 and 100.

#### AUSPA 102 Beginners' Spanish II

★3 (fi 6) (either term, 4-0-0). Continuation of AUSPA 101. Prerequisite: AUSPA 101. Note: Credit may be obtained for only one of AUSPA 102 and 100.

#### AUSPA 200 Intermediate Spanish Communication

★6 (fi 12) (two term, 3-0-0 12 wks Immersion). Stress on oral communication through immersion, including living with native Spanish speakers. A continuation of speaking, listening, reading, and writing skills and understanding. Hispanic culture that was begun at the first year level of Spanish. Completion of the verb system. Prerequisite: One of AUSPA 100, 101, 102, or equivalent. Corequisite: Immersion experience. Notes: Currently offered through the Prairies-México Rural Development Exchange, "Mi casa es tu casa" with the Universidad Autónoma del Estado de Morelos. Credit may be obtained for only one of AUSPA 200 and 201/202.



**AUSPA 201 Intermediate Spanish I**

★3 (*fi 6*) (either term, 8-0-0 in 6 weeks). Designed to consolidate basic Spanish language skills through systematic grammar review and practise in various language skills. Prerequisite: AUSPA 100 or 102. Note: Credit may be obtained for only one of AUSPA 201 and 200.

**AUSPA 202 Intermediate Spanish II**

★3 (*fi 6*) (either term, 8-0-0 in 6 weeks). Continuation of AUSPA 201. Prerequisite: AUSPA 201. Note: Credit may be obtained for only one of AUSPA 202 and 200.

## 221.57 Augustana Faculty - Statistics, AUSTA

Department of Science  
Augustana Faculty

### Undergraduate Courses

**AUSTA 153 Introductory Applied Statistics for Business and Economics**

★3 (*fi 6*) (either term, 3-0-3). Introduction to elementary statistical concepts designed to provide an understanding of how statistics can be used to analyze real world phenomena. Emphasis is on applications in the field of business and economics. The student is required to use spreadsheet and other statistical software to analyze and examine statistical data. Prerequisite: One of Pure Mathematics 30, AUMAT 092, 102. Notes: Credit may be obtained for only one of AUSTA 153, AUECO 153 (2004), AUPSY 213, AUSTA 213. Formerly AUSTA 151 (2001).

**AUSTA 213 Statistical Methods**

★3 (*fi 6*) (either term, 3-0-3). Frequency distributions, averages, dispersion, simple linear regression and correlation, elementary probability, binomial and normal distributions, sampling distributions, confidence intervals, significance tests on means and variances, chi-square tests for two-way tables, introduction to the analysis of variance. Labs include projects in which a student collects and analyzes real data. Prerequisite: One of Pure Mathematics 30, AUMAT 092, 102. Notes: The course does not count toward the major in Mathematics and Physics or the minor in Mathematics. Credit may be obtained for only one of AUSTA 213, AUPSY 213, AUECO 153 (2004), AUSTA 153. Formerly AYSTA 211 (2001).

## 221.58 Augustana Faculty - World Literatures, AULIT

Department of Humanities  
Augustana Faculty

### Undergraduate Courses

**AULIT 201 Introduction to Twentieth-Century Latin American Fiction**

★3 (*fi 6*) (either term, 3-0-0). Selected works in English translation from representative authors such as Borges, Fuentes, and García Márquez.

**AULIT 301 Topics in Twentieth-Century Latin American Literature**

★3 (*fi 6*) (either term, 3-0-0). Study of selected twentieth-century literary works, in English translation, from particular Latin American countries and regions. The country or region on which the course focuses varies from year to year. Prerequisite: Previous satisfaction of the literary studies component of the core.

## 221.59 Biochemistry, BIOCH

Department of Biochemistry  
Faculty of Medicine and Dentistry

### Undergraduate Courses

**Notes**

- (1) BIOCH 200, 310, 320, 330, 401, 410, 420, 430, 441, 450, 455, 460 can be used by students in the Faculty of Science as science courses.
- (2) Courses in clinical biochemistry are listed under Medical Laboratory Science.

**O BIOCH 200 Introductory Biochemistry**

★3 (*fi 6*) (either term, 3-0-0). An introduction to the fundamental principles of biochemistry. Protein structure and function; lipids and the structure of biological membranes; nucleotides and the structure of nucleic acids; bioenergetics and the metabolism of carbohydrates, lipids, and nitrogen; the integration and regulation of cellular metabolism. Prerequisites: CHEM 101 and CHEM 161 or 261. Notes: (1) This course is designed for students who require a one-term introduction to

the fundamental principles of biochemistry and for students who intend to take further courses in biochemistry. (2) BIOCH 200 may not be taken for credit if credit has already been obtained in any of BIOCH 203, 205, or 220.

**O BIOCH 310 Bioenergetics and Metabolism**

★3 (*fi 6*) (first term, 3-0-0). Designed to enable rigorous study of the molecular mechanisms in bioenergetics and metabolism. It covers: the principles of bioenergetics; the reactions and pathways of carbohydrate, lipid, and nitrogen metabolism, and their regulation; oxidative phosphorylation and photophosphorylation; carbohydrate biosynthesis in plants; the integration and hormonal regulation of mammalian metabolism. Prerequisites: BIOCH 200, CHEM 102, and 263. Notes: (1) Students with grades of less than B- in prerequisite courses require consent of department. (2) This course may not be taken for credit if credit has already been obtained in BIOCH 203 or 205.

**O BIOCH 320 Structure and Catalysis**

★3 (*fi 6*) (either term, 3-0-0). Designed to illustrate, in detail, the relationships between structure and function in biological molecules. It covers: the structure of proteins; techniques used to study proteins; contractile proteins and immunoglobulins as illustrations of protein function; enzyme catalysis, kinetics, and regulation; structural carbohydrates and glycobiology; the structure of lipids; biological membranes and mechanisms of transport; molecular mechanisms in biosignalling. Prerequisites: BIOCH 200, CHEM 102, and 263. Notes: (1) Students with grades of less than B- in prerequisite courses require consent of department. (2) This course may not be taken for credit if credit has already been obtained in BIOCH 203 or 205.

**O BIOCH 330 Nucleic Acids and Molecular Biology**

★3 (*fi 6*) (second term, 3-0-0). Provides students with a comprehensive introduction to the biochemistry of nucleic acids. It covers: the structure and properties of nucleotides and nucleic acids; DNA-based information technologies; genes and chromosome structure; molecular mechanisms in DNA replication, repair, and recombination; RNA metabolism; protein synthesis and targeting; the regulation of gene expression. Prerequisites: BIOCH 200, CHEM 102, and CHEM 263. Notes: (1) Students with grades of less than B- in prerequisite courses require consent of department. (2) This course may not be taken for credit if credit has already been obtained in BIOCH 205.

**BIOCH 401 Biochemistry Laboratory**

★6 (*fi 12*) (two term, 0-0-8). Laboratory course in modern biochemical techniques. Designed for Biochemistry Honors and Specialization students in their third or fourth year. Other interested students may enrol subject to space limitations. Prerequisites: BIOCH 320 and 330, or BIOCH 203 and 205, all with a minimum grade of B-, and consent of Department.

**L BIOCH 410 Signal Transduction and Metabolic Regulation**

★3 (*fi 6*) (second term, 3-0-0). Principles of metabolic regulation by hormones and external agonists through signal transduction processes and protein modification. Biochemistry of cellular communication, coordination of carbohydrate, lipid, nucleotide and protein metabolism. Prerequisites: BIOCH 310, 320, and 330, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Intended for undergraduate students. Graduate students may not register for credit (see BIOCH 510).

**L BIOCH 420 Protein Chemistry, Structure, and Function**

★3 (*fi 6*) (second term, 3-0-0). Protein chemistry and purification. The intra- and intermolecular forces that determine protein structure. Principles of protein folding and dynamics. Enzyme mechanisms and ligand binding interactions. Prerequisites: BIOCH 320, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Intended for undergraduate students. Graduate students may not register for credit (see BIOCH 520).

**L BIOCH 430 Biochemistry of Eukaryotic Gene Expression**

★3 (*fi 6*) (first term, 3-0-0). The organization and expression at the molecular level of information encoded in the nucleic acids of eukaryotic cells. The focus will be on genome structure and the regulation of gene expression at the levels of transcription, post-transcriptional processing, translation, post-translational modification and protein sorting. Recombinant DNA technologies and genetic engineering will be discussed as methods for studying the cellular processing of genetic information. Prerequisites: BIOCH 320 and 330, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Intended for undergraduate students. Graduate students may not register for credit (see BIOCH 530).

**L BIOCH 441 Structure and Function of Biological Membranes**

★3 (*fi 6*) (first term, 3-0-0). Survey of the structure and function of biological membranes. Topics include the structure, properties and composition of biomembranes, characterization and structural principles of membrane lipids and proteins, lateral and transverse asymmetry, dynamics, lipid-protein interactions, membrane enzymology, permeability, and biogenesis. Prerequisites: BIOCH 320, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Intended for undergraduate students. Graduate students may not register for credit (see BIOCH 541).

**L BIOCH 450 The Molecular Biology of Mammalian Viruses**

★3 (*fi 6*) (first term, 3-0-0). This course will focus on virus structure, replication,

and interaction with host cells at the molecular level. Lytic viruses with single- or double-stranded DNA or RNA genomes will be discussed, as will the mechanisms of viral oncogenesis. Prerequisites: BIOCH 320 and 330, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Intended for undergraduate students. Graduate students may not register for credit (see BIOCH 550).

#### **L BIOCH 455 Biochemistry of Lipids and Lipoproteins**

★3 (*fi 6*) (second term, 3-0-0). Advanced course focusing on specific aspects of the regulation of lipid and lipoprotein metabolism. Topics include the transcriptional and post-translational mechanisms governing the synthesis and degradation of important enzymes, lipids, and lipid transport molecules; the role of lipid mediators in signaling pathways and protein modification; the assembly and dynamics of lipoproteins and biological membranes; genetic disruptions of lipid regulatory proteins such as cell surface receptors leading to human disease. Prerequisites: BIOCH 310, 320, and 330, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Intended for undergraduate students. Graduate students may not register for credit (see BIOCH 555).

#### **L BIOCH 460 Physical Biochemistry**

★3 (*fi 6*) (second term, 3-0-0). Survey of physical techniques used in the characterization and structural determination of biological macromolecules. Topics include hydrodynamics, optical and magnetic resonance spectroscopies, diffraction techniques such as X-ray crystallography, and small angle neutron and X-ray scattering. Emphasis is on using techniques in evaluating structure-function relationships by a discussion of representative macromolecular systems. Prerequisites: BIOCH 320, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Prerequisites or co-requisites: CHEM 371 and 373, or consent of Department. Offered in alternate years. Intended for undergraduate students. Graduate students may not register for credit (see BIOCH 560).

#### **BIOCH 498 Advanced Laboratory**

★3 (*fi 6*) (either term, 0-0-4). An advanced laboratory course for undergraduate students enrolled in Honors or Specialization Biochemistry who wish to engage in individual research. Enrolment is limited to students whose performance is exceptional (e.g., GPA of 3.3 or greater). Can be taken as a science elective but not as a substitute for required courses in Biochemistry. Prerequisites: BIOCH 401 and consent of Course Coordinator. Not to be taken by students with credit in former BIOCH 501.

#### **BIOCH 499 Honors Research Project**

★6 (*fi 12*) (two term, 0-0-8). Supervised research within a laboratory in the Department of Biochemistry, to be carried out over both terms of Fall/Winter. The results of the research project will be presented in a final written report and an oral presentation. Prerequisite: Students enrolled in this course will normally be in their graduating year in the Honors program in Biochemistry.

## Graduate Courses

#### **BIOCH 510 Signal Transduction and Metabolic Regulation**

★3 (*fi 6*) (second term, 3-0-0). Principles of metabolic regulation by hormones and external agonists through signal transduction processes and protein modification. Biochemistry of cellular communication, coordination of carbohydrate, lipid, nucleotide and protein metabolism. Prerequisites: BIOCH 310, 320, and 330, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Lectures are the same as for BIOCH 410, but with additional assignments and evaluation appropriate to graduate studies. This course may not be taken for credit if credit has already been obtained in BIOCH 410.

#### **BIOCH 520 Protein Chemistry, Structure, and Function**

★3 (*fi 6*) (second term, 3-0-0). Protein chemistry and purification. The intra- and intermolecular forces that determine protein structure. Principles of protein folding and dynamics. Enzyme mechanisms and ligand binding interactions. Prerequisites: BIOCH 320, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Lectures are the same as for BIOCH 420, but with additional assignments and evaluation appropriate to graduate studies. This course may not be taken for credit if credit has already been obtained in BIOCH 420.

#### **BIOCH 530 Biochemistry of Eukaryotic Gene Expression**

★3 (*fi 6*) (first term, 3-0-0). The organization and expression at the molecular level of information encoded in the nucleic acids of eukaryotic cells. The focus will be on genome structure and the regulation of gene expression at the levels of transcription, post-transcriptional processing, translation, post-translational modification and protein sorting. Recombinant DNA technologies and genetic engineering will be discussed as methods for studying the cellular processing of genetic information. Prerequisites: BIOCH 320 and 330, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Lectures are the same as for BIOCH 430, but with additional assignments and evaluation appropriate to graduate studies. This course may not be taken for credit if credit has already been obtained in BIOCH 430.

#### **BIOCH 541 Structure and Function of Biological Membranes**

★3 (*fi 6*) (first term, 3-0-0). Survey of the structure and function of biological membranes. Topics include the structure, properties and composition of

biomembranes, characterization and structural principles of membrane lipids and proteins, lateral and transverse asymmetry, dynamics, lipid-protein interactions, membrane enzymology, permeability, and biogenesis. Prerequisites: BIOCH 320, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Lectures are the same as for BIOCH 441, but with additional assignments and evaluation appropriate to graduate studies. This course may not be taken for credit if credit has already been obtained in BIOCH 441.

#### **BIOCH 550 The Molecular Biology of Mammalian Viruses**

★3 (*fi 6*) (first term, 3-0-0). This course will focus on virus structure, replication, and interaction with host cells at the molecular level. Lytic viruses with single- or double-stranded DNA or RNA genomes will be discussed, as will the mechanisms of viral oncogenesis. Prerequisites: BIOCH 320 and 330, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Lectures are the same as for BIOCH 450, but with additional assignments and evaluation appropriate to graduate studies. This course may not be taken for credit if credit has already been obtained in BIOCH 450.

#### **BIOCH 555 Biochemistry of Lipids and Lipoproteins**

★3 (*fi 6*) (second term, 3-0-0). Advanced course focusing on specific aspects of the regulation of lipid and lipoprotein metabolism. Topics include the transcriptional and post-translational mechanisms governing the synthesis and degradation of important enzymes, lipids, and lipid transport molecules; the role of lipid mediators in signaling pathways and protein modification; the assembly and dynamics of lipoproteins and biological membranes; genetic disruptions of lipid regulatory proteins such as cell surface receptors leading to human disease. Prerequisites: BIOCH 310, 320, and 330, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Offered in alternate years. Lectures are the same as for BIOCH 455, but with additional assignments and evaluation appropriate to graduate studies. This course may not be taken for credit if credit has already been obtained in BIOCH 455.

#### **BIOCH 560 Physical Biochemistry**

★3 (*fi 6*) (second term, 3-0-0). Survey of physical techniques used in the characterization and structural determination of biological macromolecules. Topics include hydrodynamics, optical and magnetic resonance spectroscopies, diffraction techniques such as X-ray crystallography, and small angle neutron and X-ray scattering. Emphasis is on using techniques in evaluating structure-function relationships by a discussion of representative macromolecular systems. Prerequisites: BIOCH 320, or BIOCH 203 and 205, all with a minimum grade of B- or consent of Department. Prerequisites or co-requisites: CHEM 371 and 373, or consent of Department. Offered in alternate years. Lectures are the same as for BIOCH 460, but with additional assignments and evaluation appropriate to graduate studies. This course may not be taken for credit if credit has already been obtained in BIOCH 460.

#### **BIOCH 609 Macromolecular Structure Analysis**

★3 (*fi 6*) (second term, 3-0-0). Principles of X-ray crystallography as applied to the study of protein and nucleic acid structure. Practical aspects of diffraction and structure solution are demonstrated by a collaborative study of a suitable small molecule of biological interest. Designed for senior honors and graduate students. Prerequisite: consent of Instructor. Maximum enrolment of 10 students. Offered in alternate years.

#### **BIOCH 620 Selected Topics in Protein Structure, Function, and Regulation**

★3 (*fi 6*) (second term, 0-3s-0). Directed reading and seminar course, based on papers taken from recent literature of protein research. Students critically discuss the papers and give oral presentations to the class. Designed for graduate students. Prerequisite: BIOCH 420 or equivalent, or consent of Department.

#### **BIOCH 623 Special Topics in Research on Polynucleotides**

★2 (*fi 4*) (two term, 0-1s-0). This course is a journal club and discussion group in which current research topics on nucleic acids are discussed. Specific talks range from biochemistry, genetics and microbiology to nuclear biology and clinical aspects.

#### **BIOCH 626 Special Topics in Protein Research**

★2 (*fi 4*) (two term, 0-1s-0). Seminar course for advanced students. Detailed consideration is given to recent advances in research on protein structure and function and mechanism of enzyme action. Prerequisite: BIOCH 420 or consent of Department.

#### **BIOCH 630 Selected Topics in Modern Molecular Biology**

★3 (*fi 6*) (second term, 0-3s-0). Directed reading and seminar course, based on papers taken from the recent literature of molecular biology. Students critically discuss the papers and give oral presentations. Note: designed for graduate students; offered yearly. Prerequisite: BIOCH 530 and consent of the Department.

#### **BIOCH 640 Special Topics in Research on Biomembranes**

★2 (*fi 4*) (two term, 0-1s-0). Seminar course for advanced students covering selected topics from the current literature in the field of membrane structure and function. Prerequisite: BIOCH 441 or consent of Department.

#### **BIOCH 641 Selected Topics on the Structure and Function of Biological Membranes**

★3 (*fi 6*) (first term, 0-3s-0). Directed reading and seminar course on the

structure and function of biological membranes. Topics include membrane biogenesis, bioenergetics, transport and structural aspects of membrane lipids and proteins. Prerequisite: BIOCH 441 or consent of the Department. Offered in alternate years.

#### **BIOCH 650 Signal Transduction**

★2 (*fi 4*) (two term, 0-1s-0). A journal club and discussion group addressing topics in the general area of signalling mechanisms that control cell activation, growth, apoptosis and vesicle trafficking. Specific talks range from biochemistry, genetics and microbiology to molecular biology and clinical aspects. Prerequisite: BIOCH 410/510 or consent of Department.

#### **BIOCH 651 Special Topics in Lipid and Lipoprotein Research**

★2 (*fi 4*) (two term, 0-1s-0). Seminar for advanced students covering selected topics from the current literature in the field of lipid and lipoprotein research. Prerequisite: BIOCH 555 or consent of Department.

#### **BIOCH 655 Advances in Lipid and Lipoprotein Research**

★3 (*fi 6*) (second term, 1-2s-0). Recent developments and use of the current literature are emphasized. Topics include regulation of lipid metabolism, intracellular lipid trafficking, regulation of lipoprotein secretion, lipid transfer among lipoproteins, reverse cholesterol transport, and atherosclerosis. Prerequisite: BIOCH 455, or 555, or consent of Department. Offered in alternate years.

#### **BIOCH 670 Recent Advances in Biochemistry**

★4 (*fi 8*) (two term, 0-2s-0). A seminar course on topics of current interest in Biochemistry. Note: Open to first-year graduate students in Biochemistry only.

#### **BIOCH 671 Recent Advances in Biochemistry**

★4 (*fi 8*) (two term, 0-2s-0). A seminar course on topics of current interest in Biochemistry. Note: Open to second-year Graduate students in Biochemistry only. Prerequisite: BIOCH 670.

#### **BIOCH 675 Magnetic Resonance in Biology and Medicine II**

★3 (*fi 6*) (second term, 3-0-0). Designed for advanced honors and graduate students interested in the application of nuclear magnetic resonance spectroscopy to biological systems. Topics include quantum mechanical basis of NMR, multinuclear multidimensional NMR experiments, NMR relaxation theory, new NMR applications. Prerequisite: consent of Instructor. Offered in alternate years.

## 221.60 Biochimie, BIOCM

Faculté Saint-Jean

### Cours de 1er cycle

#### **BIOCM 203 Introduction à la biochimie I**

★3 (*fi 6*) (premier semestre, 3-0-0). Structure et chimie de la cellule; structure et fonction des protéines; cinétique enzymatique; chimie des glucides, métabolisme intermédiaire. Préalable(s): CHIM 101; CHIM 161 ou 261; et CHIM 163 ou 263. Notes: (1) Les étudiants ayant obtenu une note inférieure à C+ dans un de ces cours devront obtenir la permission de l'instructeur avant de s'inscrire. (2) Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour BIOCH 201 ou BIOCH 220.

#### **BIOCM 205 Introduction à la biochimie II**

★3 (*fi 6*) (deuxième semestre, 3-0-0). Chimie et métabolisme des lipides, acides aminés et nucléotides; structure et assemblage des membranes; biologie moléculaire des acides nucléiques. Préalable(s): BIOCH 203. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour BIOCH 201.

## 221.61 Bioinformatics, BIOIN

Department of Biological Sciences  
Faculty of Science

### Undergraduate Courses

#### **BIOIN 301 Bioinformatics I**

★3 (*fi 6*) (first term, 3-0-3). Introduction to computational tools and databases used in the collection and analysis of sequence data and other analytical data from high-throughput molecular biology studies. Students will use existing tools, learn the underlying algorithms and their limitations, and will write programs to perform bioinformatic analysis. Prerequisites: CMPUT 115 and GENET 270. (Offered jointly by the Departments of Computing Science and Biological Sciences). [Biological Sciences].

#### **BIOIN 401 Bioinformatics II**

★3 (*fi 6*) (second term, 3-0-3). Advanced topics in bioinformatics will be covered. A major part of the course will be devoted to team-based projects involving writing novel bioinformatics tools to deal with current problems in bioinformatics. Prerequisites: BIOIN 301, a 300-level CMPUT course and a 300-level GENET

course. (Offered jointly by the Departments of Computing Science and Biological Sciences). [Biological Sciences].

## 221.62 Biologie, BIOLE

Faculté Saint-Jean

### Cours de 1er cycle

#### **BIOLE 107 Introduction à la biologie cellulaire**

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-3). Introduction à la structure et au fonctionnement de la cellule. Les principaux sujets étudiés comprendront l'origine de la vie, le développement des lignées procaryotes et eucaryotes, la bioénergétique, les fonctions biochimiques à l'intérieur de la cellule et la communication entre les cellules. Le contrôle génétique des activités cellulaires est examiné au moyen des protocoles de l'analyse génétique moléculaire et de leurs applications au génie génétique et à la biotechnologie. Préalable(s): Biologie 30 et Chimie 30.

#### **BIOLE 108 Les organismes et leur environnement**

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-3). Une introduction aux divers organismes de cette planète et comment ils ont été affectés par leur environnement et comment l'environnement est présentement le produit de l'activité d'organismes. Sera étudié également comment l'évolution a produit, sur une longue période de temps, les principaux groupes d'organismes et comment les origines de l'évolution ont affecté leur classification. Les principes sous-jacents à notre connaissance des principales lignées seront étudiés en se servant d'exemples de bactéries, de mycètes, de protistes, de plantes et d'animaux. Préalable(s): Biologie 30.

#### **BIOLE 201 Biologie cellulaire des eucaryotes**

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-0). Une dissection structurale et fonctionnelle de la cellule eucaryote. Détection de molécules spécifiques au niveau ultrastructural; structure et fonction de la membrane plasmique; rôle du cytosquelette dans le transport intracellulaire, la mitose et la cytocinèse; le système endomembranaire, le ciblage des protéines, l'exocytose et l'endocytose; structure et fonction du noyau; contrôle du cycle cellulaire et cancer. Préalable(s): BIOLE 107. Préalable(s) ou concomitant(s): CHIM 161 ou 261. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour CELL 201.

#### **BIOLE 207 La génétique moléculaire et l'hérédité**

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-3). Les principes chromosomiques et moléculaires de la transmission et du fonctionnement des gènes; la construction de cartes génétiques et physiques des gènes et des génomes; les protocoles utilisés pour isoler des gènes spécifiques. Seront aussi à l'étude les exemples de mécanismes régulateurs pour l'expression de matériel génétique chez les procaryotes et les eucaryotes. Préalable(s): BIOLE 107.

#### **BIOLE 208 Les principes de l'écologie**

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-3). L'écologie est l'étude scientifique des interactions entre les organismes et leur environnement selon une hiérarchie de niveaux d'organisation: les individus, les populations, les communautés et les écosystèmes. Destiné à donner à l'étudiant une vue générale des concepts de base en écologie, ce cours peut aussi servir de préparation à des cours plus avancés. L'emphase dans les laboratoires sera sur le recueil, l'analyse et l'interprétation des données provenant d'expériences écologiques afin d'illustrer et compléter les notes du cours. Les exemples seront tirés d'une vaste étendue d'organismes et de systèmes. Préalable(s): BIOLE 108.

#### **BIOLE 315 Histoire et théorie de la biologie**

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-0). Aperçu des découvertes biologiques des temps les plus reculés jusqu'à maintenant et des principales idées nées des sciences de la vie ou les influençant, et ce par rapport aux événements sociaux, historiques et culturels. Recommandé aux étudiants qui se spécialisent dans les sciences biologiques mais accessible à tous les étudiants qui s'intéressent à l'histoire de la science et de son importance dans le développement de la culture. Préalable(s): Un cours de niveau 300 en science biologique ou l'approbation du Vice-doyen aux affaires académiques.

#### **BIOLE 321 Mécanismes de l'évolution**

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-0). Les principales caractéristiques du processus évolutif, incluant les données fossiles, les fondements de la génétique des populations, la sélection naturelle, l'adaptation et la spéciation. Préalable(s): BIOLE 108 et 207.

#### **BIOLE 381 La biologie de la pollution**

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-0). Impact écologique des polluants naturels et anthropogéniques sur les écosystèmes aquatiques et terrestres. Les principaux groupes de polluants et le phénomène du transport des polluants sont utilisés pour présenter plusieurs problèmes importants produits par la pollution à l'échelle globale. Le cours touche spécifiquement aux problèmes des pluies acides, les métaux dans l'environnement, la perte de l'ozone stratosphérique, l'effet de serre, et leurs effets sur les organismes aux niveaux biochimique, physiologique et écologique. Cette information sera alors utilisée pour aborder certaines difficultés environnementales telles le déclin des forêts, les contraintes multiples sur les organismes, la bioamplification, la biodiversité, l'économie et la politique du contrôle de la pollution, et le progrès vers la réduction et le contrôle de la pollution. Préalable(s) : un cours de biologie de niveau 200.

## 221.63 Biology (Biological Sciences), BIOL

Department of Biological Sciences  
Faculty of Science

### Notes

- (1) See the following sections for listings of other Biological Sciences courses: Bioinformatics (BIOIN); Botany (BOT); Entomology (ENT); Genetics (GENET); Microbiology (MICRB); Zoology (ZOO).
- (2) See the following sections for listings of other relevant courses: Interdisciplinary Studies (INT D); Immunology and Infection (IMIN); Marine Science (MA SC); Paleontology (PALEO).

### Undergraduate Courses

#### **O** BIOL 107 Introduction to Cell Biology

★3 (fi 6) (either term, 3-1s-3). An introduction to cell structure and function. Major topics include the molecules and structures that comprise prokaryotic and eukaryotic cells, the mechanisms by which energy is harvested and used by cells, how cells reproduce, and how information is stored and used within a cell via the processes of DNA replication, transcription, and translation. Prerequisites: Biology 30 and Chemistry 30. Note: BIOL 107 is not a prerequisite for BIOL 108. BIOL 107 and 108 can be taken in either term.

#### **O** BIOL 108 Introduction to Biological Diversity

★3 (fi 6) (either term, 3-1s-3). Examines the major lineages of life on Earth. Overview of evolutionary principles and classification, the history of life, and the key adaptations of prokaryotes, protists, fungi, plants, and animals. Laboratories survey the diversity of biological form and function, and introduce students to data collection and scientific writing. Prerequisite: Biology 30. Note: BIOL 107 is not a prerequisite for BIOL 108. BIOL 107 and 108 can be taken in either term.

#### **O** BIOL 201 Eukaryotic Cellular Biology

★3 (fi 6) (either term, 3-0-0). A structural and functional dissection of a eukaryotic cell. Detection of specific molecules at the ultrastructural level; plasma membrane structure and function; cytoskeleton involvement in intracellular transport, mitosis, and cytokinesis; the endomembrane system, protein targeting, exocytosis and endocytosis; nuclear structure and function; cell cycle control and cancer. Prerequisite: BIOL 107. Prerequisite or corequisite: CHEM 161 or 261. Note: Not to be taken by students with credit in CELL 201, in addition, not available to students currently enrolled in CELL 201.

#### **O** BIOL 207 Molecular Genetics and Heredity

★3 (fi 6) (either term, 3-1s-3). The chromosomal and molecular basis for the transmission and function of genes. The construction of genetic and physical maps of genes and genomes. Strategies for the isolation of specific genes. Examples of regulatory mechanisms for the expression of the genetic material in both prokaryotes and eukaryotes. Prerequisite: BIOL 107.

#### **O** BIOL 208 Principles of Ecology

★3 (fi 6) (either term, 3-1s-3). Ecology is the scientific study of interactions between organisms and their environment in a hierarchy of levels of organization: individuals, populations, communities, and ecosystems. Provides a comprehensive survey of general concepts that can stand alone or serve as preparation for advanced courses in ecology. Labs emphasize collection, analysis, and interpretation of data from ecological experiments and field studies to illustrate and complement lecture material. Examples are drawn from a broad range of organisms and systems. Prerequisite: BIOL 108. Open to students in the BSc Forestry and BSc Forest Business Management program once they have completed REN R 120 and ENCS 201.

#### **BIOL 299 Research Opportunity Program**

★1.5 (fi 3) (either term, 0-0-3). A credit/no-credit course for supervised participation in a faculty research project. Normally taken after completion of a minimum of 30 but not more than 60 units of course weight in a program in the Faculty of Science. Prerequisite: GPA of 2.5 or higher, a 100 or 200 level course in the field of research and consent of Department. Normally taken in addition to a full course load. Project and course information available at ROP website or Department of Biological Sciences. Note: Application does not guarantee an ROP position. Credit may be obtained twice.

#### **BIOL 314 Biology of Bryophytes**

★3 (fi 6) (first term, 3-0-3). Hornworts, liverworts and mosses (bryophytes) are basal groups of land plants that are pivotal in the evolution, adaptation, and diversification of life in terrestrial environments. In addition, their diminutive size, relative structural simplicity and a dominant haploid generation have made bryophytes useful as model organisms for studies of plant function, development, and molecular biology. Lectures and labs will explore the biological diversity and provide a phylogenetic overview of these groups with an emphasis on species found in western Canadian environments. Prerequisite: BIOL 108 and a 200-level Biological Sciences course. BOT 205 and BOT 210 recommended. May not be taken for credit if credit already obtained in BOT 305.

#### **O** BIOL 315 Biology: An Historical Perspective

★3 (fi 6) (second term, 3-0-0). An outline of the scientific foundations of

biological discovery to the mid-20th century. Students must have a sophisticated understanding of modern concepts in biology, be prepared to write two major essays on focused topics and participate actively in class discussion. Prerequisite: Students registered in their 3rd year with credit in at least one 300-level course in the biological sciences.

#### **O** BIOL 321 Mechanisms of Evolution

★3 (fi 6) (first term, 3-0-0). Discusses the major features of the evolutionary process, including the fossil record, basic population genetics, variation, natural selection, adaptation, and speciation. Prerequisites: BIOL 108 and 207.

#### **O** BIOL 330 Introduction to Biological Data

★3 (fi 6) (first term, 3-0-3). Expands on prior introductions to the scientific method and examines the steps involved in the planning, collection, organization, analysis and presentation of biological data. Classes will explore the types of data used to answer a variety of biological questions and will review several different sampling designs, assess the benefits and limitations of various data types for scientific inference, and integrate the statistical methods that are common to other introductory courses. Labs will teach students how spreadsheets and relational databases can be used to manipulate, analyze, and present the results of scientific research. Prerequisite: BIOL 208 and STAT 151.

#### **O** BIOL 331 Population Ecology

★3 (fi 6) (second term, 3-0-3). Principles of population ecology as they apply to plants and animals; population consequences of variation among individuals; habitat structure and population structure; habitat selection and foraging theory; life tables, demography, and the evolution of life history patterns; population dynamics; interactions among organisms (predation, competition, mutualism); and population regulation. Prerequisites: BIOL 208; any one of MATH 113, 115 or 120; STAT 151.

#### **O** BIOL 332 Community Ecology

★3 (fi 6) (second term, 3-3s-0). Principles of community ecology, applied to plants and animals. The nature of communities, functional groups and rarity; niche theory and competition; disturbance and other alternatives to competition; food webs (predation, herbivory and disease); diversity (determinants, functional consequences and gradients); island communities. Prerequisites: BIOL 208; STAT 151; and any one of MATH 113, 115, or 120. Offered in alternate years. May not be taken for credit if credit already obtained in ZOO 332.

#### **O** BIOL 333 Wetland Ecology and Management

★3 (fi 6) (first term, 3-0-3). Introduction to the ecology of wetland ecosystems, communities and plants. Major topics include landscape features, hydrological and chemical cycles of wetlands, wetland communities and major flora and fauna. Emphasis will be on wetlands in Western Canada including the bog, fen and marsh systems in boreal Alberta, prairie and montane wetlands. Loss or alteration of wetlands due to human activity is documented. A field trip is required. Prerequisite: BIOL 108 and a 200-level Biological or Earth Sciences course. Credit may be obtained in only one of BOT 333 and BIOL 333.

#### **O** BIOL 335 Principles of Systematics

★3 (fi 6) (second term, 3-0-0). An introduction to the principles, methods, and applications of biological systematics, including reconstruction of phylogenies, creation of synthetic and cladistic classifications, historical interpretation of geographic distributions, and applications in evolutionary biology. Each student will analyze phylogenetic data and write a description of a species and its relationships. Prerequisites: BIOL 108 and a 200-level Biological Sciences course.

#### **O** BIOL 340 Global Biogeochemistry

★3 (fi 6) (second term, 3-0-0). An introduction to biogeochemical cycles in the environment. Discusses processes and reactions governing cycles in the atmosphere, lithosphere, terrestrial ecosystems, freshwater wetlands and lakes, river estuaries, and the oceans. Outlines the global cycles of water, carbon, nitrogen, phosphorus, and sulfur. Group discussions will incorporate current topics in anthropogenic alterations of natural cycles that lead to ecosystem degradation. Prerequisites: CHEM 101 and BIOL 208; MICRB 265 strongly recommended.

#### **O** BIOL 361 Marine Science

★3 (fi 6) (second term, 3-0-0). An introduction to marine science and marine biology including history of marine exploration, essential features of the physical marine environment, a survey of major marine communities and adaptations of the organisms that live in each, overviews of selected groups of marine organisms (e.g., marine mammals), and human impact on the oceans. Recommended as preparation for courses offered through the Bamfield Marine Station (see courses listed under MA SC). Prerequisite: ZOO 250 or BIOL 208.

#### **O** BIOL 364 Freshwater Ecology

★3 (fi 6) (first term, 3-1s-0). An introduction to the ecology of freshwater ecosystems. Lectures will examine the roles of biota in ecological patterns and processes in lakes, ponds, rivers, and streams, emphasizing north-temperate and boreal regions. Seminars will focus on recent papers from the primary literature. Designed to stand-alone or to provide a biological complement to BIOL 464. Prerequisite: BIOL 208.

#### **O** BIOL 365 Methods in Freshwater Ecology

★3 (fi 6) (first term, 1-0-3). A practical course introducing students to techniques used in the field and lab to biomonitor lakes and streams. Topics covered will

include plankton production and composition, fish and benthos community structure, herbivory and predation, and paleolimnology. The laboratory component includes field trips and independent research projects. Pre- or co-requisite: BIOL 364 or permission of instructor.

#### **O BIOL 366 Northern Ecology**

★3 (*fi 6*) (second term, 3-0-0). Examines the ecology of boreal, arctic, and alpine ecosystems, including postglacial history, climate, geology, nutrient cycling and energy flow in forests, wetlands, lakes and marine systems, animal and plant adaptations to cold and current human impacts. Prerequisite: BIOL 208.

#### **O BIOL 367 Conservation Biology**

★3 (*fi 6*) (first term, 3-0-0). This course introduces the principles of conservation biology with an emphasis on ecological processes operating at population, community and ecosystem levels of organization. Threats to biological diversity, ranging from species introductions to habitat destruction will be discussed along with conservation solutions ranging from the design of protected areas through conservation legislation. Prerequisite: BIOL 208. Credit cannot be obtained in both BIOL 367 and ENCS 364.

#### **O BIOL 380 Genetic Analysis of Populations**

★3 (*fi 6*) (second term, 3-1s-0). Application of molecular biology to the study of systematics, structure of natural populations, mating systems, and forensics. Among the topics discussed are molecular techniques used to detect genetic variation in natural populations, methods to construct phylogenies using molecular data, mathematical models of population structure, paternity analysis, and DNA fingerprinting. Prerequisite: BIOL 207.

#### **O BIOL 381 People, Pollution, and the Environment**

★3 (*fi 6*) (first term, 3-0-0). The impacts of anthropogenic pollutants on ecosystems. This course first examines human population growth and non-sustainable resource extraction and then discusses the movement of pollutants through the atmosphere and biosphere, methods of detecting pollutants, and their ecological impacts. Information from lectures on specific pollutants (including carbon dioxide, nutrients, acid emissions, pesticides, endocrine disruptors, mercury and other metals, oil spills, radiation) will be used to discuss how humans value ecosystems, environmental law and policy, and specific environmental regulations in Alberta and the rest of Canada. Prerequisite: Biology 208.

#### **BIOL 391 Techniques in Molecular Biology and Bioinformatics**

★3 (*fi 6*) (either term, 0-1s-6). A laboratory course introducing students to techniques in gene manipulation, protein expression and bioinformatics by following a gene through a thematic series of molecular manipulations. Restricted to Honors and Specialization students in Biological Sciences and consent of Department. Prerequisite: BIOL 207, BIOCH 200. Not to be taken by students currently enrolled in GENET 420 or with credit in GENET 420.

#### **BIOL 400 Industrial Internship Practicum**

★3 (*fi 6*) (either term, 0-3s-0). Required by all students who have just completed a Biological Sciences Industrial Internship Program. Must be completed during the first academic term following return to full-time studies. Note: A grade of F to A+ will be determined by the student's job performance as evaluated by the employer, by the student's performance in the completion of an internship practicum report, and by the student's ability to learn from the experiences of the Internship as demonstrated in an oral presentation. Prerequisite: WKEXP 942 or 943.

#### **O BIOL 430 Experimental Biology**

★3 (*fi 6*) (either term, 3-0-3). Emphasis is on the design of experiments and analysis of data collected from field and laboratory studies in Biology. Prerequisites: STAT 141 or 151 and a 300-level Biological Sciences course.

#### **O BIOL 432 Methods in Plant Ecology**

★3 (*fi 6*) (first term, 1-0-3). A field/laboratory course in which students will be introduced to common techniques used in plant ecology. Topics covered will include reproductive ecology, plant competition, field sampling, seed ecology, and community analysis. Prerequisites: BOT 332, STAT 151, and any university MATH course. The laboratory component includes field trips and independent research projects. Offered in alternate years.

#### **O BIOL 433 Plant-Animal Interactions**

★3 (*fi 6*) (second term, 3-1s-0). Plants and animals have a long co-evolutionary history, and this course explores many of the ways in which plants and animals use and abuse each other. Specific topics include pollination biology, herbivory, and dispersal. Emphasis is on both the evolutionary ecology and ecological implications of these interactions. The seminar component consists of weekly discussions of related literature. Prerequisite: BIOL 331 or BOT 332 or ZOOL 332. Offered in alternate years.

#### **BIOL 450 The Ecology of Below-Ground Communities**

★3 (*fi 6*) (first term, 3-0-3). Survey of diversity and interactions among below-ground organisms, including trophic relationships, competition, facilitation and mutualism; adaptations of soil organism; causes and consequences of soil organism diversity. Laboratory sessions include identification of soil invertebrates, and field and laboratory methods for studying the ecology of below-ground organisms. Offered in alternate years. Prerequisite: BIOL 208 and consent of the instructor.

#### **O BIOL 464 Limnology**

★3 (*fi 6*) (second term, 3-0-3). Discussion of physical and chemical regimes in

lakes, ecology of various aquatic organisms, calculation of hydraulic and chemical budgets, models used in lake management, and lake management problems such as acid rain and eutrophication. Prerequisite: A 300-level Biological Sciences course (BIOL 364 recommended) and ★6 in University level Chemistry. Credit may be obtained for only one of ZOOL 464 and BIOL 464.

#### **O BIOL 468 Problems in Conservation Biology**

★3 (*fi 6*) (second term, 3-0-0). Seminar and reading course dealing with current problems in conservation biology. Prerequisite: BIOL 367 or ZOOL 465 or ENCS 364 and consent of Department. Credit cannot be obtained for BIOL 468 by students who already have credit for ZOOL 468.

#### **O BIOL 470 Landscape Ecology**

★3 (*fi 6*) (second term, 3-0-3). Landscapes are holistic entities whose patterns influence ecological processes. Topics highlighted in this course include landscape components, morphology and dynamics; detecting spatial/temporal change in landscapes; issues of scales; movements of organisms, disturbances, and nutrients across landscape mosaics; and restoration, planning and management in a landscape context. Labs emphasize GIS applications to characterizing landscape patterns and heterogeneity in space and time, distributing and moving organisms across landscapes, and restoring or planning landscapes for conservation objectives. Prerequisites: MATH 115; STAT 151; one of BIOL 331, 332 or BOT 332. Previous GIS course is useful. Consent of instructor is required.

#### **O BIOL 490 Individual Study**

★3 (*fi 6*) (either term, 0-0-6). Registration will be contingent on the student's having made prior arrangements with a faculty member willing to supervise the program. Credit may be obtained more than once. Prerequisite: A 300-level Biological Sciences course and consent of the Department.

#### **BIOL 495 Special Topics in Biology**

★3 (*fi 6*) (either term, 0-3s-0). Covers specialized topics of current interest to advanced undergraduates in Biological Sciences. Consult the Department for details about current offerings. Prerequisite: consent of instructor. Credit for this course may be obtained more than once.

#### **O BIOL 498 Research Project**

★3 (*fi 6*) (either term, 0-0-6). Directed research in laboratory of an assigned member of the Biological Sciences Department. Credit may be obtained more than once. Prerequisites: A 300-level Biological Sciences course and consent of the Department.

#### **O BIOL 499 Research Project**

★6 (*fi 12*) (two term, 0-0-6). Directed research in the laboratory of an academic staff member of the Biological Sciences Department. Successful completion of this course requires an oral presentation and a written report on the research project. Prerequisite: A 300-level Biological Sciences course and the signature of either the program advisor or the Associate Chair, Undergraduate Studies. Note: Students in Honors in Biological Sciences are required to successfully complete BIOL 499.

## Graduate Courses

### Notes

- (1) All 300- and 400-level courses in the Department of Biological Sciences may be taken for credit (except for BIOL 490, 498 and 499) by graduate students with approval of the student's supervisory committee.
- (2) The following courses may be taken as an option in graduate programs in the Department of Biological Sciences with approval of the student's supervisor or supervisory committee: BIOCH 510, 520, 530, 541, 550, 555, 560; CHEM 361, 363, 461; CELL 300, 301; IMIN 371, 372, 452; INT D 421; MA SC 400, 401, 402, 410, 412, 420, 425, 430, 437, 440, 445, 470, 480; MMI 405, 415, 520; NEURO 472; NU FS 363; PALEO 318, 319; PHARM 601.

#### **BIOL 506 Systematics and Evolution Forum**

★2 (*fi 4*) (either term, 1-1s-0). Lectures and discussions on a variety of subjects in systematics and evolutionary biology by graduate students, staff, and visiting speakers. Credit may be obtained more than once. Prerequisite: consent of instructors for students not registered in the systematics and evolution graduate program.

#### **BIOL 507 Seminars in Systematics and Evolution**

★1 (*fi 2*) (either term, 0-1s-0). Seminars in systematics and evolutionary biology. Credit may be obtained more than once. Prerequisite: consent of instructors for students not registered in the systematics and evolution graduate program.

#### **BIOL 508 Current Problems in Systematics and Evolution**

★3 (*fi 6*) (either term, 0-2s-0). Lectures or structured discussions on a selected topic in systematics and evolutionary biology. Credit may be obtained more than once. Prerequisite: consent of instructors for students not registered in the Systematic and Evolution program.

#### **BIOL 520 Advanced Phylogenetic Analysis**

★3 (*fi 6*) (first term, 3-0-3). Theory, techniques and applications of phylogenetic inference, with an emphasis on molecular data. Topics to be covered include: tree inference methods, methods for assessing the reliability of phylogenetic

reconstruction, and applications and practical issues in phylogenetic analysis. Labs emphasize practical experience in phylogenetic analysis. The final grade will be based on a course project and presentation. Prerequisite: BIOL 335 or consent of Instructor. Preference will be given first to graduate students in Systematics and Evolution, and then to graduate students in Biological Sciences; advanced undergraduates are welcome if space is available. Offered in alternate years.

#### **BIOL 545 Current Topics in Animal and Cell Physiology**

★3 (fi 6) (first term, 0-3s-0). Survey, discussion and evaluation of literature dealing with current advances and selected topics in animal and cell physiology. Credit in this course can be obtained more than once. Enrolment of students by consent of instructor. Normally offered in alternate years.

#### **BIOL 560 Current Problems in Ecology**

★3 (fi 6) (either term, 0-3s-0). Seminar and reading on current problems concerning selected aspects of ecology. More than one section may be available and topics change from year to year. Please consult the Department for current information. Credit for this course may be obtained more than once. Prerequisite: at least one 400-level ecology course.

#### **BIOL 570 Models in Ecology**

★3 (fi 6) (second term, 0-3s-1). Formulation, analysis, parameterization, and validation of quantitative models for ecological processes. Applications include population dynamics, species interactions, movement, and spatial processes. Approaches include classical hypothesis testing, computer simulation, differential equations, individual-based models, least squares, likelihood, matrix equations, Markov processes, multiple working hypotheses, and stochastic processes. The lab covers computer simulation methods. Prerequisite: consent of Instructor. Offered in alternate years.

#### **BIOL 595 Special Topics in Biology**

★3 (fi 6) (either term, 0-3s-0). Covers specialized topics of current interest to graduate students in Biological Sciences. Consult the Department for details about current offerings. Prerequisite: consent of instructor. Credit for this course may be obtained more than once.

#### **BIOL 601 Philosophy, Sociology, and Politics of Science**

★3 (fi 6) (first term, 3-0-0). Influences of current philosophical concepts, and the sociological and political realities, on biological research and teaching. Offered in alternate years. Credit for this course may be obtained more than once.

#### **BIOL 603 Advanced Ecology**

★3 (fi 6) (either term, 0-3s-0). Designed for new graduate students in environmental biology to foster critical thinking and discussion and to introduce them to issues of experimental design and analysis and different approaches to ecology. The course involves student discussion of papers, lectures by faculty members on their research, seminars by students and a written assignment. Prerequisite: consent of instructor. Preference will be given to students in Biological Sciences.

#### **BIOL 631 Seminar in Ecology**

★1 (fi 2) (either term, 0-2s-0). Credit may be obtained more than once.

#### **BIOL 633 Advanced Techniques in Biology**

★1 (fi 2) (either term, 0-2s-0). This course will cover specialized topics of current interest to graduate students in Biological Sciences with an emphasis on learning new research skills. Prerequisite: consent of Instructor. Credit for this course may be obtained more than once.

#### **BIOL 642 Seminar in Physiology and Cell Developmental Biology**

★1 (fi 2) (either term, 0-2s-0). Credit may be obtained more than once.

## 221.64 Biomedical Engineering, BME

Department of Biomedical Engineering  
Faculty of Medicine and Dentistry

**Note:** See also EE BE 512 and 540 which may be taken as courses in this discipline.

### Undergraduate Courses

#### **0 BME 210 Human Anatomy and Physiology: Cells and Tissue**

★3 (fi 6) (first term, 3-0-0). An introduction to the fundamental levels of organization of the human body highlighted in engineering terms. The first half of the course will consider the chemical, cellular, and tissue levels of organization. The second half of the course will be devoted to bone, joints, muscle, and neural tissue. Guest lectures will include engineers and medical scientists to discuss the relationship between recent advances in biomedical engineering and the underlying anatomy and physiology. This course is intended for students in the Faculty of Engineering. Students from other faculties must obtain the consent of the Department of Biomedical Engineering.

#### **BME 211 Human Anatomy and Physiology: Systems**

★3 (fi 6) (second term, 3-0-0). An introduction to the organization of the human body at the level of the anatomical systems highlighted in engineering terms. Lectures will be devoted to the circulatory, respiratory, digestive, urinary, nervous

and endocrine systems, and fluid, electrolyte and acid-base homeostasis. Guest lectures will include engineers and medical scientists to discuss the relationship between recent advances in biomedical engineering and the underlying anatomy and physiology. This course is intended for students in the Faculty of Engineering. Students from other faculties must obtain the consent of the Department of Biomedical Engineering. Prerequisite: BME 210.

#### **0 BME 310 Introduction to Biomedical Engineering and Biomedical Systems Modelling**

★3 (fi 6) (second term, 3-0-0). Introduces the broad field of biomedical engineering while focussing on the quantitative methods and modelling in key areas that emphasize the similarities between biomedical and conventional engineering science. Topics could include but may not be restricted to electrical properties of excitable tissue, particularly nerve and muscle, biofluid mechanics of the cardiovascular system, control of human posture and locomotion. Intended primarily for undergraduate students of the Engineering program. Students from other faculties must obtain the consent of the Department of Biomedical Engineering. Prerequisite: BME 210.

### Graduate Courses

#### **0 BME 513 Imaging Methods in Medicine**

★3 (fi 6) (second term, 3-0-0). Introduction to basic physical and technological aspects of medical imaging. Emphasis on computed transmission and emission tomography, magnetic resonance, and ultrasound imaging. These methods are developed and contrasted in terms of how imaging information is generated, detected, and processed and how different hardware configurations and other factors limit image quality. Relative diagnostic potential of the imaging methods is also discussed in relation to future prospects of each method.

#### **BME 529 Statistics for Biomedical Engineering**

★3 (fi 6) (second term, 3-0-0). This course is intended to be practical rather than theoretical, and is directed toward biomedical engineering students. Topics consist of two-sample comparisons using t-tools and alternatives; analysis of variance and multiple comparison procedures; linear regression models; time series models; tools for multivariate data; logistic regression; elements of research design. An attempt will be made to tailor examples and, if possible, topics to students' areas of interest. Prerequisite: an introductory course in statistics and consent of Department. Available to students in a biomedical engineering program only except by special permission.

#### **BME 530 Topics in Biomedical Engineering**

★3 (fi 6) (either term, 3-0-0). Individual sections covering such topics as signal processing and rehabilitation engineering. Prerequisite: consent of Instructor.

#### **BME 541 Biomaterials in Medicine**

★3 (fi 6) (first term, 3-0-0). This course is intended for graduate and advanced undergraduate students interested in biomaterials science. Students from the faculties of Medicine, Pharmacy and Pharmaceutical Sciences, and Engineering are suitable to participate in this course. The first half of the course concentrates on biomaterials currently used in medicine. The second half of the course aims to familiarize the students with the current research activity in the field. Prerequisite: consent of Instructor.

#### **0 BME 553 Rehabilitation Engineering: Assisted Movement after Injury**

★3 (fi 6) (second term, 3-0-3/2). Introduction to rehabilitation techniques for assisting individuals with physical disabilities to reach, stand and walk. Biomechanics of intact and pathological movements and the use of assistive devices such as exoskeletal orthotics, neuroprosthetic devices and locomotor training are emphasized. Students are trained in biomechanical modeling, motion analysis, electrical stimulation, control systems, neuroregeneration, and pharmacology. Students also have the opportunity to participate in clinical case demonstrations and gain experience in human movement measurement and analysis techniques. Prerequisite: BME 210, 310 and consent of instructor.

#### **BME 555 Anatomy and Physiology for Engineers**

★3 (fi 6) (second term, 3-0-0). A broad view of human anatomy and physiology, particularly as it pertains to biomedical engineering and bioinstrumentation. Certain aspects of human pathology are discussed to emphasize the range of adaptations possible in biological structure and function. Prerequisite: consent of Department. Available to students in a biomedical engineering program only except by special permission.

#### **BME 564 Fundamentals of Magnetic Resonance Imaging, MRI**

★3 (fi 6) (second term, 3-0-0). Designed for graduate and advanced undergraduate students requiring a thorough grounding in the fundamentals of imaging by means of nuclear magnetic resonance, NMR. Topics include the principles of nuclear magnetic resonance as applied to imaging, image processing, imaging techniques for achieving specific types of contrast, image artifacts, and typical applications. Prerequisite: consent of Instructor.

#### **BME 579 Topics in Medical Physics**

★3 (fi 6) (either term, 3-0-0). Individual sections dealing with such topics as computed tomography, nuclear magnetic resonance, therapeutic radiation. Prerequisite: consent of Instructor.

**BME 599 Project in Biomedical Engineering**

★3 (*fi 6*) (either term, 0-0-6). Practical application of science to problems in health care; involves report on problem and alternative solutions, plus complete demonstration and documentation of chosen solution. Prerequisite: Any BME course and consent of Department.

**BME 600 Seminars in Biomedical Engineering**

★2 (*fi 4*) (two term, 0-1s/2-0). Series of seminars exposing graduate students to the various areas of research and providing a forum for progress reports in individual areas. Seminars by research workers from inside and outside the University are included. Seminars are informal with ample opportunity for discussion.

**BME 630 Advanced Topics in Biomedical Engineering**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: consent of Department.

**BME 675 Magnetic Resonance in Biology and Medicine**

★3 (*fi 6*) (first term, 3-0-0). Physical principles behind the application of nuclear magnetic resonance spectroscopy in fields from biochemistry to medicine. Topics include Fourier transform NMR, multiplex techniques, two-dimensional NMR, relaxation theory, in vivo spectroscopy, NMR imaging. Designed for advanced students interested in the application of NMR to biological systems. Offered in alternate years. Prerequisite: consent of Instructor.

**BME 679 Advanced Topics in Medical Physics**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: consent of Department.

## 221.65 Botany (Biological Sciences), BOT

Department of Biological Sciences  
Faculty of Science

**Notes**

- See the following sections for listings of other Biological Sciences courses: Bioinformatics (BIOIN); Biology (BIOL); Entomology (ENT); Genetics (GENET); Microbiology (MICRB); Zoology (ZOO).
- See the following sections for listings of other relevant courses: Interdisciplinary Studies (INT D); Immunology and Infection (IMIN); Marine Science (MA SC); Paleontology (PALEO).

### Undergraduate Courses

**0 BOT 205 Fundamentals of Plant Biology**

★3 (*fi 6*) (first term, 3-0-3). An overview of the diversity and biology of organisms traditionally included in the Plant Kingdom (algae, fungi, lichens, mosses, ferns, gymnosperms and flowering plants). Emphasis throughout the course is on the relationship between structural and functional innovations in plants and how these have influenced their reproduction and evolution in various ecosystems. Symbioses and co-evolutionary relationships between or among different kinds of plants, and with other groups of organisms, are also considered. Prerequisite: BIOL 108.

**0 BOT 210 Biology of Land Plants**

★3 (*fi 6*) (second term, 3-0-3). Comparative survey of vascular plants and bryophytes focusing on their morphology, classification and phylogeny. Emphasis on living plant groups with some paleobotanical evidence presented. Prerequisite: BIOL 108.

**0 BOT 240 Whole Plant Physiology**

★3 (*fi 6*) (first term, 3-0-3). Introductory general course on water and energy relations, evapotranspiration, mineral nutrition, membrane transport, ascent of sap, translocation, net assimilation, growth, development, hormone action, and stress. Prerequisites: BIOL 107; CHEM 101 or 161 or 263.

**0 BOT 303 Plant Development**

★3 (*fi 6*) (second term, 3-0-3). The generation of a functional plant requires the spatially coordinated acquisition of numerous cell identities. Examines developmental processes in plants at the molecular and cellular level and will cover: body axis establishment and tissue pattern formation during embryogenesis, cell-to-cell communication in patterning events and differentiation processes, and cell differentiation patterns in tissue systems. Emphasis throughout the course will be on current research using developmental mutants. Prerequisites: BIOL 201 and 207; one of BOT 205, 210 or 240 strongly recommended.

**0 BOT 306 Biology of the Fungi**

★3 (*fi 6*) (second term, 3-0-3). The Kingdom Fungi, including yeast, molds, mushrooms, rusts, smuts, mildews, etc., is one of the most diverse groups of living organisms and plays important roles in nutrient cycling in ecosystems, pathogenesis in plants and animals, industrial processes, etc. This course offers a systematic overview of the morphology and ecology of fungi and the relevance of these organisms to human affairs. Laboratories offer a selection of fungi for detailed study and permit students to develop and identify pure cultures of fungi from soil, wood and other materials. Prerequisites: BIOL 108 and a 200-level Biological Sciences course. BOT 205 recommended.

**0 BOT 308 Plant Anatomy**

★3 (*fi 6*) (first term, 3-0-3). Seed plant structure and development with particular emphasis on flowering plants. The course covers origin, development, and function

of meristems (apical, primary, and lateral), tissue and organ development, wood structure and identification, floral anatomy, embryogenesis, and fruit structure. Prerequisites: BIOL 108. BOT 205 recommended. May not be taken for credit if credit already obtained in BOT 209 or 309.

**0 BOT 310 Morphology and Evolution of Seed Plants**

★3 (*fi 6*) (first term, 3-0-3). The seed was one of the major innovations in land plant evolution. Since their origin in the Devonian Period, seed plants have become the dominant group on land. This course examines the origins, early evolution and subsequent diversity of seed plant groups with an emphasis on morphology. Only a small fraction of the diversity of seed plants remains today. This course frames the diversity of living seed plant groups (Cycads, Ginkgos, Gnetophytes, Conifers and Angiosperms) in terms of a much greater fossil record. Prerequisite: BOT 210 or consent of Instructor. BOT 205 recommended. Offered in odd-numbered years.

**0 BOT 314 Biology of Bryophytes**

★3 (*fi 6*) (first term, 3-0-3). Hornworts, liverworts and mosses (bryophytes) are basal groups of land plants that are pivotal in the evolution, adaptation, and diversification of life in terrestrial environments. In addition, their diminutive size, relative structural simplicity and a dominant haploid generation have made bryophytes useful as model organisms for studies of plant function, development, and molecular biology. Lectures and labs will explore the biological diversity and provide a phylogenetic overview of these groups with an emphasis on species found in western Canadian environments. Prerequisite: BIOL 108 and a 200-level Biological Sciences course. BOT 205 and 210 recommended. May not be taken for credit if credit already obtained in BOT 305.

**0 BOT 321 Flowering Plants**

★3 (*fi 6*) (second term, 3-0-3). Modern approaches to the classification and evolution of the flowering plants. The diversity and relationships of the angiosperms are examined from a phylogenetic perspective. Topics include practical and theoretical aspects of species description, nomenclature and phylogeny interpretation, with a focus on the characteristics and significance of the major families of flowering plants in Alberta and from around the world. Prerequisite: BIOL 108. BOT 205 recommended. May not be taken for credit if credit already obtained in BOT 220 or 320.

**0 BOT 322 Field Botany**

★3 (*fi 6*) (first term, 3-0-3). Lectures, laboratory, and field exercises provide an introduction to description and identification of plants and their local habitats. Factors affecting variation in natural vegetation and methods used to describe it are discussed. Field exercises and projects take place during the two weeks preceding the fall term and some may take place off campus. Presentations take place during the first four weeks of class time in September. Prerequisites: BIOL 108 and any 200-level Biology course. (BOT 321 is strongly recommended). May not be taken for credit if credit already obtained in BOT 304.

**0 BOT 330 Biodiversity and Ecosystem Function of Algae**

★3 (*fi 6*) (second term, 3-0-3). The remarkable biodiversity of algae provides the foundation for most aquatic ecosystems around the world. This course emphasizes the evolution, taxonomy, and ecology of major groups of algae to illustrate relationships between their form and function in pristine and polluted environments. Laboratories will focus on the taxonomic diversity of algae through the use of field surveys of local streams and lakes, and experiments using our extensive algal culture collection. Prerequisite: 200-level Biology course. Both BOT 205 and BIOL 208 recommended.

**0 BOT 332 Plant Ecology**

★3 (*fi 6*) (first term, 3-0-3). Study of the local factors, which limit plant growth, reproduction, and diversity. Particular emphasis on the mechanisms by which plants interact with their local environment and the effects of these interactions on diversity and community functioning. Specific topics include plant foraging, germination ecology, mechanisms of competition and facilitation, patterns of diversity, and community stability. Prerequisites: BIOL 208, STAT 151, and any university MATH course. BOT 205 recommended.

**0 BOT 350 Plant Biochemistry**

★3 (*fi 6*) (first term, 3-0-0). Introduction to biochemistry of higher plants. Emphasis on plant-specific metabolic processes, and their regulation and molecular biology. Topics include structural and storage carbohydrates, lipid metabolism, nitrogen fixation and assimilation, photosynthetic processes, and secondary plant metabolites and their ecological functions. Prerequisites: BIOCH 200 or BIOCH 203 or 220. BOT 205 recommended. May not be for credit if credit already obtained in BOT 250.

**0 BOT 380 Drug Plants**

★3 (*fi 6*) (second term, 3-0-0). Survey of historical and current use of important drug-producing plants. Evaluation of the chemistry and physiology of biologically active compounds from poisonous, analgesic, and hallucinogenic plants, and the current uses of such plant products. Use of plant biotechnology to develop drug-producing plants. Prerequisite: A 200-level Biological Sciences course. BOT 205 recommended.

**0 BOT 382 Plant Biotechnology**

★3 (*fi 6*) (either term, 3-0-0). Using examples from current research, techniques used in modern plant biotechnology and the way this technology is being used

to modify and improve economically important plants will be discussed. Specific topics will include; gene isolation, plant transformation, plant tissue culture, clonal plant propagation, and somatic embryogenesis. Prerequisite: BIOL 107 and a 200-level Biological Sciences course. BOT 205 recommended.

#### **0 BOT 384 Global Change and Ecosystems**

★3 (*fi 6*) (second term, 3-0-0). Ecological impacts of climate change and large-scale human activities on terrestrial and aquatic ecosystems. The focus of this course is to learn to write brief technical summaries of current environment issues, in a fashion that can be understood by an educated citizen. Topics such as climate change, water management projects, invasion of exotic species and national parks management are presented as the forum to evaluate options, trade-offs and solutions to environmental social issues. Prerequisites: BIOL 208 or consent of Instructor. BOT 205 recommended.

#### **0 BOT 403 Plant Molecular Development**

★3 (*fi 6*) (first term, 3-0-0). Recent advances in plant cell and molecular biology are introduced through a study of plant development at the molecular level. The course examines how developmental processes can be used as model systems to study the nature and pattern of gene expression in higher plants. Current research on the developmental biology of angiosperm and conifer seeds will be discussed. Prerequisite: BOT 382 or GENET 364. BOT 303 recommended. Offered in odd-numbered years. Credit cannot be obtained for both INT D 455 and BOT 403.

#### **0 BOT 409 Advanced Plant Anatomy**

★3 (*fi 6*) (second term, 3-0-0). Lecture/discussion course dealing with advanced topics in plant structure and development. Prerequisite: BOT 308. Offered in even numbered years.

#### **0 BOT 411 Paleobotany**

★3 (*fi 6*) (first term, 3-0-3). The fossil record of plants as it relates to the evolutionary history of existing groups. Prerequisite: A 300-level Biological or Earth Sciences course and BOT 205 or 210 or consent of Instructor. Offered in even-numbered years.

#### **0 BOT 431 Physiological Ecology**

★3 (*fi 6*) (first term, 3-0-3). Application of ecophysiological theory and practice of the study of plant responses to increasing carbon dioxide levels and increased irradiance of ultraviolet-B light. Experimental work includes demonstrations and individual projects making use of the phytotron facility. Seminars involve the discussion of significant research papers in the discipline. Prerequisites: A 200-level course in Plant Physiology and a senior course in Ecology. Offered in odd-numbered years.

#### **0 BOT 445 Plant Molecular Physiology**

★3 (*fi 6*) (second term, 3-0-0). Molecular and cellular biology of plants, with emphasis on signaling and regulation of gene expression mediating physiological responses of plant cells. Topics covered include molecular responses to light, nutrients, and environmental cues, action of plant growth regulators, and regulation of metabolism. Prerequisite: BOT 382 or GENET 364. BOT 240 recommended. Offered in even-numbered years.

## Graduate Courses

### Notes

- (1) All 300- and 400-level courses in the Department of Biological Sciences may be taken for credit (except for BIOL 490, 498 and 499) by graduate students with approval of the student's supervisor or supervisory committee.
- (2) The following courses may be taken as an option in graduate programs in the Department of Biological Sciences with approval of the student's supervisor or supervisory committee. BIOCH 510, 520, 530, 541, 550, 555, 560; CHEM 361, 363, 461; CELL 300, 301; IMIN 371, 372, 452; INT D 421; MA SC 400, 401, 402, 410, 412, 420, 425, 430, 437, 440, 445, 470, 480; MMI 405, 415, 520; NEURO 472; NU FS 363; PALEO 318, 319; PHARM 601.

#### **BOT 506 Advanced Mycology**

★3 (*fi 6*) (second term, 1-3s-0). Reports and discussion of major and current research in the biosystematics and ecology of the fungi. Evaluation of methods of investigation in these areas. Offered in odd-numbered years.

#### **BOT 511 Advanced Paleobotany**

★3 (*fi 6*) (second term, 3-0-3). Special problems in paleobotany involving laboratory techniques and readings of current literature and oral written presentation. Offered in odd-numbered years.

#### **BOT 600 Seminar in Plant Biology**

★1 (*fi 2*) (either term, 0-2s-0). Credit for this course may be obtained more than once.

## 221.66 Business, BUS

Department of Strategic Management and Organization  
Faculty of Business

**Note:** Enrolment in all BUS courses is restricted to students registered in the Faculty of Business, or to students registered in specified programs that require Business courses to meet degree requirements and who have obtained prior approval of their Faculty.

## Undergraduate Courses

### **BUS 201 Introduction to Canadian Business**

★3 (*fi 6*) (first term, 2-0-1.5). Provides students with an introduction to the Faculty and the functional areas of business. Students improve computer, presentation, leadership and group skills. Areas covered include introductions to statistics and research and selected areas from accounting, finance, information systems, marketing, operations, strategic management and others. Open only to students in the Faculty of Business.

### **BUS 490 Business Competition Part I**

★1.5 (*fi 3*) (either term, 0-1.5s-0). Preparation for Student Competition in Business. Prerequisite: consent of Instructor.

### **BUS 491 Business Competition Part II**

★1.5 (*fi 3*) (either term, 0-1.5s-0). Completion of Student Competition in Business. Prerequisite: BUS 490 and consent of Instructor.

## Graduate Courses

### **BUS 601 Business Practicum**

★3 (*fi 6*) (two term, 3-0-0). Students are divided into groups and the groups are assigned a project in either a business or government organization. At the end of the course each group is required to write a report and to make a presentation derived from the project to the other groups in the course. Prerequisite: All required Year 1 MBA core courses.

### **BUS 615 Biotechnology Law**

★2 (*fi 4*) (either term, 0-2s-0). An introduction to the major legal and related issues confronting the growth of the health technology industries. Students are exposed to (1) regulatory requirements for commercial production of and the protection afforded to the creation of medical devices, products and compounds, and (2) issues of experimentation and ethical aspects of research. Offered in conjunction with the Faculty of Law.

### **BUS 686 Selected Topics in Business**

★3 (*fi 6*) (either term, 3-0-0). Topics in this course may vary from year to year and are chosen at the discretion of the Instructor.

### **BUS 701 Qualitative Methodology for Business Research**

★3 (*fi 6*) (either term, 3-0-0). Examines qualitative research methods as they apply to business research. Includes: the terrain and history of qualitative research, exploring different approaches to qualitative research, designing qualitative research, strategies of inquiry, qualitative data analysis, writing up research, and professional and ethical issues. Prerequisite: Registration in Business PhD Program or written permission of instructor. Approval of the Business PhD Program Director is also required for non-PhD students.

### **BUS 855 International Study Tour**

★3 (*fi 16*) (second term, 18 hours). A week-long intensive course. Understanding the challenges facing local companies in their environment, for example, Asia or Eastern Europe. An on-site visit to the location is included. Restricted to Executive MBA students only.

### **BUS 860 Special Topics**

★3 (*fi 32*) (first term, 3-0-0). Topics will vary from year to year. Restricted to Executive MBA students only.

### **BUS 875 Special Topics**

★3 (*fi 32*) (second term, 3-0-0). Topics will vary from year to year. Restricted to Executive MBA students only.

### **BUS 880 Business Project**

★3 (*fi 32*) (first term, 3-0-0). Students are required to conduct an operations audit on a client company and prepare a business plan. The company selected could be the student's own organization or an unit within the organization. Restricted to Executive MBA students only.

### **BUS 885 Business Project**

★3 (*fi 32*) (second term, 3-0-0). Students will complete a custom-designed project for a client company under faculty supervision. Restricted to Executive MBA students only.

### **BUS 900 Directed Research Project**

★3 (*fi 6*) (variable, unassigned).

## 221.67 Business Economics, BUEC

Departments of Marketing, Business Economics, and Law  
Faculty of Business

**Note:** Enrolment in all BUS courses is restricted to students registered in the Faculty of Business, or to students registered in specified programs that require Business courses to meet degree requirements and who have obtained prior approval of their Faculty.



## Undergraduate Courses

### BUEC 311 Business Economics, Organizations and Management

★3 (fi 6) (either term, 3-0-0). Business organizations as systems of mutually reinforcing functional areas where decision making is driven by underlying economic forces. Application of economic theory to facilitate complex decision making within organizations: economic models of decision making are linked directly to functional areas of management. Topics include the organization of firms and industries; meeting customer needs; and decision making involving production, resource use, dealing with risk and uncertainty, scale and scope of operations, competitive advantage, and product pricing. Prerequisites: ECON 101, 102, and MATH 113 or equivalent. Students may receive credit for only one of BUEC 301, BUEC 311, MANEC 301 or ECON 383. Not open to students with previous credit in ECON 281.

### BUEC 342 Introduction to International Business

★3 (fi 6) (either term, 3-0-0). Provides students with an introduction to the tools they will require to succeed in the increasingly international business world. Serves as a basis for other more advanced courses in International Business. Topics covered could include Country Differences, International Trade, Foreign Direct Investment, Regional Economic Integration, The Foreign Exchange Market and International Business Strategy and Operations. Students may not receive credit for both BUEC 444 and 342.

### BUEC 442 The Global Business Environment

★3 (fi 6) (either term, 3-0-0). Examines the changing global business environment and how it impacts international business decision-making. Topics covered could include Trends in Globalization, International Business in Canada, Managing Multinational Corporations, Importing and Exporting, International Labor Markets and the Market for Skills, International Financial Markets, Financial Crises, and Corporate Governance in Different Countries. Prerequisite: BUEC 342 or consent of Instructor. Students may not receive credit for both BUEC 445 and 442.

### BUEC 448 International Study Tours

★3 (fi 6) (either term, 3-0-0). Combines lectures at the University of Alberta with on-site study tours to a foreign country. The study tour component is normally for a two- to three-week period, during which students participate in company tours, lectures, and language and cultural study to develop an appreciation for different business cultures and contexts. Upon return, students are expected to complete a group project or case study relating to the business environment of the country under study. Normally offered in Spring/Summer only. Prerequisite: Open to students who have completed at least one other international business course in the Faculty of Business.

### BUEC 463 Energy and the Environment: Industry Structure, Performance and Challenges

★3 (fi 6) (either term, 3-0-0). Uses the basic tools of business economics in order to gain a better understanding of energy markets and industries. Differences and similarities between specific industries (oil, gas, electricity, etc.) and between different industry segments (exploration, production, retail, etc.) are highlighted. New challenges faced by the industry, most notably environmental concerns, but also globalization and new forms of competition, are analysed with respect to the impacts that they have had and might have in the future on firms' strategies and on market performance. Prerequisite: BUEC 311.

### BUEC 479 Government and Business in Canada

★3 (fi 6) (either term, 3-0-0). The role of business in the public policy process: how business organizations influence public policy and its administration, and how public policies affect business. Processes of change are of particular interest. Attention is to the motivation, behavior patterns, and the dynamics of the interaction of different stakeholder groups, policy makers, and managers responsible for the implementation of public policies. Develops a framework for analysis of the effectiveness and efficiency of different fiscal, regulatory, and promotional policies; consideration is given to the impact of technological, economic, and social change on policy choice in the long term. Prerequisite: BUEC 311.

### BUEC 488 Selected Topics in Business Economics

★3 (fi 6) (either term, 3-0-0). Normally restricted to third- and fourth-year Business students. Prerequisites: BUEC 311, ECON 281, or consent of Department. Additional prerequisites may be required.

### BUEC 490 Business Economics Competition Part I

★1.5 (fi 3) (either term, 0-1.5s-0). Preparation for Student Competition in Business Economics. Prerequisite: consent of Instructor.

### BUEC 491 Business Economics Competition Part II

★1.5 (fi 3) (either term, 0-1.5s-0). Completion of Student Competition in Business Economics. Prerequisite: BUEC 490 and consent of Instructor.

### BUEC 495 Individual Research Project I

★3 (fi 6) (either term, 3-0-0). Special study for advanced undergraduates. Prerequisites: consent of Instructor and Assistant Dean, Undergraduate Program.

### BUEC 496 Individual Research Project II

★3 (fi 6) (either term, 3-0-0). Special Study for advanced undergraduates.

Prerequisites: BUEC 495, consent of the Instructor and Assistant Dean, Undergraduate Program.

### BUEC 497 Individual Research Project III

★3 (fi 6) (either term, 3-0-0). Special Study for advanced undergraduates. Prerequisites: BUEC 496, consent of the Instructor and Assistant Dean, Undergraduate Program.

## Graduate Courses

### BUEC 502 Managerial Microeconomics

★3 (fi 6) (either term, 3-0-0). Focuses on economic decision making at the level of the firm and consumer, utilizing demand and supply analysis to help understand a variety of economic and managerial issues. Formal models of managerial economic problems will be developed and used for purposes of analysis. Also deals with public economics, regulatory economics and introduces issues of information economics and strategic behavior. The theory of public choice and public goods will be used to analyze a variety of public economic issues. Credit will not be given for both BUEC 501 and 502.

### BUEC 512 Macroeconomics for Managers

★1.5 (fi 3) (either term, 18 hours). Measuring macroeconomic variables, sources of economic growth, business cycles, interest rates, exchange rates, government debt, and other topics. Offered in a six-week period. Prerequisite: BUEC 501 or 502.

### BUEC 541 Introduction to International Business

★1.5 (fi 3) (either term, 18 hours). Provides students with an introduction to the tools they will require to succeed in the increasingly international business world. Serves as a basis for other more advanced courses in International Business, covering such topics as Country Differences, International Trade, Foreign Direct Investment, Regional Economic Integration, The Foreign Exchange Market and International Business Strategy and Operations. Prerequisites: BUEC 501 or 502, and 512.

### BUEC 560 Energy Technology and Institutions

★1.5 (fi 3) (either term, 18 hours). An introduction to the physical and institutional realities of the energy sector. Topics include production, distribution, and marketing issues related to oil and gas and electricity. Canadian public policy processes and regulatory issues relating to the energy sector are also addressed. Offered in a six-week period. Prerequisite: BUEC 502 or 511.

### BUEC 562 Environmental Economics

★1.5 (fi 3) (either term, 18 hours). The economic theory of externalities and how alternative policy instruments such as taxes, tradable permits and regulatory standards are used to deal with externalities. Topics include current environmental issues such as competing in land uses, toxic emissions, water pollutions, Sulphur Dioxide and climate change. Environmental policies and policy debates are also discussed. Offered in a six-week period. Prerequisite: BUEC 502 or 511.

### BUEC 586 Selected Topics in Business Economics

★1.5 (fi 3) (either term, 3-0-0). Topics in this seminar may vary from year to year and are chosen at the discretion of the Instructor.

### BUEC 646 The Global Business Environment

★3 (fi 6) (either term, 3-0-0). Examines the changing global business environment and how it impacts international business decision-making. Covers such topics as Trends in Globalization, International Business in Canada, Managing Multinational Corporations, Importing and Exporting, International Labor Markets and the Market for Skills, International Financial Markets, Financial Crises, and Corporate Governance in Different Countries. Prerequisite: BUEC 541 or consent of Instructor.

### BUEC 654 Asian Economies, Business and Management

★3 (fi 6) (either term, 3-0-0). Examines the key institutional arrangements that characterize the Asian economies, business arrangements and management practices. The role of financial arrangements, labour markets, trade patterns and industrial policy in the development of the Asian economies will be analyzed. Implications for doing business in the region will be studied. Prerequisite: BUEC 512.

### BUEC 663 Natural Resources and Energy Capstone

★3 (fi 6) (either term, 3-0-0). A project-focused course dealing with market, business and policy issues and challenges in the natural resources and energy sectors. The specific content and issues addressed can change from year to year as a function of the evolution of markets and business activities. Involves some lectures supplemented by visiting speakers. The core course activity is a group project focused on a specific industry or business challenge. Prerequisites: BUEC 502 or 511, and 560 and 562.

### BUEC 670 International Film, Television and New Media Business

★3 (fi 6) (either term, 3-0-0). This course looks at how the international feature film, television and new media business works. The basic for US competitive advantage and dominance is analyzed. Corporate competitive strategy and public policy responses to this dominance are examined.

### BUEC 678 Managing Business-Government Relations in Canada

★3 (fi 6) (either term, 3-0-0). The role of business in the public policy process: How business organizations influence public policy and its administration, and

how public policies affect business. Processes of change are of particular interest. Attention is placed on the motivation, behavior patterns, and the dynamics of the interaction of different stakeholder groups, policy makers, and managers responsible for the implementation of public policies. Develops a framework for analysis of the effectiveness and efficiency of different fiscal, regulatory, and promotional policies; consideration is given to the impact of technological, economic, and social change on policy choice in the long run. Prerequisites: BUEC 501 and 511 (or 502), and 512.

#### **BUEC 686 Selected Topics in Business Economics**

★3 (*fi 6*) (either term, 3-0-0). Topics in this seminar may vary from year to year and are chosen at the discretion of the Instructor.

#### **BUEC 820 Business Economics**

★3 (*fi 32*) (first term, 3-0-0). Outlining the main schools of economic theory, macroeconomic tools and the effects of macroeconomic policy on business performance; reviewing decision-making processes of individual firms, as well as consumer behavior, price theory, marginal analysis, and forms of competition. Restricted to Executive MBA students only.

#### **BUEC 850 Business/Government Interface**

★1.5 (*fi 16*) (first term, 18 hours). A week-long intensive course. Understanding trends affecting business decision making; the regulatory environment; business/government interfaces; and the management of public affairs. Restricted to Executive MBA students only.

#### **BUEC 860 International Business**

★3 (*fi 32*) (first term, 3-0-0). Understanding the globalization of business, international trade and trading blocks; planning for market entry and development; exporting, joint ventures, direct investment; developing the skills of an international manager. Restricted to Executive MBA students only.

## 221.68 Business Law, B LAW

Departments of Marketing, Business Economics, and Law  
Faculty of Business

**Note:** Enrolment in all B LAW courses, except B LAW 301, is restricted to students registered in the Faculty of Business, or to students registered in specified programs that require Business courses to meet degree requirements and who have obtained prior approval of their Faculty.

### Undergraduate Courses

#### **B LAW 301 Legal Foundations of the Canadian Economy**

★3 (*fi 6*) (either term, 3-0-0). Synoptic view of Canadian legal system, with emphasis on underlying considerations of social policy. While considering the nature, sources, philosophy, and policy objectives of the law, selected topics from the fields of tort and contract will be analyzed. Credit will be granted for only one of B LAW 301 and ENGG 420.

#### **B LAW 402 Business Contracts**

★3 (*fi 6*) (either term, 3-0-0). Examination of the special types of contracts that are encountered in business and commercial life. Topics include contract of sale, agency, negotiable instruments, insurance, bailment, employment contracts and contracts involving land as well as societal regulation of the freedom of contract. Prerequisite: B LAW 301 or ENGG 420.

#### **B LAW 403 Commercial Transactions**

★3 (*fi 6*) (either term, 3-0-0). Integrated analysis of the legal principles applying to commercial transactions, including an examination of the statutes and case law governing the sale of goods, conditional sale and chattel mortgages. Prerequisite: B LAW 301 or ENGG 420.

#### **B LAW 422 Law of Business Organizations**

★3 (*fi 6*) (either term, 3-0-0). Introduction to the role of the corporation in the business and commercial life of Canada and Alberta, with emphasis on the small private company. Topics include characteristics of corporate existence, process of incorporation, forming a private company, relationship with third parties, distinction between management and ownership, duties of directors and officers, and shareholder rights. Prerequisite: B LAW 301 or ENGG 420.

#### **B LAW 428 Natural Resource and Environmental Law**

★3 (*fi 6*) (either term, 3-0-0). The legal framework in which managerial decisions affecting the environment are taken. Substance of environmental law and the procedures for enforcing it. Interaction of this legal approach with business strategies for dealing with environmental issues is analyzed. Prerequisite: B LAW 301 or ENGG 420.

#### **B LAW 432 The Legal Regulation of Business**

★3 (*fi 6*) (either term, 3-0-0). An examination of the principles of law that underlie the administrative regulation of business by governmental agencies. A representative agency from each of the three levels of government will be analysed to determine how it is created, what powers it possesses, how it uses its powers and how its powers are constrained. Prerequisite: B LAW 301 or ENGG 420.

#### **B LAW 442 International Business Law**

★3 (*fi 6*) (either term, 3-0-0). Study of the law regulating the conduct of international business transactions. This includes trade law (GATT, commodity agreements, economic integration, national rules); finance law (IMF, OECD, ICSID, multinationals, promotion and financing of world trade); and commercial law (payment mechanisms, international commercial contracts, UN Convention on the International Sale of Goods, settlement procedures, pertinent national and international laws). Prerequisite: Open to third-year and fourth-year students.

#### **B LAW 444 International Business Transactions**

★3 (*fi 6*) (either term, 3-0-0). An overview of current international business patterns and the laws surrounding such patterns, with an emphasis on what makes them different from domestic ones. A major force underlying the internationalization of the world economy has been the rapid, sustained growth of international business, both in the traditional form of international trade and in the newer forms of multinational, global and transnational business. This course is designed to provide the student with a basic understanding of the major rules governing cross-border commercial transaction in the contexts of both substantive and procedural law.

#### **B LAW 488 Selected Topics in Business Law**

★3 (*fi 6*) (either term, 3-0-0). Normally restricted to third- and fourth-year Business students. Prerequisites: B LAW 301 or consent of department. Additional prerequisites may be required.

#### **B LAW 490 Business Law Competition Part I**

★1.5 (*fi 3*) (either term, 0-1.5s-0). Preparation for Student Competition in Business Law. Prerequisite: consent of Instructor.

#### **B LAW 491 Business Law Competition Part II**

★1.5 (*fi 3*) (either term, 0-1.5s-0). Completion of Student Competition in Business Law. Prerequisite: B LAW 490 and consent of Instructor.

#### **B LAW 495 Individual Research Project I**

★3 (*fi 6*) (either term, 3-0-0). Special study for advanced undergraduates. Prerequisites: consent of Instructor and Assistant Dean, Undergraduate Program.

#### **B LAW 496 Individual Research Project II**

★3 (*fi 6*) (either term, 3-0-0). Special Study for advanced undergraduates. Prerequisites: B LAW 495, consent of the Instructor and Assistant Dean, Undergraduate Program.

#### **B LAW 497 Individual Research Project III**

★3 (*fi 6*) (either term, 3-0-0). Special Study for advanced undergraduates. Prerequisites: B LAW 496, consent of the Instructor and Assistant Dean, Undergraduate Program.

### Graduate Courses

#### **B LAW 628 Natural Resource and Environmental Law**

★3 (*fi 6*) (either term, 3-0-0). The course considers the legal framework in which managerial decisions affecting the environment are taken. It looks at the substances of environmental law and the procedures for enforcing it. The interaction of this legal approach with business strategies for dealing with environmental issues is analyzed.

#### **B LAW 642 International Business Law**

★3 (*fi 6*) (either term, 3-0-0). Deals with the international law that provides the regulatory and transactional context in which international commerce takes place. A major force underlying the internationalization of the world economy has been the rapid, sustained growth of international business, both in the traditional form of international trade and in the newer forms of multinational, global and transnational business. Provides an overview of the international economic order, including the law of the World Trade Organization, and examines the rules with respect to contractual obligations, tariffs, quantitative restrictions, subsidies, discrimination, dispute settlement, government procurement and other matters that concern international trade in both goods and services. The international regulation of direct investment, financial flows and multinationals may also be addressed.

#### **B LAW 686 Selected Topics in Business Law**

★3 (*fi 6*) (either term, 3-0-0). Topics may vary from year to year and are chosen at the discretion of the instructor.

## 221.69 Canadien-français, CA FR

Faculté Saint-Jean

### Cours de 1er cycle

#### **0 CA FR 320 Les francophonies canadiennes et acadiennes I: perspectives historiques et culturelles**

★3 (*fi 6*) (l'un ou l'autre semestre, 3-0-0). Les fondements et l'évolution des communautés francophones et acadiennes du Canada, du Régime français à

aujourd'hui, par l'étude de textes littéraires, historiographiques et ethnologiques. Un aperçu de leurs traditions orales, de leurs pratiques culturelles et des rapports avec les cultures avoisinantes: Autochtones, Loyalistes, Irlandais, etc. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ETCAN 322.

**O CA FR 322 Les francophonies canadiennes et acadiennes II: perspectives idéologiques et politiques**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). La civilisation et la culture du Canada français et de l'Acadie, du Régime français à nos jours, par l'étude des idéologies politiques et des procédés juridiques régissant leur développement et leurs modes de communication collective. Le statut ambivalent de majoritaire/minoritaire vu à travers le prisme du post-colonialisme et du multiculturalisme. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ETCAN 322.

**O CA FR 350 Panorama de la littérature canadienne-française**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Littérature canadienne-française, des origines à nos jours, vue à travers un choix d'oeuvres dominantes marquant les diverses périodes de son évolution. Préalable(s): FRANC 235.

**O CA FR 465 La poésie canadienne-française du XXe siècle**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). L'évolution de la poésie canadienne-française de Saint-Denis Garneau à l'époque contemporaine. Préalable(s): FRANC 235 et ★3 en littérature de niveau 300, préférablement CA FR 350.

**O CA FR 466 Le théâtre canadien-français du XXe siècle**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). L'évolution du théâtre canadien-français de Gratien Gélinas à l'époque contemporaine. Préalable(s): FRANC 235 et ★3 en littérature de niveau 300, préférablement CA FR 350. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ADRAM 466.

**O CA FR 470 Le roman canadien-français du XXe siècle**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Le roman canadien-français depuis la génération de 1890 jusqu'à la naissance du nouveau roman, vu à travers les plus grands romanciers de cette période. Préalable(s): FRANC 235 et ★3 en littérature de niveau 300, préférablement CA FR 350.

**O CA FR 480 Choix de sujet**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Préalable(s): FRANC 225, 235 et ★3 en littérature de niveau 300.

**O CA FR 485 Ecriture au féminin dans la littérature québécoise ou canadienne d'expression française**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). L'étude de textes critiques et littéraires dans le but de cerner le concept d'écriture au féminin. Préalable(s): FRANC 235 et ★3 en littérature de niveau 300. Recommandé: CA FR 350.

## 221.70 Cell Biology, CELL

Departments of Biological Sciences and Cell Biology  
Faculties of Medicine and Dentistry; and Science

### Undergraduate Courses

**O CELL 201 Introduction to Molecular Cell Biology**

★3 (fi 6) (second term, 3-0-0). An introductory Cell Biology course suitable for students interested in pursuing Cell Biology specialization/honors. This course focuses on the molecular aspects of modern cell biology. Topics covered include the nucleus and gene expression; membrane structure and function; signal transduction; organelle biogenesis; cytoskeleton and cell motility; cell adhesion; the cell cycle, cancer; differentiation and stem cell technology. Reference will be made to key investigations and new technologies that have defined modern cell biology. Prerequisite: BIOL 107. Pre - or corequisite: CHEM 161 or 261. Note: Not to be taken by students with credit in BIOL 201, in addition, not available to students currently enrolled in BIOL 201.

**O CELL 300 Advanced Cell Biology I**

★3 (fi 6) (first term, 3-0-0). Senior course studying various topics in modern molecular cell biology emphasizing the design of experiments, the interpretation of their results and the extrapolation of their findings. Examines aspects of eukaryotic cell structure and function. Includes, but not restricted to, areas such as intracellular signaling, protein targeting and organelle biogenesis, and cell-cell interactions. Makes extensive use of current literature to illustrate important concepts. Prerequisites: BIOL 201 or CELL 201 and BIOCH 200.

**O CELL 301 Advanced Cell Biology II**

★3 (fi 6) (second term, 3-0-0). Continuation of CELL 300, covering topics from CELL 300 in greater depth and recent developments in cell biology. Intended for, but not restricted to, students in the Cell Biology Honors and Specialization programs.

**CELL 398 Research Project**

★3 (fi 6) (either term, 0-0-3). Directed research carried out in the laboratory of an assigned member of a department participating in the Cell Biology Program. Credit may be obtained for this course only once. Successful completion requires

a written report. Open only to 3rd year students. Prerequisite: CELL 300 and consent of the department. Students with a 300-level Biological Sciences or Biochemistry course may be considered at the discretion of the Cell Biology Undergraduate Advisor. Closed to Bear Track registration. Go to Dept website for project information. [www.ualberta.ca/cellbiology](http://www.ualberta.ca/cellbiology)

**CELL 402 The Birth and Death of a Cell**

★3 (fi 6) (second term, 3-0-0). An advanced course dealing with cell differentiation, intracellular and extracellular signaling processes, the cell cycle and apoptosis. Consists of lecture material and small group learning sessions and requires reading and discussion of current research articles. Prerequisites: CELL 300 and/or 301 or consent of Department. Enrolment is limited and registration is by permission of the Department.

**CELL 415 Developmental and Molecular Neurobiology**

★3 (fi 6) (first term, 0-2s-0). This course explores topics in developmental neurobiology, including cell lineage, nerve growth and guidance, myelination, synapse formation, axonal transport, and response to injury. In particular, the course emphasizes theoretical and experimental aspects, the expanding roles of molecular biology in studies in this field, and areas of present and future research. Prerequisite: consent of Department. Note: Offered in odd-numbered years.

**CELL 445 Current Topics in Cell Biology**

★3 (fi 6) (first term, 3-0-0). Appraisal of current literature dealing with recent advances in selected topics in cellular and molecular biology. Intended for fourth-year students in the Cell Biology program. Information is provided in the form of selected readings of current papers, guest lecturers, and through student seminar presentations. Introduces students to current research topics in cellular and molecular biology, and enhances their appraisal and presentation of scientific material. Prerequisites: CELL 300, CELL 301 or permission of Instructor.

**CELL 495 Individual Study**

★3 (fi 6) (either term, 0-0-6). Registration contingent on the student's having made prior arrangements with a Faculty member in a department participating in the Cell Biology Program. Credit may be obtained for this course more than once. Prerequisites: A 300-level CELL, Biological Sciences, or Biochemistry course, and the consent of the Cell Biology Undergraduate Advisor.

**CELL 498 Research Project**

★3 (fi 6) (either term, 0-0-6). Directed research carried out in the laboratory of an assigned member of a department participating in the Cell Biology Program. Credit may be obtained for this course more than once. Successful completion requires a written report. Prerequisite: A 300-level CELL, Biological Sciences, or Biochemistry course and the consent of the Cell Biology Undergraduate Advisor. Go to Dept website for project information. [www.ualberta.ca/cellbiology](http://www.ualberta.ca/cellbiology).

**CELL 499 Research Project**

★3 (fi 12) (two term, 0-0-6). Directed research carried out in the laboratory of an assigned member of a department participating in the Cell Biology Program. The project normally continues through both the Fall and Winter Terms. Successful completion of this course requires a written report and oral presentation on the research project. Prerequisite: A 300-level CELL, Biological Sciences, or Biochemistry course and the consent of the Cell Biology Undergraduate Advisor. Go to Dept website for project information. [www.ualberta.ca/cellbiology](http://www.ualberta.ca/cellbiology)

### Graduate Courses

**CELL 502 The Birth and Death of a Cell**

★3 (fi 6) (second term, 3-0-0). An advanced course dealing with cell differentiation, intracellular and extracellular signaling processes, the cell cycle and apoptosis. Consists of lecture material and small group learning sessions and will require reading and discussion of current research articles. Lectures are the same as for CELL 402 but with additional assignments and evaluation appropriate to graduate studies. May not be taken if credit has already been obtained in CELL 402. Prerequisites: Consent of the Department.

**CELL 515 Developmental and Molecular Neurobiology**

★3 (fi 6) (first term, 0-2s-0). This course explores nine topics in developmental neurobiology, including cell lineage, nerve growth and guidance, myelination, synapse formation, axonal transport, and response to injury. In particular, the course will emphasize theoretical and experimental aspects, the expanding roles of molecular biology in studies in this field, and areas of present and future research. Lectures are the same as for CELL 415 but with additional assignments and evaluation appropriate to graduate studies. This course may not be taken if credit has already been obtained in CELL 415. Prerequisite: consent of Department. Note: Offered in odd-numbered years.

**CELL 545 Current Topics in Cell Biology**

★3 (fi 6) (first term, 3-0-0). Appraisal of current literature dealing with recent advances in selected topics in cellular and molecular biology. Intended for graduate students in the MSc program. Information is provided in the form of selected readings or current papers, guest lecturers and through student presentations. Introduces students to current research topics in cellular and molecular biology and enhances their appraisal and presentation of scientific material. Lectures are the same as for CELL 445 but with additional assignments and evaluation appropriate

to graduate studies. This course may not be taken for credit if credit has already been obtained in CELL 445. Prerequisite: consent of Instructor.

### CELL 614 Molecular Mechanisms of Cellular Regulation

★3 (fi 6) (first term, 0-4s-0). Current appraisal of scientific literature in selected areas of molecular and cellular biology. Information is provided in the form of selected readings of current papers, and through student seminar presentations. The overall goal is to introduce students to current research topics in molecular and cellular biology, and to enhance their abilities in the appraisal and presentation of scientific material. Enrolment is limited to twelve students, early registration is recommended. Permission to register is required from the instructor.

### CELL 671 Recent Advances in Cell Biology

★2 (fi 4) (two term, 0-1s-0). A seminar course on topics of current interest in Cell Biology. Students will attend seminars and contribute a journal club presentation based on recent developments published in first rate journals. Note: Open only to Graduate students in Cell Biology.

### CELL 672 Recent Advances in Cell Biology

★2 (fi 4) (two term, 0-1s-0). A seminar course on topics of current interest in Cell Biology. Students will attend seminars and contribute a presentation on their research project that includes original data. Prerequisite: CELL 671 or consent of the Department. Note: Open only to Graduate students in Cell Biology.

## 221.71 Chemical and Materials Engineering, CME

Department of Chemical and Materials Engineering  
Faculty of Engineering

### Undergraduate Courses

#### CME 200 Introduction to Chemical and Materials Engineering

★1 (fi 2) (first term, 1 day). Topics of interest to second year Chemical and Materials Engineering students, with special reference to industries in Alberta. Offered in a single day during the first week of September. Restricted to students registered in the Department of Chemical and Materials Engineering.

#### CME 265 Process Analysis

★4.5 (fi 6) (either term or Spring/Summer, 3-0-3). Basic process principles; material and energy balances, transient processes, introduction to computer-aided balance calculations; one tour to a local chemical plant. Prerequisites: ENCOMP 100, MATH 102 and CHEM 105. Corequisites: CH E 243 and MATH 209 or equivalent. Credit may not be obtained in this course if previous credit has been obtained for CH E 265.

#### CME 481 Colloquium I

★1 (fi 2) (either term or Spring/Summer, 1-0-0). Oral presentations. Graded on a pass/fail basis. Prerequisite: 85 units completed or consent of Instructor. Credit may not be obtained in this course if previous credit has been obtained for CH E 481.

#### CME 483 Colloquium II

★1 (fi 2) (second term, 1-0-0). Oral presentation of technical material. Graded on a pass/fail basis. Prerequisite: CME 481. Credit may not be obtained in this course if previous credit has been obtained for CH E 483.

### Graduate Courses

#### CME 681 Graduate Seminar I

★1 (fi 2) (either term, 0-2s-0). Discussion of progress and problems in research in Chemical and Materials Engineering.

#### CME 682 Graduate Seminar II

★1 (fi 2) (either term, 0-2s-0). Discussion of progress and problems in research in Chemical and Materials Engineering.

#### CME 683 Graduate Seminar III

★1 (fi 2) (either term, 0-2s-0). Discussion of progress and problems in research in Chemical and Materials Engineering.

#### CME 684 Graduate Seminar IV

★1 (fi 2) (either term, 0-2s-0). Discussion of progress and problems in research in Chemical and Materials Engineering.

## 221.72 Chemical Engineering, CH E

Department of Chemical and Materials Engineering  
Faculty of Engineering

The following courses were renumbered effective 2001-2002

Old	New	Old	New
CH E 316	CH E 416	CH E 434	CH E 345
CH E 365	CH E 464	CH E 436	CH E 583

CH E 390	CH E 484	CH E 502	CH E 482
CH E 418	CH E 318		

The following courses were renumbered effective 2005-06

Old	New	Old	New
CH E 200	CME 200	CH E 683	CME 681
CH E 265	CME 265	CH E 684	CME 682
CH E 481	CME 481	CH E 685	CME 683
CH E 483	CME 483	CH E 686	CME 684

### Undergraduate Courses

**Note:** The Chemical Engineering Department offers a regular academic term from May-August. Courses designated as "Spring/Summer" in this section of the Calendar are part of this academic term and normally run for the full May-August period.

#### CH E 243 Engineering Thermodynamics

★3.5 (fi 6) (either term or Spring/Summer, 3-1s-0). An introduction to the first and second laws of thermodynamics. Prerequisites: MATH 101.

#### CH E 312 Fluid Mechanics

★3.5 (fi 6) (either term, 3-1s-0). Newtonian and non-Newtonian fluid behavior; hydrostatics; buoyancy, application of Bernoulli and momentum equations; frictional losses through pipes, ducts, and fittings; pipe networks; pumps; drag on submerged bodies and flow through porous media. Prerequisites: CH E 243 EN PH 131 and MATH 209. Corequisite: MATH 201.

#### CH E 314 Heat Transfer

★3.5 (fi 6) (either term or Spring/Summer, 3-1s-0). Principles of conduction, convection and radiation heat transfer. Design and performance analysis of thermal systems based on these principles. Prerequisites: MATH 201, CH E 312 and 374.

#### CH E 318 Mass Transfer

★4 (fi 6) (either term or Spring/Summer, 3-0-2). Molecular and turbulent diffusion; mass transfer coefficients; mass transfer equipment design including absorption and cooling towers, adsorption and ion exchange. Prerequisites: CME 265, CH E 312 and 343. Corequisite: CH E 314. Credit may not be obtained in this course if previous credit has been obtained for CH E 418.

#### CH E 343 Chemical Engineering Thermodynamics

★3.5 (fi 6) (either term, 3-1s-0). Thermodynamics of non-ideal gases and liquids; vapour-liquid equilibrium, thermodynamics of chemical processes and multicomponent systems. Prerequisite: CH E 243. Corequisite: CME 265.

#### CH E 345 Chemical Reactor Analysis I

★3.5 (fi 6) (either term or Spring/Summer, 3-1s-0). Kinetics of chemical reactions and design of ideal chemical reactors. Prerequisites: CME 265, CH E 343 and 374. Credit may not be obtained in this course if previous credit has been obtained for CH E 434.

#### CH E 351 Chemical Engineering Laboratory

★3.5 (fi 6) (either term, 2-0-3). Technical report writing; thermodynamics, material, and energy balances, and calibration experiments. Prerequisites: ENGL 199 or equivalent, CME 265 and CH E 243. Corequisite: CH E 312.

#### CH E 358 Process Data Analysis

★5 (fi 6) (either term or Spring/Summer, 3-0-4). Statistical analysis of process data from chemical process plants and course laboratory experiments. Topics covered include least squares regression, analysis of variance, propagation of error, and design of experiments. Prerequisites: CH E 351 and STAT 235. Corequisites: CH E 314 and 345.

#### CH E 374 Computational Methods in Engineering

★3.5 (fi 6) (either term, 3-1s-0). Formulation and solution of chemical and materials engineering problems; solution of systems of linear and nonlinear algebraic equations; numerical interpolation, differentiation and integration; numerical solution of ordinary and partial differential equations. Prerequisites: ENCOMP 100 (or equivalent), MATH 102, 201 and 209. Credit cannot be obtained in this course if credit has already been obtained CH E 474 or MATE 390.

#### CH E 416 Equilibrium Stage Processes

★4 (fi 6) (either term or Spring/Summer, 3-0-2). Design of separation processes with emphasis on the equilibrium stage concept, distillation, absorption and extraction. Prerequisites: CH E 343, 314 and 318. Credit may not be obtained in this course if previous credit has been obtained for CH E 316.

#### CH E 435 Oilsands Engineering Design

★6 (fi 6) (second term, 4-0-4). Integration of chemical engineering practice, theory and economics into the design and evaluation of proposed capital projects in the oilsands industry. Prerequisites: CH E 416, 445 and 464. Registration restricted to students in the Oilsands Engineering Option.

#### CH E 445 Chemical Reactor Analysis II

★3.5 (fi 6) (either term, 3-1s-0). Analysis and design of non-ideal chemical reactors for industrial product synthesis. Prerequisites: CH E 314, 318 and 345.

**CH E 446 Process Dynamics and Control**

★4 (fi 6) (either term or Spring/Summer, 3-1s-3/3). Introduction to process modeling and transient response analysis; design and analysis of feedback systems; stability analysis; process control applications; process control using digital computers. Prerequisites: MATH 201 and 209. Corequisite: CH E 312.

**CH E 448 Process Control for Mechanical Engineers**

★4 (fi 6) (second term, 3-1s-3/3). Introduction to systems modeling and transient response analysis with an emphasis on mechanical engineering applications; design and analysis of feedback systems; stability analysis; feedforward control; process control applications. Prerequisites: MATH 201 or equivalent, MATH 209, and MEC E 330. Corequisite: MEC E 370. Restricted to students registered in the Mechanical Engineering program. Credit may not be obtained in this course if previous credit has been obtained for CH E 446.

**CH E 454 Chemical Engineering Project Laboratory**

★3 (fi 6) (second term, 1-0-4). Experiments in kinetics and mass transfer. Prerequisites: CH E 318, 345, 358, and 416.

**CH E 458 Special Projects in Chemical Engineering**

★3.5 (fi 6) (either term or Spring/Summer, 2-0-3). Projects in Chemical Engineering. This course is open only to students with a GPA of 3.0 or greater during the previous two academic terms. Prerequisite: consent of Department.

**CH E 459 Special Projects in Chemical Engineering II**

★3.5 (fi 6) (either term, 2-0-3). Projects in Chemical Engineering. This course is open only to students with a GPA of 3.0 or greater during the previous two academic terms. Prerequisite: CH E 458.

**CH E 464 Chemical Engineering Design I**

★4.5 (fi 6) (either term or Spring/Summer, 3-0-3). Engineering design concepts; cost estimation; project planning and scheduling; plant safety and hazards analysis; selected project design examples. Prerequisites: CH E 314, 345, and ENGG 310 or 401. Corequisite: CH E 416. Credit may not be obtained in this course if previous credit has been obtained for CH E 365.

**CH E 465 Chemical Engineering Design II**

★6 (fi 6) (second term, 4-0-4). Integration of chemical engineering practice, theory and economics into the design and evaluation of proposed capital projects. Prerequisites: CH E 345, 416 and 464.

**CH E 482 Environmental Impact of the Process Industries**

★3.5 (fi 6) (either term or Spring/Summer, 3-1s-0). Industrial emissions, pollution control, and waste minimization. Special processes, design techniques and operating procedures related to environmental and ecological considerations. Corequisite: CH E 416. Credit may not be obtained in this course if previous credit has been obtained for CH E 502.

**CH E 484 Introduction to Biochemical Engineering**

★3.5 (fi 6) (either term, 3-0-1). Physical and chemical properties of cells, tissues, and biological fluids, engineering analysis or processes such as cell growth and fermentation, purification of products. Prerequisites: CME 265 or BIOL 107. Credit may not be obtained in this course if previous credit has been obtained for CH E 390.

**CH E 485 Fuel Cells and Their Application**

★3 (fi 6) (either term, 3-0-0). Introduction to principles of operation of fuel cells and their applications; historical and environmental perspectives; elementary electrochemistry, types of fuel cell -fuels, membranes and liquid ion conductors, operating conditions; factors affecting performance; applications as standing engines and mobile power sources. Limited to 3rd/4th year undergraduate students in engineering. Prerequisite: CH E 343, MAT E 252 or equivalent and MATH 201 or consent of Instructor.

**CH E 486 Microbial Processes in Engineering**

★3 (fi 6) (either term, 3-1s-0). Review of fundamental bioprocesses including global nutrient cycling. Application of bioprocess knowledge to problem resolution under various thermodynamic conditions in areas such as water and pasture management and production of foods and drugs.

**CH E 512 Introduction to Fluid-Particle Systems**

★3.5 (fi 6) (either term or Spring/Summer, 3-1s-0). Unit operations studied in this course include: settlers, thickeners, centrifuges, slurry pipelines and flotation columns. Course topics will also include: one dimensional homogeneous and multiphase flows, sedimentation and fluidization of multi-species systems and drift flux theory. Prerequisite: CH E 312.

**CH E 520 Mixing in the Process Industries**

★4 (fi 6) (either term, 3-1s-1). Design and operation of agitation equipment in the process industries. Process results ranging from blending, solids suspension, and gas dispersion to reactor design and heat transfer will be examined. Emphasis on critical application of the fundamentals of chemical engineering. Laminar and turbulent regimes, stirred tanks and static mixers, and other specialized applications will be discussed. Prerequisite: CME 265 and CH E 312. Credit cannot be obtained in this course if credit has already been obtained in CH E 620.

**CH E 522 Hydrocarbon Fluid Properties and Processing**

★4 (fi 6) (either term or Spring/Summer, 3-1s-3/3). Introduction to the physical, chemical and engineering principles required for the design and operation of

plants used for the treatment of natural gas, heavy oils and bitumens. Prerequisite or corequisite: CH E 343.

**CH E 534 Fundamentals of Oilsands Extraction**

★4 (fi 6) (either term, 3-1s-3/3). Application of fluid mechanics, interfacial phenomena and colloid science to bitumen extraction. Prerequisites: CH E 312 and 314.

**CH E 537 Environmental Aspects of Oilsands Processing**

★4 (fi 6) (either term, 3-1s-3/3). Energy consumption, atmospheric emissions and treatment of liquid and solid wastes in extraction and upgrading of oilsands. Corequisite: CH E 416.

**CH E 555 Process Optimization**

★3.5 (fi 6) (either term, 3-1s-0). Single and multivariable search techniques; linear programming; dynamic programming; EVOP; nonlinear programming. Prerequisites: CH E 374 and MATH 201 or consent of Instructor.

**CH E 572 Modelling Process Dynamics**

★4 (fi 6) (second term, 3-1s-3/3). Mechanistic and empirical modeling of process dynamics; continuous- and discrete-time models; model fitting and regression analysis. Corequisites: CH E 314, 318 and 345.

**CH E 573 Digital Signal Processing for Chemical Engineers**

★3.8 (fi 6) (second term, 3-0-3/2). Time and frequency domain representation of signals; Fourier Transform; spectral analysis of data; analysis of multivariate data; treatment of outliers and missing values in industrial data; filter design. Prerequisites: CH E 358 and 446.

**CH E 576 Intermediate Process Control**

★3.8 (fi 6) (second term, 3-0-3/2). Digital and multivariable process control techniques; discrete-time analysis of dynamic systems; digital feedback control; Kalman filter and linear quadratic optimal control; model predictive control. Prerequisite: CH E 446 or equivalent.

**CH E 580 Pulp and Paper Technology for Chemical Engineers**

★3.5 (fi 6) (either term, 3-1s-0). Describes the resources, processes and chemistry, design and flow sheets, environmental impact, and remediation of pulp and paper manufacture with special reference to Alberta. Prerequisite: CH E 314 or consent of Instructor.

**CH E 581 Biochemical Engineering**

★3.5 (fi 6) (either term, 3-1s-0). Integration and application of the principles of chemical engineering, biochemistry, and microbiology. Topics include design, analysis and control of biological reactors and the development of production and recovery processes for biochemicals. Prerequisite: MICRB 265 or consent of Instructor.

**CH E 582 Introduction to Biomaterials**

★3.5 (fi 6) (either term, 3-1s-0). Survey of materials intended for biological applications; biomaterials-related biological phenomena (protein adsorption, blood coagulation and cell adhesion); biomaterials for engineering of blood vessel, bone and skin tissues. Two fundamental engineering philosophies will be stressed: structure-function relationship and purposeful manipulation for a desired outcome. Prerequisite: BIOL 107 or BME 210 or CH E 484 or consent of Instructor.

**CH E 583 Surfaces and Colloids**

★3.5 (fi 6) (either term or Spring/Summer, 3-1s-0). Interactions between fluid phases and solids; micelles; electrokinetic phenomena; adsorption isotherms; applications to industrial processes. Prerequisite: CH E 343. Credit cannot be obtained in this course if previous credit has been obtained for CH E 436.

**CH E 594 Advanced Topics in Chemical Engineering**

★3.5 (fi 6) (either term or Spring/Summer, 3-1s-0). An advanced treatment of selected chemical engineering topics of current interest to staff and students.

**CH E 596 Advanced Topics in Process Dynamics and Control**

★3.5 (fi 6) (either term or Spring/Summer, 3-1s-0). An advanced treatment of selected topics in process dynamics and control.

**Graduate Courses**

**Note:** All 500-level courses may be taken for graduate credit subject to the approval of the student's supervisory committee and departmental restrictions on the number of such courses that a student's program may contain.

**CH E 611 Advanced Transport Phenomena**

★3 (fi 6) (either term, 3-0-0). Transport expressions for physical properties are combined with conservation laws to yield generalized equations used to solve a variety of engineering problems in fluid mechanics, and heat and mass transfer; steady-state and transient cases; special topics in non-Newtonian flow and forced diffusion.

**CH E 612 Advanced Fluid Mechanics**

★3 (fi 6) (either term, 3-0-0). Potential, boundary layer, viscometrics, and secondary flows; application to multiphase phenomena.

**CH E 615 Advanced Separation Processes**

★3 (fi 6) (either term, 3-0-0). Characterization, selection and design of equilibrium

and rate-governed separation processes. Topics include capacity and efficiency of mass transfer equipment and process energy requirements.

#### CH E 617 Colloids and Interfaces

★3 (*fi 6*) (either term, 3-0-0). Emphasis is on the basics of colloid and interfacial phenomena. Aimed at upper level and graduate students in chemical and mineral engineering, chemistry and geochemistry with an interest in application to the energy sector, mineral processing, materials handling, and chemical industry.

#### CH E 624 Advanced Thermodynamics

★3 (*fi 6*) (first term, 3-0-0). Principles of thermodynamics; properties of homogeneous fluid phases; phase and chemical equilibria; application to industrial problems.

#### CH E 625 Statistical Thermodynamics

★3 (*fi 6*) (either term, 3-0-0). Fundamentals and advanced topics in macroscopic thermodynamics. Introduction to the principles of statistical thermodynamics. Construction of partition functions and calculations of basic thermodynamic properties for several fundamental systems. Applications include properties of ideal gases, ideal solids, and adsorbed gases.

#### CH E 631 Rheology of Polymers and Other Complex Fluids

★3 (*fi 6*) (either term, 3-0-0). General principles of liquid-state rheology. Modeling stress behavior in terms of continuum mechanics. Measurement techniques for nonlinear and viscoelastic properties, in shear and elongational flows. Interpretation of macroscopic properties of polymers in terms of molecular characteristics. Dynamical modeling of polymer chains in solutions and melts.

#### CH E 632 Polymer Melt Processing

★3 (*fi 6*) (either term, 3-0-0). Fluid mechanical fundamentals of melt processing operations. Extrusion, fibre spinning, calendaring, moulding. Incorporation of continuum rheological models into equations of motion to predict behavior of engineering relevance. Description of anomalies arising from melt elasticity and methods of mitigating these.

#### CH E 634 Advanced Chemical Reactor Design

★3 (*fi 6*) (either term, 3-0-0). Design of homogeneous and heterogeneous reactors for isothermal and non-isothermal operation; analysis of rate data; transport processes in heterogeneous catalytic systems.

#### CH E 636 Advanced Chemical Kinetics and Catalysis

★3 (*fi 6*) (either term, 3-0-0). Gas phase reactions; kinetics in liquid solutions; characterization of catalysts; heterogeneous catalysts.

#### CH E 645 Heterogeneous Catalysis and Reactor Analysis

★3 (*fi 6*) (either term, 3-0-0). Principles of heterogeneous catalysis and reactor analysis with emphasis on industrial catalytic reactions; characterization of heterogeneous catalysts.

#### CH E 646 Process Dynamics and Computer Process Control

★3.5 (*fi 6*) (first term, 3-0-3/3). An introductory graduate level course in process dynamics and control. Topics include dynamic process modeling, simulation, estimation, filtering, multiloop and multivariable control, plus stability and performance analysis.

#### CH E 655 Advanced Biomaterials Science

★3 (*fi 6*) (either term, 3-0-0). Intended for graduate students who are familiar with basic biomaterials science. Focuses on: molecular design of biomaterial and biomaterial surfaces in order to modulate specific biological events; techniques to modulate biomaterial properties; assessment techniques for modifications. The biological events will be studied at the cellular and molecular level.

#### CH E 662 Process Identification

★3.8 (*fi 6*) (either term, 3-0-3/2). Selected topics related to empirical modelling of process systems are undertaken. Emphasis on time-series based modelling theory and techniques, (e.g. nonparametric, parametric, spectrum analysis, nonlinear, and closed-loop identification methods), model validation, experimental design, and applications in forecasting, analysis, and control.

#### CH E 674 Numerical Solutions of Engineering Problems

★3 (*fi 6*) (second term, 3-0-0). Numerical solutions of engineering problems using linear and nonlinear sets of equations, ordinary and partial differential equations.

#### CH E 689 Polymer Properties

★3 (*fi 6*) (either term, 3-0-0). Polymerization, molar mass distributions, polymer analytical techniques, solution and blend thermodynamics, physical and chemical properties of polymers, lattice models, rubber thermodynamics, polymer processing, fluid flow and heat transfer in melt processing, special polymer project. Prerequisite: consent of Instructor. Not open to students with credit in MAT E 467 or CH E 539.

#### CH E 694 Advanced Topics in Chemical Engineering

★3 (*fi 6*) (either term, 3-0-0). An advanced treatment of selected chemical engineering topics of current interest to staff and students.

#### CH E 696 Special Topics in Process Dynamics and Computer Control

★3 (*fi 6*) (either term, 3-0-0). Advanced treatment of selected topics in process dynamics and/or computer process control of current interest to staff and students.

#### CH E 900 Directed Research Project

★3 (*fi 6*) (variable, unassigned).

## 221.73 Chemistry, CHEM

Department of Chemistry  
Faculty of Science

### Undergraduate Courses

#### CHEM 101 Introductory University Chemistry I

★3 (*fi 6*) (either term, 3-1s-3). Atoms and molecules, states of matter, chemistry of the elements. Prerequisite: Chemistry 30, or equivalent.

#### CHEM 102 Introductory University Chemistry II

★3 (*fi 6*) (either term, 3-1s-3). Rates of reactions, thermodynamics and equilibrium, electro-chemistry, modern applications of chemistry. Prerequisite: CHEM 101.

#### CHEM 103 Introductory University Chemistry I

★4.3 (*fi 6*) (either term, 3-1s-3/2). Atoms and molecules, states of matter, chemistry of the elements. Prerequisite: Chemistry 30, or equivalent. Note: Restricted to Engineering students only. Other students who take this course will receive ★3.0.

#### CHEM 105 Introductory University Chemistry II

★3.8 (*fi 6*) (either term, 3-0-3/2). Rates of reactions, thermodynamics and equilibrium, electrochemistry, modern applications of chemistry. Prerequisite: CHEM 103. Note: Restricted to Engineering students only. Other students who take this course will receive ★3.0.

#### CHEM 161 Organic Chemistry I

★3 (*fi 6*) (first term, 3-0-3). The study of basic molecular structure and reactivity of organic compounds based on their functional groups. Introduction to nomenclature, three dimensional structure, physical properties, and reactivity of compounds of carbon. Functional groups covered will emphasize alkanes, alkenes, alkynes, alkyl halides, alcohols, and some aromatics. Examples will include hydrocarbons (petroleum products), halogenated organic compounds (e.g. pesticides), and polymers of industrial importance which may be found in everyday life. Note: Students who already have credit in CHEM 101 and 102 should register in CHEM 261. Prerequisite: Chemistry 30 or equivalent.

#### CHEM 211 Quantitative Analysis I

★3 (*fi 6*) (first term, 3-0-4). Principles, methods, and experimental applications emphasizing solution phase equilibria, titrimetry, volumetric laboratory skills, and evaluation of experimental data. Includes examples of organic and inorganic analysis. Prerequisite: CHEM 102.

#### CHEM 213 Quantitative Analysis II

★3 (*fi 6*) (second term, 3-0-4). A continuation of CHEM 211 emphasizing the principles, methods, and experimental applications of separation techniques, atomic and molecular spectrometry, electrochemistry, and evaluation of experimental data. Includes examples of organic and inorganic analysis and use of the analytical literature. Prerequisite: CHEM 211.

#### CHEM 241 Introduction to Inorganic Chemistry

★3 (*fi 6*) (first term, 3-0-3). The chemistry of main-group elements including a survey of the structure, bonding, and reactivity of their compounds. Transition-metal chemistry will be introduced. The course will include applications in industrial, biochemical, environmental, and materials science. Students who have obtained credit for CHEM 331 cannot take CHEM 241 for credit. Prerequisites: CHEM 102 or 105 and CHEM 161 or 261.

#### CHEM 243 Advanced Inorganic Chemistry

★3 (*fi 6*) (second term, 3-0-3). An extension of CHEM 241 with emphasis on the bonding, structure, and reactivity of transition-metal elements. The course will include applications in industrial, biochemical, environmental, and materials science. For Chemistry Honors and Specialization students only, except by consent of Department. Note: This course may not be taken for credit if credit has already been received in CHEM 341. Prerequisites: CHEM 241 or consent of Department.

#### CHEM 261 Organic Chemistry I

★3 (*fi 6*) (first term, 3-0-3). The correlation of structure and chemical bonding in carbon compounds with the physical properties and chemical reactivity of organic molecules. Discussion will be based on functional groups with emphasis on hydrocarbons and derivatives that contain halogens, oxygen, sulfur, and the hydroxy group. Introduction to stereochemistry, three dimensional structure, reaction mechanisms, especially addition to double bonds, nucleophilic substitution and elimination reactions. Prerequisite CHEM 102 or 105. Note: Students who have obtained credit for CHEM 161 cannot take CHEM 261 for credit. Engineering students who take this course will receive ★4.5.

#### CHEM 263 Organic Chemistry II

★3 (*fi 6*) (second term, 3-0-3). Continuation of the structural and chemical properties of the basic functional groups of organic compounds including alkynes, aromatic compounds, aldehydes, ketones, carboxylic acids and their derivatives and amines. Illustration of these functional groups in natural products such as carbohydrates, amino acids and proteins, nucleic acids and lipids. Discussion of the application of spectroscopic methods for the structure determination in simple

organic molecules. Prerequisites: CHEM 161 or 261. Note: Students who have obtained credit for CHEM 163 cannot take CHEM 263 for credit.

### CHEM 282 Atomic and Molecular Structure

★3 (fi 6) (second term, 3-0-4). An introduction to the quantum view of nature with applications to atomic and molecular structure. Methods to describe the quantum world are introduced, used to describe simple electronic, vibrational and rotational structure of model systems, and applied to the hydrogen atom, many-electron atoms, simple diatomic molecules, and the electronic structure of polyatomic molecules. The laboratory portion of the course consists of practical applications enriching and illustrating the lecture material, and incorporates the use of computers as a routine aid to processing experimental results. Prerequisites: CHEM 102 or 105; one 200-level CHEM course; MATH 115 and PHYS 124 or 144. Co-requisite: PHYS 146 if PHYS 144 presented as a prerequisite instead of PHYS 124.

### CHEM 298 Introductory Spectroscopy

★3 (fi 6) (either term, 3-0-3). The course is an integrated introduction to the qualitative and instrumentation aspects of spectroscopy and its applications in chemistry. The subjects will include: absorption, emission, vibrational and rotational spectroscopy of atoms and molecules; and nuclear magnetic resonance spectroscopy. Prerequisite: CHEM 102 or 105; CHEM 163 or 263; CHEM 211.

### CHEM 299 Research Opportunity Program in Chemistry

★1.5 (fi 3) (either term, 0-0-3). A credit/no-credit course for supervised participation in a faculty research project. Normally taken after completion of a minimum of 30 but not more than 60 units of course weight in a program in the Faculty of Science. Prerequisite: GPA of 2.5 or higher, CHEM 101 or 161; and consent of Department. Specific projects may require additional pre-requisites. Project and course information available at ROP website or Department of Chemistry. Prospective enrollees in CHEM 299 must apply to Department of Chemistry. Application does not guarantee an ROP position. Credit for this course may be obtained twice.

### CHEM 303 Environmental Chemistry I

★3 (fi 6) (first term, 3-0-0). The chemistry of environmental processes. Atmospheric chemistry; thermal and photochemical reactions of atmospheric gases including oxygen, ozone, hydroxy radical, and oxides of nitrogen and sulfur. Aquatic chemistry; characterization, reactions, and equilibria of dissolved species, water purification treatments. Metals and organohalides in the environment. Risk assessment. Prerequisites: CHEM 102; CHEM 163, or 263; and one 200-level CHEM course or CH E 243.

### CHEM 305 Environmental Chemistry II

★3 (fi 6) (second term, 3-0-4). A continuation of CHEM 303 with laboratory applications. Experiments will illustrate and complement the principles and processes taught in CHEM 303 such as adsorption from aqueous solutions, convective/diffusive transport, vapour/solution equilibria, metal ion speciation with soil derived ligands, photochemistry, properties of aerosols, coagulation of colloids, sedimentation, ion exchange, computer modeling of complex systems, trace analysis of pesticides, chemical treatment of hazardous wastes. Quantitative calculations will be emphasized. The lecture component will provide theoretical background for experiments and instrumentation used for chemical measurements. There will be one or more field trips. Prerequisite: CHEM 163, or 263; CHEM 213 and either CHEM 303 or 273 or 373. Note: Restricted to students in the Environmental Physical Sciences and Chemistry (Honors, Specialization, and General Science with concentration in Chemistry) programs.

### CHEM 311 Instrumental Analysis for Engineers

★3 (fi 6) (second term, 3-0-3). Fundamentals of volumetric, chromatographic, spectrographic, and electrochemical analysis. Volumetric techniques are covered briefly. Instrumental techniques discussed include gas and liquid chromatography, UV and IR spectroscopy, ion-selective electrodes and voltammetry. Emphasis is on the principles of each method, and the nature of matrix and other effects that influence the quality of the data obtained. Reference will be made to applications such as air and water quality, and process analyzers in manufacturing. Prerequisites: CHEM 261 and 271 or 371 or CH E 343. Note: Restricted to Engineering students only. Engineering students who take this course will receive ★4.5.

### CHEM 313 Instrumentation in Chemical Analysis

★3 (fi 6) (first term, 3-0-4). Instrumentation and analytical applications of spectroscopic, chromatographic and electroanalytical methods are discussed and applied in the laboratory. Prerequisites: CHEM 211; 282; ★6 in junior Physics. Co-requisite: CHEM 371.

### CHEM 333 Inorganic Materials Chemistry

★3 (fi 6) (either term, 3-0-3). Fundamentals of the synthesis, structure and properties of inorganic solids, thin films, and nanoscale materials, to be complemented with case studies of modern applications of inorganic materials; selected topics such as catalysis, molecular and nanoparticle-based computing, telecommunications, alternative energies, superconductivity, biomedical technologies, and information storage will be discussed. Techniques for characterization and analysis of materials on the nano and atomic level will be introduced. Prerequisite: CHEM 102 or 105; CHEM 163 or 263.

### CHEM 361 Organic Chemistry

★3 (fi 6) (first term, 3-0-4). Mechanisms and reactions of aromatic and aliphatic compounds. Prerequisites: CHEM 102; CHEM 163 or 263.

### CHEM 363 Organic Chemistry

★3 (fi 6) (second term, 3-0-4). A continuation of CHEM 361. Prerequisite: CHEM 361.

### CHEM 371 Energetics of Chemical Reactions

★3 (fi 6) (first term, 3-0-3). A study of the implications of the laws of thermodynamics for transformations of matter including phase changes, chemical reactions, and biological processes. Topics include: thermochemistry; entropy change and spontaneity of processes; activity and chemical potential; chemical and phase equilibria; properties of solutions; simple one- and two-component phase diagrams. The conceptual development of thermodynamic principles from both macroscopic and molecular levels, and the application of these principles to systems of interest to chemists, biochemists, and engineers will be emphasized. Note: This course may not be taken for credit if credit has already been received in CHEM 271. Prerequisites: CHEM 102 or 105; MATH 101 or 115. Engineering students who take this course will receive ★4.5.

### CHEM 373 Physical Properties and Dynamics of Chemical Systems

★3 (fi 6) (second term, 3-0-3). A continuation of CHEM 371 in which the physical properties of chemical systems and the dynamics and energetics of chemical processes are discussed. Topics include: colligative properties; electrochemical cells and ion activities, implications for ionic equilibria; kinetic theory and transport properties of gases and liquids; surfaces and colloid chemistry; reaction dynamics, detailed mechanisms of chemical reactions, catalysis. The emphasis will be on the development of principles of physical chemistry and their application to properties and processes of interest to chemists, biochemists, and engineers. Note: This course may not be taken for credit if credit has already been received in CHEM 273 or 275. Prerequisite: CHEM 371 or CHEM 271.

### CHEM 398 Molecular Spectroscopy

★3 (fi 6) (either term, 3-0-3). An integrated course in the quantitative and more advanced aspects of spectroscopy and its applications in chemistry. The subjects will include: absorption, emission, dichroism, vibrational and rotational spectroscopy of molecules; time-resolved spectroscopy; and electron spin and nuclear magnetic resonance spectroscopy. Prerequisites: CHEM 298; CHEM 243; CHEM 282.

### CHEM 400 Industrial Internship Practicum

★3 (fi 6) (first term, 0-3s-0). Required by all students who have just completed a Chemistry Industrial Internship program. Must be completed during the first academic term following return to full-time studies. Note: A grade of F to A+ will be determined, by the student's job performance as evaluated by the employer, by the student's performance in the completion of an internship practicum report, and by the student's ability demonstrated in an oral presentation. This course cannot be used in place of a senior-level CHEM option. Prerequisite: WKEXP 402.

### CHEM 401 Introduction to Chemical Research

★3 (fi 6) (either term, 0-1s-8). Introduction to methods of chemical research. Investigational work under the direction of a member of the Department. The results of the research will be submitted to the Department as a report which will be graded. The student must also make an oral presentation of this work to the Department. For students in the fourth year of Honors or Specialization Chemistry. Students should consult with the Course Coordinator four months prior to starting the course. Prerequisites: a 300-level CHEM course and consent of the Course Coordinator.

### CHEM 403 Chemical Research

★3 (fi 6) (either term, 0-1s-8). Investigational work under the direction of a member of the Department. Prerequisite or corequisite: CHEM 401.

### CHEM 405 Special Topics in Chemistry

★3 (fi 6) (either term, 3-0-0). Prerequisite: a 300-level CHEM course and consent of Instructor.

### CHEM 413 Electronics, Noise, and Signal Processing

★3 (fi 6) (either term, 3-0-3). Linear electronics including operational amplifiers. Digital electronics including timing circuits, counters and logic. Fundamental and practical sources of noise in electronic circuits. Noise distributions. Data processing including filtering and linear and nonlinear regression analysis. Prerequisite: CHEM 313 and consent of Department.

### CHEM 415 Analytical Electrochemistry

★3 (fi 6) (second term, 3-0-3). This course covers the theory and application of modern electroanalytical techniques including potentiometry, polarography and cyclic voltammetry. Analytical applications of ion selective electrodes, chemically modified electrodes and other electrochemical sensors are also discussed. Introduction to electrode characterization with techniques such as scanning probe microscopy is also presented. Prerequisite: CHEM 313.

### CHEM 417 Analytical Spectroscopy

★3 (fi 6) (second term, 3-0-3). Optical spectrochemical measurement systems are discussed including dispersive and interferometric spectrometers, detectors, lasers, readout systems and data processing. Techniques covered include all optical methods for analytical emission, absorption, luminescence and scattering measurements on atomic and molecular systems from the far-IR to the vacuum ultraviolet. Prerequisite: CHEM 313.

### CHEM 419 Bioanalytical Chemistry

★3 (fi 6) (first term, 3-0-0). Introduction to biomolecules. Electrophoresis and

process chromatography Protein and DNA sequence determination. Immunoassay. Restriction enzymes, vectors, and cloning. Good laboratory practice. Prerequisite: CHEM 313.

#### CHEM 421 Analytical Separations

★3 (fi 6) (first term, 3-0-0). The principles of phase-distribution processes, electrokinetic phenomena, column bandbroadening and extra-column bandbroadening are applied to commonly used modes of packed-bed and open-tubular gas and liquid chromatography and to capillary electrokinetic separations. Prerequisite: CHEM 313.

#### CHEM 423 Analytical Mass Spectrometry

★3 (fi 6) (either term, 3-0-0). An introduction to the principles, instruments, and applications of mass spectrometry for chemical and biochemical analysis. Topics discussed: vacuum systems; sample introduction methods; ionization methods; mass analyzers; tandem MS; ion detection; data system; mechanisms and techniques of ion fragmentation; interpretation of mass spectra; applications of mass spectrometry to environmental pharmaceutical, and biological samples. Prerequisite CHEM 313.

#### CHEM 433 Structure in the Solid State

★3 (fi 6) (either term, 3-0-0). An introduction to X-ray crystallography. This course covers the following topics: (1) the nature and origin of X-rays; (2) crystal symmetry; (3) diffraction theory; (4) theory and practical aspects of X-ray data collection; (5) Fourier analysis and structure solution; (6) least-squares refinement and other techniques used in structure solution; and (7) discussions and interpretations of X-ray structures from the literature. Prerequisite: CHEM 341 or CHEM 243 and one 300-level Chemistry course or CHEM 333.

#### CHEM 436 Synthesis and Applications of Inorganic and Nano-materials

★3 (fi 6) (either term, 3-0-0). Introduction to methods of synthesizing inorganic materials with control of atomic, meso-, and micro-structure. Topics include sol-gel chemistry, chemical vapor deposition, electro-synthesis of materials, solid-state reactions, solid-state metathesis and high-temperature self-propagating reactions, template-directed syntheses of micro and mesoporous materials, micelles and colloids, synthesis of nanoparticles and nanomaterials. Applications of these synthetic techniques to applications such as photonic materials, heterogeneous catalysts, magnetic data storage media, nanoelectronics, display technologies, alternative energy technologies, and composite materials will be discussed. Prerequisite: CHEM 243 and one 300-level Chemistry course or CHEM 333 or CHEM 341.

#### CHEM 437 Transition Metal Chemistry

★3 (fi 6) (either term, 3-0-0). CHEM 437 is an introduction to organotransition metal chemistry. The course will deal with the synthesis, basic bonding, and reactivity of organotransition metal complexes. Topics to be covered include transition metal complexes of hydrides, phosphines, carbonyls, olefins, alkynes, polyolefins, cyclopentadienyl and related cyclic p-ligands; metal-carbon s- and multiple bonds. The application of these complexes to homogeneous catalysis and to organic synthesis will be discussed when appropriate. Prerequisite: CHEM 243 and one 300-level Chemistry course or CHEM 341.

#### CHEM 438 Solid State Chemistry

★3 (fi 6) (either term, 3-0-0). Introduction to the chemistry of extended inorganic solids. The topics covered include synthesis, symmetry, descriptive crystal chemistry, bonding, electronic band structures, characterization techniques, and phase diagrams. The correlation of structure with properties of electronic and magnetic materials will be discussed. Prerequisite: CHEM 243 and one 300-level Chemistry course or CHEM 333 or CHEM 341.

#### CHEM 439 Inorganic Reaction Mechanisms

★3 (fi 6) (either term, 3-0-0). Covers the mechanisms of reactions of transition metal compounds in solution. Detailed consideration is given to ligand substitution, isomerization, fluxional, photochemical and electron transfer reactions of coordination compounds and organometallic species. The application of kinetic and other methods to mechanistic elucidation are critically evaluated. Prerequisite: CHEM 243 and one 300-level Chemistry course or CHEM 341.

#### CHEM 444 Characterization Methods in Nanoscience

★3 (fi 6) (either term, 3-0-0). Introduction to techniques in determining the composition and structure of materials on the nanometer scale. Characterization of atomic, meso-, and micro-structure of materials including impurities and defects. Major topics will include diffraction (X-ray, electron, neutron), electron microscopy (transmission, scanning, and Auger) and associated spectroscopies (EDX, EELS), surface sensitive spectroscopies (e.g., XPS, AES, IR) and spectrometry (SIMS), synchrotron techniques, X-ray absorption, fluorescence and emission, and scanned probe microscopies (AFM, STM, etc.). The strengths, weaknesses, and complementarity of the techniques used will be examined via case studies on the characterization of real-world nanotechnologies, such as heterogeneous catalysts, surfaces and interfaces in semiconductor devices, organic monolayers on metals and semiconductors, nanotube- and nanowire-based electronics, and biocompatible materials. Prerequisite: 4th year standing or permission of Instructor.

#### CHEM 461 Qualitative Organic Analysis

★3 (fi 6) (second term, 3-0-4). Introductory graduate-level discussion of the physical techniques used in organic chemistry research for the separation/purification and structural elucidation of organic compounds. Emphasis is on the combined use of modern spectrometric techniques for structure determination, with particular

focus on an introduction to modern NMR spectroscopy. Prerequisite: CHEM 363 or consent of Instructor.

#### CHEM 465 Physical Organic Chemistry

★3 (fi 6) (first term, 3-0-0). Graduate-level discussion of organic structural theories, intramolecular and intermolecular interactions in organic chemistry, and the mechanisms and reactive intermediates involved in organic reactions. Prerequisite: CHEM 363 or consent of Instructor.

#### CHEM 467 Advanced Organic Synthesis

★3 (fi 6) (first term, 3-0-0). A presentation of chemoselective, regioselective and stereoselective reactions of organic compounds, with an emphasis on modern methodology for organic synthesis. Prerequisite: CHEM 363 or consent of Instructor.

#### CHEM 477 Molecular Symmetry and Spectroscopy

★3 (fi 6) (either term, 3-0-0). Application of the principles of molecular symmetry to molecular properties. Topics include group theory with emphasis on vibrational motion and normal vibrations; quantum mechanics of vibration and rotation; magnetic resonance spectroscopy; perturbation methods; selection rules in rotational, infrared, and Raman spectroscopy; molecular symmetry and molecular orbitals; electronic spectroscopy of polyatomic molecules. Prerequisite: CHEM 383; or CHEM 282 and CHEM 298 and one 300-level Chemistry course; or consent of Instructor.

#### CHEM 479 Molecular Kinetics

★3 (fi 6) (either term, 3-0-0). Rate laws for simple and complex reactions, reaction mechanisms, potential energy surfaces, molecular dynamics, theories of reaction rates, catalysis, with application to gas and liquid phase reactions, photochemical reactions in chemistry and biology, and enzyme catalysis. Prerequisites: CHEM 273 or CHEM 373; MATH 215, PHYS 230, and a 300-level Chemistry course.

#### CHEM 483 Applications of Nuclear Magnetic Resonance

★3 (fi 6) (either term, 3-0-0). Theory of magnetic resonance spectroscopy and some of its applications to chemical systems. The curriculum includes: (1) a cursory discussion of first order NMR spectra; (2) quantum mechanics of spin systems and a quantum description of magnetic resonance experiments (the Bloch equations); (3) relaxation effects; (4) Fourier transform spectroscopy; (5) chemical exchange effects; (6) nuclear Overhauser effects; and (7) twodimensional NMR. Prerequisite: CHEM 383; or CHEM 282 and CHEM 298 and one 300-level Chemistry course; or consent of Instructor.

#### CHEM 489 Biomolecular Spectroscopy

★3 (fi 6) (either term, 3-0-0). Focus is on electronic and vibrational spectroscopic techniques, and their application to biological molecules. Particular emphasis on the use of absorption, luminescence, infra-red, and Raman spectroscopies, and dichroic techniques in probing the structure and dynamics of biological molecules. A significant portion of the course will also include the general study of excitedstate photophysics and photochemistry, with specific examples in biology. Prerequisite: CHEM 298 and one 300-level Chemistry course or CHEM 383.

#### CHEM 493 Computational Chemistry

★3 (fi 6) (either term, 3-0-0). Applications are stressed in this course which introduces the student to contemporary computational quantum chemistry to the Hartree-Fock limit, using state-of-the-art computer codes running on UNIX workstations. Elementary introduction to the UNIX operating system is given. Subjects include optimization of the geometry of molecules; prediction of molecular properties; calculation of infra-red and Raman spectra; solvent effects; thermochemistry of chemical reactions. Assignments in the course will allow the student to use advanced workstations and computer codes. Prerequisite: CHEM 383 or CHEM 282 and one 300-level Chemistry course or consent of Instructor.

#### CHEM 495 Molecular Dynamics and its Applications

★3 (fi 6) (either term, 3-0-0). An introduction to Molecular Dynamics and its applications. The fundamentals of statistical mechanics are reviewed and computational tools such as molecular dynamics and Monte Carlo methods are presented. Applications include the study of structural properties of liquids, the diffusion of a solute in a solvent, the dynamics of proton transfer, and the calculation of rate constants. These topics will be exemplified using computer simulations as problem set assignments. Some lectures will take place in the computer laboratory where visualization tools will be used to illustrate various applications of molecular dynamics.

## Graduate Courses

#### CHEM 502 Departmental Research Seminar

★0 (fi 4) (two term, 0-2s-0).

#### CHEM 504 Advanced Research Seminar

★0 (fi 4) (two term, 0-2s-0).

#### CHEM 523 Special Topics in Advanced Analytical Chemistry

★3 (fi 6) (either term, 3-0-0).

#### CHEM 531 Organometallic Chemistry

★3 (fi 6) (second term, 3-0-0). Prerequisite: CHEM 437 or consent of Department.



**CHEM 533 Asymmetric Catalysis**

★3 (fi 6) (either term, 3-0-0).

**CHEM 545 Special Topics in Inorganic Chemistry**

★3 (fi 6) (either term, 3-0-0).

**CHEM 565 Special Topics in Physical Organic Chemistry**

★3 (fi 6) (second term, 3-0-0). Advanced treatment of selected topics in modern physical organic chemistry, drawn from one or more of the following: (1) molecular recognition, (2) organic materials and devices, and (3) multidimensional NMR spectroscopic analysis. Other topic selections appropriate to the category may also be offered. Course may be repeated for credit, provided there is no duplication of specific topic. Prerequisite: CHEM 363 or consent of Instructor.

**CHEM 567 Special Topics in Synthetic Chemistry**

★3 (fi 6) (second term, 3-0-0). Advanced treatment of selected topics in modern synthetic organic chemistry, drawn from one or more of the following: (1) advanced methodology for organic synthesis, (2) carbohydrate structure and synthesis, (3) organometallic methodology for organic synthesis, and (4) solid-phase organic synthesis and combinatorial chemistry. Other topics appropriate to the category may also be offered. Course may be repeated for credit, provided there is no duplication of specific topic. Prerequisite: CHEM 363 or consent of Instructor.

**CHEM 569 Special Topics in Bio-organic Chemistry**

★3 (fi 6) (second term, 3-0-0). Advanced discussion of selected topics in modern bio-organic chemistry, drawn from one or more of the following: (1) natural products and secondary metabolism, (2) nucleic acid chemistry, and (3) organic and biophysical carbohydrate chemistry. Other topics appropriate to the category may also be offered. Course may be repeated for credit, provided there is no duplication of specific topic. Prerequisite: CHEM 363 or consent of Instructor.

**CHEM 581 Special Topics in Physical Chemistry**

★3 (fi 6) (second term, 3-0-0). Prerequisite: consent of Department.

**CHEM 599 Fundamentals and Applications of Mass Spectrometry**

★3 (fi 6) (either term, 3-0-0). Recent advances in ion sources and mass analyzers have transformed mass spectrometry (MS) into a dominant research tool in many areas of chemistry and biochemistry. The objective of this course is to provide students with an understanding of the theory underlying the operation and application of MS to diverse chemical and biochemical problems. Emphasis will be placed on the role of gas-phase ion chemistry in MS experiments. The first part of this course will deal with the operating principles of the different types of mass analyzers, as well as the ionization techniques used to generate gas-phase ions. The second part of the course will examine chemical applications of MS. Included will be a detailed discussion of the dissociation techniques used to obtain structural information. Prerequisite: CHEM 383; or CHEM 282 and CHEM 373; or consent of Instructor.

**221.74 Chimie, CHIM**

Faculté Saint-Jean

**Cours de 1er cycle****CHIM 101 Introduction à la chimie I**

★3 (fi 6) (premier semestre, 3-1s-3). Structure atomique, liaisons covalentes, thermochimie, équilibre chimique, acides et bases, les éléments représentatifs. Préalable(s): Chimie 30 ou l'équivalent.

**CHIM 102 Introduction à la chimie II**

★3 (fi 6) (deuxième semestre, 3-1s-3). Etats de la matière et forces intermoléculaires, solubilité et solutions, électrochimie, thermodynamique chimique, cinétique chimique, liaison et propriétés des métaux de transition. Préalable(s): CHIM 101.

**CHIM 103 Introduction à la chimie I**

★3 (fi 6) (l'un ou l'autre semestre, 3-1s-3/2). Stoechiométrie, gaz parfaits, thermochimie, équilibre chimique, acides et bases, structure atomique et liaison chimique. Préalable(s): Chimie 30 ou l'équivalent. Note: Ce cours est réservé aux étudiants de génie.

**CHIM 105 Introduction à la chimie II**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-3/2). Solubilité, cellule électrochimique et équation de Nernst, cinétique chimique, modes de liaison et structure, cinétique chimique, modes de liaison et structure, chimie des éléments de transition. Préalable(s): CHIM 103. Note: Ce cours est réservé aux étudiants de génie.

**CHIM 161 Chimie organique I**

★3 (fi 6) (premier semestre, 3-0-3). Etude de la structure moléculaire et de la réactivité des composés organiques basée sur leurs groupes fonctionnels. Introduction à la nomenclature, la structure tridimensionnelle, les propriétés physiques, et réactivité des composés de carbone. L'accent sera mis sur les alcanes, les alcènes, les alcyne, les halogénures d'alkyle, les alcools, et certains composés aromatiques. Les exemples comprendront les hydrocarbures (produits pétroliers) composés organiques halogénés (pesticides), et les polymères d'une importance industrielle que l'on retrouve dans la vie de tous les jours. Note: Les

étudiants ayant des crédits en CHIM 101 et 102 devront normalement suivre CHIM 261. Préalable(s): Chimie 30 ou l'équivalent.

**CHIM 163 Chimie organique II**

★3 (fi 6) (deuxième semestre, 3-0-3). Continuation de l'étude de la structure et réactivité des groupes fonctionnels avec accent sur les molécules importantes en biologie (corps gras, sucres, médicaments, antibiotiques, amino-acides, protéines, acides nucléiques). L'accent sera mis sur les alcools, les composés aromatiques, les composés carbonylés (les aldéhydes, les cétones, les dérivés des acides carboxyliques), et les amines. Discussion des molécules de tous les jours (savons, détergents, fibres, parfums et biopolymères). Préalable(s): CHIM 161.

**CHIM 261 Chimie organique I**

★3 (fi 6) (premier semestre, 3-0-3). Corrélation des structures et des liaisons chimiques des composés de carbone avec les propriétés physiques et la réactivité chimique des molécules organiques. Etude des groupes fonctionnels. L'accent sera mis sur les hydrocarbures et leurs dérivés qui contiennent les hétéroatomes (halogènes, oxygène, soufre, et groupe hydroxy). Introduction à la stéréochimie, la structure tridimensionnelle, les mécanismes, en particulier addition aux doubles liaisons, substitution nucléophile et réactions d'élimination. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour CHIM 161. Préalable(s): CHIM 100 ou 102.

**CHIM 263 Chimie organique II**

★3 (fi 6) (deuxième semestre, 3-0-3). Continuation de l'étude des propriétés structurales et chimiques des groupes fonctionnels avec l'accent sur les alcynes, les composés aromatiques, les aldéhydes, les cétones, les acides carboxyliques et leurs dérivés, et les amines. Exemples de ces groupes fonctionnels dans les produits naturels; les hydrates de carbone, les amino-acides et les protéines, les acides nucléiques, et les lipides. Etude de la déduction des structures des molécules organiques par spectroscopie infrarouge et spectroscopie de résonance magnétique nucléaire. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour CHIM 163. Préalable(s): CHIM 261.

**221.75 Chinese, CHINA**Department of East Asian Studies  
Faculty of Arts**Undergraduate Courses****Notes**

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess prior background. Students with an Asian (Chinese, Japanese, Korean) language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in a more advanced course suitable to their level of ability or they may be encouraged to seek "Credit by Special Assessment" (see §44.5) when appropriate.
- (3) The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should a student with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level courses, credit may be withheld.

**0 CHINA 101 Basic Chinese I**

★3 (fi 6) (either term, 3-0-0). A non-intensive introduction to Mandarin Chinese. Note: Not open to students with matriculation in Chinese, i.e., CHINA 30 or equivalent.

**0 CHINA 102 Basic Chinese II**

★3 (fi 6) (either term, 3-0-0). A continuation of CHINA 101. Prerequisite: CHINA 101. Note: Not open to students with matriculation in Chinese, i.e., CHINA 30 or equivalent.

**0 CHINA 201 Basic Chinese III**

★3 (fi 6) (either term, 3-0-0). A continuation of CHINA 102. Designed to develop further basic skills in spoken and written Chinese. Prerequisite: CHINA 102.

**0 CHINA 202 Basic Chinese IV**

★3 (fi 6) (either term, 3-0-0). A continuation of CHINA 201. Designed to develop further basic skills in spoken and written Chinese. Prerequisite: CHINA 201.

**0 CHINA 211 Mandarin Chinese I**

★3 (fi 6) (first term, 3-0-1). Designed for speakers proficient in one of the regional dialects of Chinese to gain fluency in the standard Mandarin. Prerequisite: Proficiency in any of the original dialects of China.

**0 CHINA 212 Mandarin Chinese II**

★3 (fi 6) (second term, 3-0-1). Continuation of CHINA 211. Prerequisite: CHINA 211.

**CHINA 220 Body, Mind and World in Chinese Culture**

★3 (fi 6) (either term, 3-0-0). Chinese cultural pursuits and the construction of Chinese traditional world view. Readings and lectures in English. Note: This course does not fulfill the language other than English requirement of the BA degree.

**CHINA 238 Contrastive Analysis of Chinese and English**

★3 (fi 6) (either term, 3-0-0). Introduction to the grammatical structures, syntax, and semantics of Chinese and English. Prerequisite: CHINA 202 or consent of Department.

**CHINA 270 The Chinese Language in its Cultural Setting I**

★6 (fi 12) (two term, 15-0-0). A language/cultural immersion course offered in China. Designed to improve oral/aural skills and increase understanding of Chinese people and culture. Note: Offered in alternate years. CHINA 280 and 380 may not both be taken for credit. Prerequisite: CHINA 202 or consent of Department. Not open to students with credit in CHINA 350.

**CHINA 301 Intermediate Chinese I**

★3 (fi 6) (first term, 3-0-0). Continuing study of spoken and written modern standard Chinese. Conversation and composition are integrated with reading and discussion of texts of modern Chinese prose, fiction, and other kinds of writing. Prerequisite: CHINA 200, 202, 280 or consent of Department.

**CHINA 302 Intermediate Chinese II**

★3 (fi 6) (second term, 3-0-0). A continuation of CHINA 301. Prerequisite: CHINA 301 or consent of Department.

**CHINA 318 Business Chinese I**

★3 (fi 6) (either term, 3-0-0). Intermediate level of modern standard Chinese with emphasis on the vocabulary and communication style of the Chinese business world. Prerequisite: CHINA 202 or consent of Department.

**CHINA 319 Business Chinese II**

★3 (fi 6) (either term, 3-0-0). Modern standard Chinese with emphasis on the vocabulary and communication style of the Chinese business world. Readings from newspapers and other media. Prerequisite: CHINA 318 or consent of Department.

**CHINA 321 Pre-modern Chinese Literature in English Translation**

★3 (fi 6) (either term, 3-0-0). Chinese Literature from earliest times through the Qing Dynasty. Readings and lectures in English. Note: Does not fulfill any Faculty of Arts Language other than English requirement. Not open to students with credit in China 323.

**CHINA 322 Modern Chinese Literature in English Translation**

★3 (fi 6) (either term, 3-0-0). Chinese literature from 1912 to 1949. Readings and lectures in English. Prerequisite: CHINA 321 or consent of the Department. Note: Does not fulfill any Faculty of Arts Language other than English requirement. Not open to students with credit in CHINA 427.

**CHINA 337 Women in Modern Chinese Literature and Film**

★3 (fi 6) (either term, 3-0-0). Roles of women as writers/filmmakers and as subjects within literary works and movies. Readings and lectures in English. Note: This course does not fulfill the Language other than English requirement of the BA degree.

**CHINA 339 Autobiography, Memoir, and Biography**

★3 (fi 6) (either term, 3-0-0). Concentration on the post-1949 period. Literary, socio-political and historical contexts. Readings and lectures in English. Note: This course does not fulfill the Language other than English requirement of the BA degree.

**CHINA 341 Classical Chinese I**

★3 (fi 6) (first term, 3-0-0). An introduction to the syntax and semantic structures of classical Chinese. Prerequisite: CHINA 200 or 202.

**CHINA 342 Classical Chinese II**

★3 (fi 6) (second term, 3-0-0). A continuation of CHINA 341. Prerequisite: CHINA 341.

**CHINA 370 The Chinese Language in its Cultural Setting II**

★6 (fi 12) (two term, 15-0-0). A language/culture immersion course offered in China. Designed for improving of oral/aural skills and increasing understanding of Chinese people and culture. Note: Offered in alternate years. CHINA 280 and 380 may not both be taken for credit. Prerequisite: CHINA 302 or consent of Department. Not open to students with credit in CHINA 450.

**CHINA 401 Advanced Chinese I: Chinese in Mass Media**

★3 (fi 6) (either term, 3-0-0). Chinese language through contemporary film, television programs and newspapers. Prerequisite: CHINA 302 or consent of Department.

**CHINA 402 Advanced Chinese II: Literature and Society**

★3 (fi 6) (either term, 3-0-0). Development of language skills through reading modern fiction and/or non-fiction. Introduction to important issues and themes in modern Chinese society and literature. Readings in Chinese; lectures in English and/or Chinese. Prerequisite: CHINA 401 or consent of Department.

**CHINA 410 Classical Chinese Poetry**

★3 (fi 6) (either term, 3-0-0). Emphasis on the production of poetry as a cultural object. Note: Not open to students with credit in CHINA 423. Prerequisite: Any 300-level literature course or consent of Department.

**CHINA 414 Chivalric Tales and Love Stories**

★3 (fi 6) (either term, 3-0-0). Language and literary conventions in vernacular fiction and drama. Readings in Chinese; lectures in English and/or Chinese. Prerequisite: CHINA 302 or consent of Department.

**CHINA 420 Chinese Modernity: Literature and Film**

★3 (fi 6) (either term, 3-0-0). A cross-disciplinary study of literary and cinematic texts from modern China. Prerequisite: CHINA 402 and/or consent of Department.

**CHINA 425 Post-Mao Fiction**

★3 (fi 6) (either term, 3-0-0). A discussion of the major literary trends and the fictional works of important writers who have emerged in the post-Mao era (since 1976). Readings and lectures in English. Prerequisite: Any 300-level literature course or consent of Department. Note: This course will not fulfill the Language other than English requirement of the BA.

**CHINA 428 Chinese-English Translation**

★3 (fi 6) (either term, 3-0-0). Theory and practice in translation as applied to Chinese and English literary and non-literary texts. Prerequisite: CHINA 401 or consent of Department.

**CHINA 438 Practical Translation**

★3 (fi 6) (either term, 3-0-0). The practice of translation in media, government, and business. Prerequisite: CHINA 302 or consent of Department.

**CHINA 455 Topics in Taiwan Literature**

★3 (fi 6) (either term, 3-0-0). Readings in Taiwan literature with emphasis on tradition, theme, and technique. Readings in Chinese; lectures in English and/or Chinese. Prerequisite: CHINA 302.

**CHINA 480 Topics in Chinese Studies**

★3 (fi 6) (either term, 3-0-0). Prerequisite: ★6 of senior courses in Chinese or consent of Department.

**CHINA 483 Supervised Readings in Chinese**

★3 (fi 6) (either term, 3-0-0). Accelerated reading course primarily for senior and graduate students in special area of need or interest. Prerequisite: Consent of Department. Note: Not open to students with credit in CHINA 481.

**CHINA 490 Honors Thesis**

★3 (fi 6) (either term, 3-0-0).

**Graduate Courses****CHINA 500 Topics in Chinese Language**

★3 (fi 6) (either term, 3-0-0). A reading knowledge of Chinese is required.

**CHINA 501 Methods of Research: Pre-Modern**

★3 (fi 6) (either term, 3-0-0). Sinology; historical and critical approaches to pre-modern Chinese literature. A reading knowledge of Chinese is required.

**CHINA 502 Methods of Research: Modern**

★3 (fi 6) (either term, 3-0-0). Sinology; historical and critical approaches to modern Chinese literature. A reading knowledge of Chinese is required.

**CHINA 510 Reading Tang-Song Poetry**

★3 (fi 6) (either term, 3-0-0). Conventions of writing poetry in China in contrast to those in the western world.

**CHINA 520 Modernism and Twentieth-Century Literature**

★3 (fi 6) (either term, 3-0-0). Themes and preoccupations of the Modernist movement as they are appropriated and transformed by Chinese writers.

**CHINA 552 Topics in Modern Chinese Literature**

★3 (fi 6) (either term, 3-0-0). Major literary trends and contemporary literature from post-Mao China and Taiwan. Readings in Chinese; lectures in English and/or Chinese.

**CHINA 599 Topics in Chinese Literature**

★3 (fi 6) (either term, 3-0-0). Survey of major topics in Chinese literature, pre-modern and modern. CHINA 599 must be taken at least once and may be repeated for credit when course content differs. A reading knowledge of Chinese is required.

**221.76 Christian Theology at St Joseph's College, CHRTC**

St Joseph's College

Note: The following courses can be used as Arts options.

**Undergraduate Courses****CHRTC 100 The Bible and the Origins of the Christian Church**

★3 (fi 6) (either term, 3-0-0). A study of the basic themes of the Christian bible; creation and covenant; sin and evil; the biblical history of ancient Israel;

the prophets and justice; the preaching, death, and resurrection of Jesus Christ; redemption; the emergence of the Church.

#### **CHRTC 101 Interdisciplinary Seminar in Catholic Studies I**

★3 (*fi 6*) (first term, 0-3s-0). Critical examination and discussion of selected themes in Western history, thought and culture as they relate to the Catholic Christian intellectual tradition. Note: Restricted to students enrolled in the St. Joseph's College- Faculty of Arts Cohort program.

#### **CHRTC 102 Interdisciplinary Seminar in Catholic Studies II**

★3 (*fi 6*) (second term, 0-3s-0). Critical examination and discussion of selected themes in Western history, thought and culture as they relate to the Catholic Christian intellectual tradition. Prerequisite: CHRTC 101. Note: Restricted to students enrolled in the St. Joseph's College-Faculty of Arts Cohort program.

#### **CHRTC 172 Introduction to Catholic Moral Thought**

★3 (*fi 6*) (either term, 3-0-0). An introduction to the major themes in Catholic moral reflection with application to some contemporary issues. The meaning of morality and Christian conversion; the role of experience, the Bible, the Church, moral norms, the development of conscience, and personal responsibility. Formerly CHRTC 272.

#### **CHRTC 250 The Theological Education of the Catholic Teacher**

★3 (*fi 6*) (either term, 3-0-0). The components that make up the education of the Catholic teacher. Issues include credal statements, the moral and social teachings of the Church, liturgical practices, a general theology and theory of Catholic education.

#### **CHRTC 264 Dimensions of the Christian Faith**

★3 (*fi 6*) (either term, 3-0-0). What is Christianity? An introduction to the major dimensions of Christianity, such as revelation, faith, Scripture, God, Jesus as Lord and Saviour, with reflection on them in light of contemporary human experience. Formerly CHRTC 364.

#### **CHRTC 266 Jesus in the New Testament**

★3 (*fi 6*) (either term, 3-0-0). Exploring the person of Jesus through studying the four Gospels, Paul, and later New Testament writers, with reflection on such recent approaches as liberation theology, feminist exegesis, and the Jesus-seminar.

#### **CHRTC 267 The Letters of the New Testament: Sin, Suffering, Signs, and Hope**

★3 (*fi 6*) (either term, 3-0-0). A theological and scriptural exploration of four central themes of these New Testament writings and their contemporary relevance.

#### **CHRTC 270 The Catholic Church Today**

★3 (*fi 6*) (either term, 3-0-0). A study of how the Catholic Church understands itself today, its relationships with other Christians and with non-Christians, and its role in the contemporary world. Formerly CHRTC 370.

#### **CHRTC 292 Spirituality for Today's Christian**

★3 (*fi 6*) (either term, 3-0-0). Developing an understanding of the role of prayer, leisure, and work within a Christian lifestyle in the light of Scripture, Christian tradition, current theological reflection, and personal differences.

#### **CHRTC 341 Contemporary Film and Christian Values**

★3 (*fi 6*) (either term, 3-0-0). Theological themes arising out of contemporary film. Themes may include relationships, family, gender, possessions, work freedom, violence, suffering, death, happiness, and hope.

#### **CHRTC 349 Christianity and Social Justice in Canada**

★3 (*fi 6*) (either term, 3-0-0). An examination of particular social justice issues related to the economy, women, native peoples, the environment, etc., in light of Catholic social teachings and other Christian perspectives; social action strategies, and education for social justice.

#### **CHRTC 350 Science and Religion: Christian Perspectives**

★3 (*fi 6*) (either term, 3-0-0). An examination of science and religion; their historical relationship, current issues (e.g., the evolution vs creation debate, scientific and religious knowledge, the nature of science and religion, cosmology) and contemporary attempts to address them.

#### **CHRTC 351 Human Sexuality and Marriage: Christian Perspectives**

★3 (*fi 6*) (either term, 3-0-0). Questions of meaning and morality concerning human sexuality and marriage, including love, non-marital sex, divorce, parenthood, and gender roles, considered in light of human experience. Scripture, Christian Tradition, Catholic Church teaching, and contemporary theological discussion.

#### **CHRTC 352 Bioethical Issues: Christian Perspectives**

★3 (*fi 6*) (either term, 3-0-0). Reproductive and genetic technologies, abortion, transplantation, resource allocation, research, withdrawing treatment, personal directives, euthanasia, considered in light of human experience. Catholic Church teaching, other Christian perspectives and contemporary ethical discussion.

#### **CHRTC 353 Christian Perspectives on Imaginative Literature**

★3 (*fi 6*) (either term, 3-0-0). The author's milieu, context of the work, Christian content, and how the work deals with Christian values, beliefs, spirituality, conscience.

#### **CHRTC 354 The Gospels of Matthew, Mark, and Luke**

★3 (*fi 6*) (either term, 3-0-0). A comparison of the Gospels of Matthew, Mark, and Luke to determine their theological and pastoral orientations in proclaiming the Jesus tradition to the developing Christian communities. Not open to students with credit in CHRTC 355 or 356 or 357.

#### **CHRTC 355 The Catechism of the Catholic Church: Theological Perspectives**

★3 (*fi 6*) (either term, 3-0-0). Scripture, the moral life, systematic theology, social teachings, catechesis, the spiritual life in the New Catechism, and the relationship between an official Catechetical text and Catholic theological development.

#### **CHRTC 356 Theologies of Christian Religious Education**

★3 (*fi 6*) (either term, 3-0-0). Pluralism, multiculturalism, and ecumenism in relation to Christian religious education including tradition, Scripture, the Church, the person, the mission of the Church in the world, as well as the influence of the wider culture upon the development of theologies of education.

#### **CHRTC 371 The Sacraments**

★3 (*fi 6*) (first term, 3-0-0). The role of the sacraments in Christian life and worship. The sacraments as mysteries of salvation and as community celebrations. Relationships among the various sacraments. Historical development and current understandings of specific sacramental rites.

#### **CHRTC 380 Christian Religious Education and the Child**

★3 (*fi 6*) (either term, 3-0-0). Key themes relevant to the faith life of children, such as: the presence of God, a sense of belonging, the need for community. Examination of selected Alberta school curriculum topics.

#### **CHRTC 381 Christian Religious Education and the Adolescent/Young Adult**

★3 (*fi 6*) (either term, 3-0-0). Key themes relevant to the faith search of adolescents/young adults, such as: the life and teachings of Jesus, the challenge of the Gospel in our culture, and the meaning of belonging and commitment to Church. Examination of selected Alberta school curriculum topics.

#### **CHRTC 390 Neuroscience, the Person and Christian Theology**

★3 (*fi 6*) (either term, 3-0-0). Interdisciplinary study of personhood and related topics: animal/human consciousness; body/soul, mind/brain, sexuality/gender, and relationship issues; religious and mystical experiences.

#### **CHRTC 391 Women's Spirituality in Contemporary Christianity**

★3 (*fi 6*) (either term, 3-0-0). Women's experience of God and the Christian life expressed in the history of spirituality, personal faith development and contemporary culture.

#### **CHRTC 394 Business Ethics: Christian Perspectives**

★3 (*fi 6*) (either term, 3-0-0). A theological study of ethical issues in business settings, dealing with such themes as employer-employee relations, job security, advertising, distribution of wealth, acquisitive individualism, the common good; decisions on ethical issues in light of contemporary Catholic teaching.

#### **CHRTC 396 Environmental Issues: Christian Perspectives**

★3 (*fi 6*) (either term, 3-0-0). A theological study of ethical issues concerning our human relationship to the planet earth: responsible stewardship, non-renewable resources, pollution, the use of technology.

#### **CHRTC 407 Topics in Christian Religious Education**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: CHRTC 380 or 381 or consent of the College.

#### **CHRTC 432 Advanced Bioethics**

★3 (*fi 6*) (either term, 3-0-0). A theological analysis of selected bioethical issues such as defective newborns, allocation of scarce medical resources, suffering and death. Prerequisite: CHRTC 352 or consent of the College.

#### **CHRTC 449 Field Placement in Christian Service**

★3 (*fi 6*) (either term, 0-8s-0). Supervised work experience in approved Christian social agencies with seminars and a major paper integrating the theological literature with issues raised by social action and placement experiences. Prerequisite: CHRTC 349 or consent of the College.

#### **CHRTC 450 Directed Readings in Catholic Theology**

★3 (*fi 6*) (either term, 3-0-0). An intensive directed readings course on a topic selected by the student in consultation with one of the faculty. A major term paper is required. Prerequisites: One course in Christian theology and permission of the College.

#### **CHRTC 451 Modern Creationisms**

★3 (*fi 6*) (either term, 3-0-0). Critical analysis of the creation-evolution debate in light of scientific evidence and modern biblical scholarship. Prerequisite: CHRTC 350 or consent of the College.

## Graduate Courses

#### **CHRTC 501 Directed Reading in Catholic Theology**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: consent of College.

## 221.77 Christian Theology at St Stephen's College, CH RTP

St Stephen's College

**Note:** The following courses can be used as Arts options.

### Undergraduate Courses

#### **0** CH RTP 301 Hebrew Scriptures

★3 (fi 6) (first term, 3-0-0). Background, authorship, sources, literary qualities and general teaching of the various books of the Hebrew Scriptures (Old Testament), and the process of the Old Testament formation. Note: Not open to students with credit in CH RTP 301 Old Testament Literature.

#### **0** CH RTP 305 Christian Scriptures

★3 (fi 6) (second term, 3-0-0). Jewish and Greek environment of the New Testament; the authorship and content of its various books, and the process of New Testament formation. Note: Not open to students with credit in CH RTP 305 New Testament Literature.

#### **0** CH RTP 312 The Question of Faith

★3 (fi 6) (first term, 0-3s-0). An introduction to a methodology for a disciplined examination of issues in contemporary religious experience with reference to selected readings from leading thinkers.

#### **0** CH RTP 313 Topics in Applied Christian Ethics

★3 (fi 6) (either term, 3-0-0). Exploration and analysis of selected issues in social ethics within the context of theological reflection and commitment. Particular attention will be paid to the development of debate within the Protestant tradition.

#### **0** CH RTP 314 Topics in Women and Religion

★3 (fi 6) (either term, 3-0-0). Women's relation to and place in the dominant religious tradition of the West, Christianity. Attention will be paid to women's attempts to critique and transform received tradition and/or to develop alternative forms of religious life.

#### **0** CH RTP 315 Topics in Religion and Literature

★3 (fi 6) (either term, 3-0-0). Religious systems mediate their values and concerns in a variety of ways (liturgy, mythos, theology, etc.). This course investigates major Christian concerns such as doubt, faith, suffering, hope, forgiveness and redemption as mediated through narrative. In addition to exploring deep questions of religious meaning, attention will also be paid to the transmission and transformation of values, and the use of literature as a religious vehicle for social change.

#### **0** CH RTP 316 Issues in Contemporary Sexuality and Spirituality

★3 (fi 6) (second term, 2-1s-0). A study of selected beliefs concerning sexuality and spirituality in the light of contemporary theories and debates.

#### **0** CH RTP 317 New Issues in Theology

★3 (fi 6) (either term, 3-0-0). A survey course exploring recent developments in Christian Theology and their implications for traditional beliefs, symbols, and the integration of faith and practice.

#### **0** CH RTP 318 Feminist Theology

★3 (fi 6) (first term, 1-2s-0). An examination of feminist criticisms of selected doctrines and practices.

#### **0** CH RTP 418 The Makers of Modern Theology

★3 (fi 6) (either term, 0-3s-0). A study of the major works of a key theologian of the 19th or 20th century.

## 221.78 Civil Engineering, CIV E

Department of Civil and Environmental Engineering  
Faculty of Engineering

The following courses were renumbered effective 2000-2001

Old	New	Old	New
CIV E 506	CIV E 406	CIV E 540	CIV E 439
CIV E 404	CIV E 409	CIV E 574	CIV E 479
CIV E 521	CIV E 429	CIV E 591	CIV E 489

### Undergraduate Courses

#### **CIV E 221 Environmental Engineering Fundamentals**

★3.8 (fi 6) (second term, 3-0-3/2). Basic mechanisms of chemistry, biology, and physics relevant to environmental engineering processes. Principles of equilibrium reactions and kinetics, mass transfer and material balances, microbial growth and kinetics, water, energy, and nutrient cycles. Applications to environmental engineering systems as biological degradation, mass and energy movement through the environment, and design of water and wastewater treatment systems. Prerequisites: CHEM 103 and CHEM 105.

#### **CIV E 240 Technical Communications**

★2 (fi 6) (second term, 1-2s-0). Written and oral communications in civil engineering; lectures and practice on presentation of oral and written reports, including: technical proposals; progress reports; field inspection reports; and consulting reports. Seminars and practice in developing effective search strategies for technical information. A written report must be submitted by each student.

#### **CIV E 250 Plane Surveying**

★4.5 (fi 6) (either term, 3-0-3). Basic surveying concepts and instrumentation, measurement errors, coordinate systems, leveling, traversing, layout surveys, earthwork volumes, conventional, and digital mapping, GIS concepts, aerial photography, and GPS. Prerequisites: MATH 101 and 102.

#### **CIV E 251 Survey School**

★1.5 (fi 3) (second term or Spring/Summer, 1 week). Practical exercises in field methods; project type of assignments; field astronomy; electronic distance measuring instruments. Note: Survey School is held off campus. Prerequisite: CIV E 250.

#### **CIV E 265 Engineering Drawing and Computer Graphics**

★3.5 (fi 6) (either term, 2-0-3). Multiview representation, pictorial views of three-dimensional objects. Computer-aided graphics using AutoCAD.

#### **CIV E 270 Mechanics of Deformable Bodies I**

★4.5 (fi 6) (either term, 3-0-3). Plane stress and strain; stress-strain relationships; stresses and deformations resulting from axial and transverse loads; buckling of columns; torsion of circular sections; combined stress; statically indeterminate problems. Laboratory to demonstrate mechanical properties and verify assumptions of analysis. Prerequisites: ENGG 130 and MATH 101.

#### **CIV E 290 Civil Engineering Analysis I**

★3 (fi 6) (second term, 3-0-0). Statistical and probabilistic approaches to civil engineering problems. Prerequisites: ENCOMP 100, MATH 101.

#### **CIV E 295 Civil Engineering Analysis II**

★4 (fi 6) (second term, 3-0-2). Application of numerical methods to civil engineering problems. Prerequisites: ENCOMP 100, MATH 102 and 209.

#### **CIV E 303 Project Management**

★3.8 (fi 6) (either term, 3-0-3/2). Planning and scheduling; theories and techniques of project management.

#### **CIV E 312 Transportation Engineering**

★3 (fi 6) (either term, 3-0-0). Transportation systems and their elements. Population and transportation in Canada. Principles of transportation planning. Traffic volume, capacity, speed, density, and safety. Fundamentals of traffic control and public transport. Economic and environmental evaluation in transportation planning and operations design. Principles of transportation systems management.

#### **CIV E 315 Transportation Engineering**

★4 (fi 6) (either term, 3-0-2). Transportation systems and their elements. Principles of transportation planning. Traffic volume, capacity, speed, density, and safety. Fundamentals of traffic control. Principles of highway planning. Highway and terrain. Vehicular motion. Horizontal and vertical geometric design. Cost/benefit analysis in highway design. Earthwork and mass diagram. Flexible and rigid pavement design. Prerequisite: CIV E 250; pre- or corequisite: CIV E 391.

#### **CIV E 321 Principles of Environmental Modeling and Risk**

★3.8 (fi 6) (either term, 3-0-3/2). Introduction modeling environmental processes to predict the movement of water and fate of contaminants in the hydrologic cycle. Principles of mass transfer, conservation of mass, environmental transformations, nutrient enrichment and depletion are developed. Introduction to storm events, rainfall, runoff, stream discharge and stormwater management. Applications of modeling results to the quantification of risk using examples from hydrology, water pollution and health protection and development of environmental regulations. Prerequisite: CIV E 221. Corequisite: CIV E 330.

#### **CIV E 330 Introduction to Fluid Mechanics**

★3.5 (fi 6) (either term, 3-1s-0). Fluid properties; dimensional analysis; hydrostatics; fundamental equations of fluid motion; laminar, turbulent and inviscid flows; boundary layers and flow around immersed bodies; elementary building aerodynamics. Prerequisites: MATH 201 and 209.

#### **CIV E 331 Applied Hydraulics**

★3.8 (fi 6) (either term, 3-0-3/2). Introduction to applied hydraulics; control volume methods, open channel hydraulics, pipe systems, pumps, distribution and collection system hydraulics and design. Prerequisite: CIV E 330, and either CIV E 221 or ENV E 222.

#### **CIV E 372 Structural Analysis I**

★4 (fi 6) (either term, 3-2s-0). Introduction to structural loads; deformations of statically determinate beams, trusses and frames; influence lines; analysis of statically indeterminate structures by consistent deformations, slope deflection and moment distribution; direct stiffness analysis. Prerequisite: CIV E 270.

#### **CIV E 374 Structural Design I**

★4.5 (fi 6) (either term, 3-0-3). Introduction to limit states design. Behavior and design of steel and reinforced concrete members. Prerequisite: CIV E 372.

#### **CIV E 381 Soil Mechanics**

★4.5 (fi 6) (either term, 3-0-3). Compaction; site investigation; theories of water

seepage; effective stress principles; settlement; strength and mechanical properties; introduction to retaining structures, foundation, and slope stability. Prerequisites: EAS 210 and CIV E 295.

#### **CIV E 391 Civil Engineering Materials**

★4.5 (*fi 6*) (either term, 3-0-3). Classification of soils. Properties of Portland cement concrete related to micro- and macro-structure and constituent materials. Properties of bituminous materials and design of bituminous mixes. Prerequisite: MATE 252 or ENV E 220.

#### **CIV E 395 Civil Engineering Analysis III**

★3.5 (*fi 6*) (either term, 3-0-2/2). The formulation of partial differential equations for solving civil engineering problems. Introduction to analytical and numerical solution techniques. Prerequisites: MATH 201 and CIV E 295.

#### **CIV E 398 Introduction to Continuum Mechanics**

★3.5 (*fi 6*) (first term, 3-1s-0). Stress, strain and displacements in two and three dimensions. Constitutive equations. Governing equations of elasticity and simple solutions. Strain energy and virtual work. Theories of failure. Prerequisites: CIV E 270 and MATH 209.

#### **CIV E 404 Construction Methods**

★3.8 (*fi 6*) (either term, 3-0-3/2). Principles of building, heavy and bridge construction; wood and formwork design, stability during construction, economics of equipment selection, movement of material on construction sites, safety, and constructability issues. Prerequisite: CIV E 372.

#### **CIV E 406 Construction Estimating, Planning, and Control**

★3.8 (*fi 6*) (either term, 3-0-3/2). Introduction to elements of construction, planning, scheduling, and cost estimating. Familiarization with quantity take-off, estimate preparation, cost recovery, resource allocation, project scheduling, risk analysis, and bid preparation. Prerequisite: CIV E 303.

#### **CIV E 409 Construction Methods**

★4.5 (*fi 6*) (either term, 3-0-3). Principles of building, heavy and bridge construction; wood and formwork design, stability during construction, economics of equipment selection, movement of material on construction sites, safety, and constructability issues. Students work in teams on a design project. Prerequisites: CIV E 303 and 372.

#### **CIV E 421 Processes for Public Health and Environmental Protection**

★3.8 (*fi 6*) (either term, 3-0-3/2). Theory of chemical, physical and biological processes in environmental engineering. Chemical kinetics and equilibrium, biological growth and kinetics, elements of reactor design, sedimentation, filtration, absorption; precipitation and gas transfer, introduction to facility design. Prerequisite: CIV E 321.

#### **CIV E 429 Environmental Engineering Design**

★4.5 (*fi 6*) (second term, 3-0-3). Fundamentals of municipal design, planning and environmental impact assessment; detailed design and assessment projects; reports; presentation; field trips. Students work in teams on a design project. Prerequisites: CIV E 321 and either CIV E 421 or ENV E 421.

#### **CIV E 431 Water Resources Engineering**

★3.8 (*fi 6*) (either term, 3-0-3/2). Hydrotechnical analysis, including: advanced open channel hydraulics; advanced surface water hydrology; groundwater and well hydraulics; and environmental hydraulics. Prerequisites: CIV E 321, 331. Credit cannot be obtained in this course if credit has already been obtained in CIV E 433.

#### **CIV E 433 Hydrology**

★3.8 (*fi 6*) (either term, 3-0-3/2). Introduction to concepts in hydrology and hydrogeology. Hydrology topics include precipitation, evaporation, infiltration, streamflow and hydrograph analysis. Hydrogeology topics include infiltration, percolation, seepage, drainage, aquifer hydraulics, contaminant transport and urban runoff quality. Prerequisite: CIV E 321.

#### **CIV E 439 Water Resources Engineering Design**

★4.5 (*fi 6*) (second term, 3-0-3). Design of hydraulic structures and river engineering works, including: dams, spillways, energy dissipators, bridges, culverts, erosion protection and river training works. Students work in teams on a design project. Prerequisite: CIV E 431 or both of CIV E 321 and 331.

#### **CIV E 474 Structural Design II**

★3.8 (*fi 6*) (either term, 3-0-3/2). Behavior and design of steel and reinforced concrete structures. This course builds on the material presented in CIV E 374 and places greater emphasis on the behavior of overall structures. Prerequisite: CIV E 374.

#### **CIV E 479 Structural Design III**

★4.5 (*fi 6*) (second term, 3-0-3). Design of prestressed concrete structures; masonry and reinforced masonry elements; timber structures; fatigue life of steel structures and cold formed steel elements. Students work in teams on a design project. Prerequisite: CIV E 474.

#### **CIV E 481 Soil Engineering**

★3.8 (*fi 6*) (either term, 3-0-3/2). Site investigation; strength of soils; geosynthetics for soil improvement; design of excavations and earth pressures on retaining structures; stability of natural slopes and their improvement; design of cuts and

embankments; foundation design, stability and settlement; pile foundations; frost action and permafrost. Prerequisite: CIV E 381.

#### **CIV E 489 Geotechnical Design**

★4.5 (*fi 6*) (second term, 3-0-3). Evaluation of site conditions. Design and analysis of shallow and deep foundations and retaining structures. Slope stability of embankments and cuts including foundation excavations. Students work in teams on a design project. Prerequisite: CIV E 481.

#### **CIV E 490 Civil Engineering Report Writing**

★2 (*fi 6*) (either term, 1-2s-0). Written and oral communication; lectures and practice on presentation of oral and written reports. A comprehensive written report must be submitted by each student. Prerequisite: consent of Department.

#### **CIV E 499 Special Topics in Civil Engineering Design**

★4.5 (*fi 6*) (either term, 3-0-3).

#### **CIV E 506 Construction Estimating, Planning, and Control**

★3 (*fi 6*) (second term, 3-0-0). Introduction to elements of construction, planning, scheduling, and cost estimating. Familiarization with quantity take-off, estimate preparation, cost recovery, resource allocation, project scheduling, risk analysis, and bid preparation. Prerequisite: CIV E 303.

#### **CIV E 521 Environmental Engineering Design**

★3 (*fi 6*) (second term, 3-0-0). Fundamentals of municipal design, planning and environmental impact assessment; solid waste management; detailed design and assessment projects; reports; presentations; field trips. Prerequisites: CIV E 221, 321, and 421.

#### **CIV E 540 Hydraulic Engineering**

★3 (*fi 6*) (second term, 3-0-0). Theory and design of hydraulic structures like dams, spillways, energy dissipators, drop structures, weirs, and culverts. Elementary river engineering including backwater curve computations. Hydraulic transients. Prerequisite: CIV E 331.

#### **CIV E 574 Structural Design III**

★3 (*fi 6*) (second term, 3-0-0). Design of prestressed concrete structures; masonry and reinforced masonry elements; timber structures; fatigue life of steel structures and cold formed steel elements. Prerequisites: CIV E 374 and 474.

#### **CIV E 591 Geotechnical Design**

★3 (*fi 6*) (second term, 3-0-0). Evaluation of site conditions. Design and analysis of shallow and deep foundations and retaining structures. Slope stability of embankments and cuts including foundation excavations. Prerequisite: CIV E 481.

## Graduate Courses

#### **CIV E 601 Project Management**

★3 (*fi 6*) (either term, 3-0-0). Overview of project management for capital construction projects. Emphasis on planning and scheduling, including linear scheduling, project control, value engineering, and constructability.

#### **CIV E 602 Contract Administration**

★3 (*fi 6*) (either term, 3-0-0). Construction project and contract administration; budgeting, costing and financial project control; delivery systems; labour relations; safety.

#### **CIV E 603 Computer Applications and Information Management in Construction**

★4.5 (*fi 6*) (either term, 3-0-3). Computer-aided information management in construction, including relational database development and management, application of artificial neural networks, and application of computers in the planning, organization and control of construction projects.

#### **CIV E 604 Construction Law**

★3 (*fi 6*) (either term, 3-0-0). Covers fundamentals of construction law; overview of the Canadian Legal System, business organization. Tort liability, construction contracts, agreements. Lien legislation, statutes governing the engineering profession and other legal topics.

#### **CIV E 605 Decision Support Systems in Construction**

★3 (*fi 6*) (either term, 3-0-0). Development of decision support systems for construction project planning and control. Explores techniques of automated data acquisition, expert systems, utility theory, multi-attribute decision-making and fuzzy logic. Development of practical applications in construction.

#### **CIV E 606 Design and Analysis of Construction Operations**

★3 (*fi 6*) (either term, 3-0-0). Overview of production management in construction. Techniques for modeling construction operations, design of efficient processes, measurement and improvement of productivity. Computer simulation techniques for modeling and analysis.

#### **CIV E 607 Work Improvement Studies**

★3 (*fi 6*) (either term, 3-0-0). Planning for productivity improvement, work measurement technique, data analysis and evaluation, human behavior as a factor in construction productivity, safety in productivity improvement, computer and other tools for productivity improvement.

#### **CIV E 608 Construction Engineering**

★3.8 (*fi 6*) (either term, 3-0-3/2). Introduction to the elements and methods of

construction and principles of material handling on construction projects. Winter construction, dewatering, earthmoving and earthworks, concrete processes, building systems and lifting. Site tours.

#### **CIV E 611 Pavement Materials**

★3 (fi 6) (either term, 3-0-0). Source, manufacture, properties, tests and specifications of bituminous materials; properties and testing of aggregate, bituminous and stabilized mixtures; construction and quality control.

#### **CIV E 618 Pavement Management Systems**

★3 (fi 6) (either term, 3-0-0). Introduction to pavement management, network and project level management, data collection and management, pavement evaluation, pavement design, rehabilitation and maintenance, pavement performance models, life cycle analysis, implementation of pavement management systems, future directions and research needs.

#### **CIV E 619 Advanced Project Planning and Control**

★3 (fi 6) (either term, 3-0-0). Advanced techniques used for project planning and control, with an emphasis on scheduling of repetitive (linear) construction operations. Current research and computer applications will be used to demonstrate these techniques.

#### **CIV E 620 Environmental Engineering Measurements I**

★4.5 (fi 6) (either term, 3-0-3). Theory and procedures for determining the quality of natural water, potable water, municipal and industrial wastes. Fundamental parameters and concepts for environmental quality evaluation.

#### **CIV E 621 Municipal Distribution and Collection Systems**

★3 (fi 6) (either term, 3-0-0). Detailed and advanced design of water supply systems, sewerage and storm drains. Rates of flow, and hydraulics of networks and sewers, rainfall-runoff analysis, storm water storage, loads on conduits are examined. Solid waste collection and processing systems.

#### **CIV E 622 Physical/Chemical Water and Wastewater Treatment**

★3 (fi 6) (either term, 3-0-0). Theory and design of chemical and physical unit processes utilized in the treatment of water and wastewater, sedimentation, flotation, coagulation, precipitation, filtration, disinfection, ion exchange, reverse osmosis, adsorption, and gas transfer.

#### **CIV E 623 Industrial Water and Wastewater Management**

★3 (fi 6) (either term, 3-0-0). Industrial water quantity and quality requirements. Characteristics of wastes, inplant controls, product recovery; effluent characteristics, chemical and toxic properties, pretreatment and treatment design theory and methodology, water reclamation and reuse regulations.

#### **CIV E 624 Biological Waste Treatment Processes**

★3 (fi 6) (either term, 3-0-0). Study of the theoretical and applied aspects of wastewater treatment by activated sludge, fixed and moving biological films, conventional and aerated lagoons, sludge digestion, septic tanks, land treatment, and nutrient removal. Guidelines, regulations and economics. System analysis and design of facilities.

#### **CIV E 625 Engineering Management of Water Quality**

★3 (fi 6) (either term, 3-0-0). Concepts, rationale, theory, institutions and engineering aspects of water quality management. Methods of water quality management; oxygen; chemical and microbial models, natural and induced re-aeration techniques; thermal pollution and ice cover considerations.

#### **CIV E 626 Environmental Health Engineering**

★3 (fi 6) (either term, 3-0-0). Exposure assessment including environmental partitioning behavior of contaminants, and human exposure measurement, modelling and time-activity analysis. Health assessment including hazard identification, dose-response assessment, odour and noise assessment. Risk management.

#### **CIV E 627 Environmental Engineering Measurements II**

★3 (fi 6) (either term, 1-0-4). Laboratory experiments to present techniques for obtaining data and relationships needed for design of treatment facilities. Analytical approaches, data interpretation, presentation and design methods. Applications of experimental design principles.

#### **CIV E 628 Municipal Solid Waste Management**

★3 (fi 6) (either term, 3-0-0). Principles of municipal waste management to protect public health, municipal waste streams, waste stream analysis and prediction. Refuse collection, storage and hauling methods, and facilities. Engineering design and operation of solid waste processing, treatment and disposal methods: resource recovery, recycling programs, incineration, composting, landfilling, and novel techniques. Solid waste legislation and policies. Environment impacts, impact management and facility siting of waste facilities.

#### **CIV E 631 Engineering Fluid Mechanics**

★3.5 (fi 6) (either term, 3-0-1). Navier-Stokes equations and viscous flow. Turbulence and Reynolds equations. Potential flow. Boundary layers. Flow around bodies. Jets and wakes. Related Lab experiments.

#### **CIV E 632 Hydraulic Structures**

★3.5 (fi 6) (either term, 3-0-1). Hydraulic design of water-handling structures used for extraction, retention, conveyance, control, regulation, energy dissipation, drainage, navigation, flood controls and other civil engineering schemes. Related Lab experiments.

#### **CIV E 634 Numerical Methods in Hydraulics**

★3 (fi 6) (either term, 3-0-0). Review of numerical methods for solution of linear and nonlinear systems of algebraic and ordinary differential equations. Finite difference, finite volume and finite element methods for partial differential equations with an emphasis on convection dominated transport equation problems. Stability and accuracy analysis of numerical methods.

#### **CIV E 635 Advanced Environmental Fluid Mechanics**

★3.5 (fi 6) (either term, 3-0-1). Mixing processes and pollutant transport in rivers, lakes, estuaries, coastal waters, and the atmosphere. Prerequisite: CIV E 631. Related Lab experiments.

#### **CIV E 636 Ice Engineering**

★3.5 (fi 6) (either term, 3-0-1). Elementary heat transfer analysis. Ice formation processes. Ice hydraulics. Ice mechanics. Interaction of ice and engineering structures.

#### **CIV E 638 Experimental Fluid Mechanics**

★3.5 (fi 6) (either term, 3-0-1). Methods used for the measurement and analysis of data in fluid mechanics experiments. Topics covered will include: dimensional analysis and similitude; digital data acquisition, digital signal processing, spectral analysis, error analysis, surface wave height and slope measurements; laser-Doppler velocimetry, acoustic-Doppler velocimetry, particle-image velocimetry, high speed video and flow visualization.

#### **CIV E 639 Computational Hydraulics**

★3 (fi 6) (either term, 3-0-1). Application of computational methods to problems in Hydraulic Engineering, including: transient pipe and open channel flow, two-dimensional shallow water flow, and contaminant and sediment transport. Introduction to computational fluid dynamics. Recommended Prerequisite: CIV E 634 or consent of the instructor.

#### **CIV E 640 River Engineering**

★3.5 (fi 6) (either term, 3-0-1). Flow and sediment transport in alluvial channels; engineering geomorphology; river ecology; design of river engineering installations.

#### **CIV E 641 Advanced Surface Water Hydrology**

★3 (fi 6) (either term, 3-0-0). Precipitation, evaporation, infiltration. Streamflow and hydrograph analysis. Hydrologic systems. Hydrologic routing. Simulation models. Statistical methods.

#### **CIV E 644 Stochastic Processes of Hydrology**

★3.5 (fi 6) (either term, 3-0-1). Probability distributions of random phenomena, parameter estimates and applications in hydrology. Analysis and modelling of hydrologic time series using Autoregressive Moving-Avenue (ARMA) models. Spatial interpolation schemes of hydrologic data. Introduction to chaotic processes, concepts of scale, self-similarity and fractal dimensions. This course is complementary to CIV E 641, which deals with the physical aspects of hydrologic processes.

#### **CIV E 645 Water Resources Planning and Management**

★3.5 (fi 6) (either term, 3-0-1). Systems concept on the planning and management of water resources systems. Engineering economics and economic theories. Evaluate and optimize the design and operations of water resources systems using Linear Programming, chance-constrained Linear Programming, Dynamic Programming, Stochastic Dynamic Programming, constrained and unconstrained nonlinear programming. Optimal sizing and operations of reservoir systems and hydropower using HEC5 and urban stormwater management system.

#### **CIV E 650 Advanced Topics in Photogrammetry**

★3 (fi 6) (either term, 3-0-0). Specialized photogrammetric techniques for use in engineering and scientific measurements. Emphasis on close-range and terrestrial photogrammetry, self-calibration modeling and special adjustment techniques.

#### **CIV E 651 Advanced Topics in Surveying**

★3 (fi 6) (either term, 3-0-0). Study of modern survey techniques and their application. Emphasis on modern positioning systems, deformation monitoring, survey design and data analysis.

#### **CIV E 652 Advanced Topics in Data Analysis and Adjustment**

★3 (fi 6) (either term, 3-0-0). Study of data analysis techniques. Regression and adjustment procedures for photogrammetric, surveying and engineering applications.

#### **CIV E 654 Artificial Intelligence and Automation in Construction**

★3 (fi 6) (either term, 3-0-0). Prototyping techniques applied to the design and development of systems based on artificial intelligence techniques for use in construction.

#### **CIV E 656 Environmental Engineering Assessment and Management**

★3 (fi 6) (either term, 3-0-0). Review of EIA basics: definitions, cause-effect mechanisms, description of engineered activities and baselines, environmental impact predications, testing and monitoring of effects, project evaluation and decision making for engineering design, and impact management of engineered facilities. Environmental management plans and audits, communication with stakeholders, and review of projects. Prerequisites: CIV E 620 and 622.

#### **CIV E 658 Design of Civil Engineering Experiments**

★3 (fi 6) (either term, 3-0-0). Introduction to experimental design; design of

experiments in environmental, transportation, and other civil engineering specialty areas; analysis of experimental and survey data.

#### **CIV E 660 Advanced Structural Analysis**

★3 (*fi 6*) (either term, 3-0-0). Direct stiffness theory and modeling of three dimensional framed structures. Linear and nonlinear stability concepts. Approximate and Direct stiffness formulation of geometric nonlinear problems.

#### **CIV E 661 Dynamics of Structures**

★3 (*fi 6*) (either term, 3-0-0). Dynamics of single and multiple degree of freedom systems. Time step methods. Modal and response spectrum analysis for earthquake loading. Random vibration analysis. Dynamic wind loading analysis. Dynamics of foundations.

#### **CIV E 664 Introduction to Solid Mechanics**

★3 (*fi 6*) (either term, 3-0-0). Formulation of basic equations of elasticity in solid mechanics. Cartesian tensor notation. Variational principles.

#### **CIV E 665 Introduction to the Finite Element Method**

★3 (*fi 6*) (either term, 3-0-0). Fundamentals of the formulation and application of the finite element method to problems of continuum mechanics, with special reference to civil engineering, including problems in solid mechanics and soil mechanics. Prerequisite: CIV E 664 or consent of Instructor.

#### **CIV E 666 Structural Concepts**

★4 (*fi 6*) (either term, 3-1s-1). Causes and characteristics of loads on buildings, bridges and other structures. Reasons for and calculations of load and resistance factors.

#### **CIV E 667 Advanced Topics in the Finite Element Method**

★3 (*fi 6*) (either term, 3-0-0). Convergence criteria, equilibrium and hybrid elements. Application of finite element methods to problems in stability, dynamics, plates and shells. Treatment of geometric and material nonlinearities. Prerequisite: CIV E 665 or consent of Instructor. Offered in alternate years.

#### **CIV E 670 Behavior and Design of Steel Members**

★4 (*fi 6*) (either term, 3-1s-1). Material properties and plate-buckling problems. Behavior and design of steel tension and compression members, beams and beam-columns. Behavior and design of welded and bolted connections. This course is designed to give the student an understanding of the individual members which form the steel structure.

#### **CIV E 671 Behavior and Design of Steel Structures**

★3 (*fi 6*) (either term, 3-0-0). Brittle fracture and fatigue problems. Behavior and design of composite beams and plate girders. Discussion of frame behavior; overall buckling and instability concepts as related to the design of columns and bracing systems. This course is designed to build on the material contained in CIV E 670 and to give the student an insight into the behavior of the total structure.

#### **CIV E 672 Behavior and Design of Concrete Members**

★4 (*fi 6*) (either term, 3-1s-1). Strength and behavior of simple reinforced concrete members. Relation between results of research and current design specifications. Material properties. Members subjected to flexure, axial compression, combined flexure and axial load, combined flexure and shear, torsion.

#### **CIV E 673 Behavior and Design of Concrete Structures**

★3 (*fi 6*) (either term, 3-0-0). Strength and behavior of statically indeterminate reinforced concrete structures. Elastic and limit analysis and design considerations for continuous slab systems, frames and shear walls.

#### **CIV E 674 Behavior and Design of Prestressed Concrete Structures**

★3 (*fi 6*) (either term, 3-0-0). (Offered alternate years.) Principles and methods of prestressing. Service load design and analysis. Behavior and strength design. Losses in prestress and anchorage zone stresses. Continuous beams and slabs. Discussion of design specifications.

#### **CIV E 676 Behavior and Design of Masonry Structures**

★3 (*fi 6*) (either term, 3-0-0). (Offered alternate years.) Historical developments. Masonry units, mortars and grouts. Behavior, strength and stability of masonry under axial compression. Reinforced masonry in bending and combined axial load and bending. Ductility and joint control. Design application including discussion of code requirements.

#### **CIV E 677 Behavior and Design of Cold-Formed Steel Structures**

★3 (*fi 6*) (either term, 3-0-0). General design considerations, cold forming effects, effective width method, behavior and design of tension members, beam-columns, and connections. Behavior and design of light gage steel diaphragms, composite steel decks, and industrial steel building design.

#### **CIV E 680 Engineering Properties of Soils**

★4 (*fi 6*) (first term, 3-1s-1). Principle of effective stress, clay-water systems, soil compressibility and theories of consolidation. Pore pressure parameters. Strength of granular and cohesive media. Anisotropy of soils. Laboratory measurement of strength and deformation properties. Stress-strain relations.

#### **CIV E 681 Seepage and Drainage**

★4 (*fi 6*) (first term, 3-1s-1). Elements of hydrogeology; regional groundwater flow, borehole logging methods. Theory of groundwater flow through soils and rocks, permeability, Darcy's law, field governing equations and their solution by approximate methods, finite difference and finite element methods, unsaturated flow.

Civil engineering applications, seepage in earth structures, design of dewatering systems for excavations and slopes, field testing, grouting.

#### **CIV E 682 Environmental Geotechnics**

★3.5 (*fi 6*) (either term, 3-0-1). Environmental laws and regulatory processes; geotechnical characterization for environmental problems; transfer processes; elements of groundwater contaminants, geotechnical aspects of waste management; mine waste; dumps and tailings dams; design of landfills; in-situ characterization; site remediations; geotechnical aspects of nuclear waste storage.

#### **CIV E 683 Site Investigation Practice**

★3 (*fi 6*) (first term, 3-0-0). Techniques of site investigation for geotechnical engineering, in situ testing, instrumentation for field performance studies, case histories covering both rock and soil applications.

#### **CIV E 684 Engineering Geology and Terrain Analysis**

★4 (*fi 6*) (second term, 3-1s-1). Information sources in engineering geology and terrain analysis, elements of the geology of sediments and glacial geology. Glacial and periglacial land forms. Photogeology and airphoto interpretation applied to geotechnical engineering. Case histories based on specific materials and regional problems.

#### **CIV E 685 Applied Environmental Geochemistry**

★4.5 (*fi 6*) (either term, 3-0-3). Geochemical processes in groundwater and mineral-water-atmosphere interaction related to petroleum, mining and agricultural wastes. Develop concepts in thermodynamic equilibrium chemistry, carbonate and nitrogen chemistry, sorption and exchange reactions, oxidation-reduction reactions and iron-sulphur geochemistry. Computation methods in geochemical modeling (PHREEQC), speciation prediction, reaction path modeling, groundwater mixing and reactive transport analysis. Techniques in environmental soil, groundwater, surface water sampling and field screening methods. Introduction to analytical testing methods for organic and inorganic chemicals and the assessment and interpretation of analytical testing results. Prerequisites: University level basic chemistry course, introductory computer course and introductory geology/mineralogy course.

#### **CIV E 687 Rock Engineering for Near Surface Structures**

★3 (*fi 6*) (second term, 3-0-0). Deterministic and probabilistic design methods for rock slopes and foundations on rocks. Economic, operational and geological factors affecting design. Support and stabilization techniques, excavation methods, monitoring structures in and on rock, foundations for dams and for large loads.

#### **CIV E 690 Advanced Foundation Engineering**

★4 (*fi 6*) (either term, 3-1s-1). Theories of lateral pressures. Limit equilibrium methods, elasticity methods, semi-empirical methods. Soil anchors. Design of retaining walls and strutted excavations. Bearing capacity of shallow and deep foundations. Allowable settlement of structures. Analysis of settlement of shallow and deep foundations. Behavior of pile groups. Design problems in foundation engineering.

#### **CIV E 692 Tunnelling**

★3.5 (*fi 6*) (second term, 3-1s-0). Methods of tunnelling, including excavation methods and support techniques, ground response, in situ and induced stress field, displacement field around deep and near surface tunnels, ground-support interaction, design criteria for tunnels in soil and rock, shaft design, site investigation practice and monitoring of tunnels.

#### **CIV E 694 Permafrost Engineering**

★3 (*fi 6*) (either term, 3-0-0). Implications for northern development, extent, engineering classification, thermal regime, ground ice, genesis, site investigations, heat conduction in the ground, properties of frozen soil, thaw consolidation, freezing mechanisms, foundations in frozen ground; slope stability, highways and airfields, pipelines and earth dams in arctic and sub-arctic regions. Prerequisite: CIV E 481 or consent of Department.

#### **CIV E 695 Soil Structures**

★4 (*fi 6*) (second term, 3-1s-1). Stresses in slopes. Limit equilibrium methods of analysis. Landslides in soil. Design of earth dams and embankments. Case histories of earth and rockfill dams. Dam foundations. Soft ground tunnelling.

#### **CIV E 697 Rock Engineering**

★4 (*fi 6*) (first term, 3-1s-1). Elements of structural geology, analysis of the geometry of rock defects, properties of intact rocks. Properties of rock masses and stresses in rock masses, stability of rock slopes. Rock foundations and underground excavations in rock. Case studies.

#### **CIV E 698 Petroleum Geomechanics**

★3 (*fi 6*) (either term, 3-0-0). Application geotechnical engineering principles to petroleum engineering problems. Principles of thermo-poroelasticity are reviewed. Borehole stability, hydraulic fracturing, subsidence/heave, sand production, formation damage and reservoir-geomechanical modelling are the major topics for the course. Special attention is given to geomechanical influences on reservoir flow processes. Prerequisite: consent of Instructor.

#### **CIV E 699 Numerical Methods in Geotechnical Engineering**

★3 (*fi 6*) (either term, 3-0-0). Techniques and procedures in geotechnical analysis. Geotechnical analysis using commercial computer packages. Nonlinear (material and geometric) finite element methods, advanced constitutive modeling for

geotechnical materials, mixed, hybrid and weighted residual formulations, coupled flow/deformation finite element formulation, finite difference and boundary element methods. Other special topics include fracture/shear band modeling, rock joint modeling and discrete element modeling. Prerequisite: CIV E 664 and CIV E 665 or permission of Instructor.

**CIV E 709 Advanced Topics in Construction Engineering and Management**

★3 (fi 6) (either term, 3-0-0).

**CIV E 719 Advanced Topics in Transportation and Highway Engineering**

★3 (fi 6) (either term, 3-0-0).

**CIV E 729 Advanced Topics in Environmental Engineering**

★3 (fi 6) (either term, 3-0-0).

**CIV E 739 Advanced Topics in Fluid Mechanics and Hydraulics**

★3 (fi 6) (either term, 3-0-0).

**CIV E 749 Advanced Topics in Water Resources Engineering**

★3.5 (fi 6) (either term, 3-0-1). Related Lab experiments.

**CIV E 779 Advanced Topics in Structural Engineering**

★3 (fi 6) (either term, 3-0-0).

**CIV E 799 Advanced Topics in Soil Mechanics**

★3 (fi 6) (either term, 3-0-0).

**CIV E 900 Directed Research Project**

★3 (fi 6) (variable, unassigned).

## 221.79 Classics, CLASS

Department of History and Classics  
Faculty of Arts

### Notes

- (1) None of the courses under this heading will fulfil the language-other-than-English requirement of the BA degree.
- (2) Courses under this heading from 100-400 level may be taken by students with no knowledge of Greek or Latin. Knowledge of Greek or Latin may be required at the 500-level.
- (3) The 100-level courses provide the broadest introduction to Classics, while the 200-level courses are overviews of specific areas within Classics. The 300-level courses build upon the 200-level courses and have suitable prerequisites. Note: Some 300-level courses do not have a specific topic and the details of the topic to be offered in any given year can be obtained from the Department.
- (4) All 400-level courses under this heading have a pre-requisite of at least one senior level Classics, Greek, or Latin course.
- (5) The courses numbered 460 through the 500-level are designed for fourth-year Honors, and graduate students. Because precise topics in any given course may vary from year to year, students' interests are taken into account. For additional related courses see Greek and Latin listings.

### Undergraduate Courses

**○ CLASS 102 Greek and Roman Mythology**

★3 (fi 6) (either term, 3-0-0). A survey of classical mythology with readings in translation from various ancient authors as well as from modern scholarly works. Formerly CLASS 202.

**CLASS 103 Introduction to Ancient Greece**

★3 (fi 6) (either term, 3-0-0). Formerly CLASS 270.

**CLASS 104 Introduction to Ancient Rome**

★3 (fi 6) (either term, 3-0-0). Formerly CLASS 271.

**○ CLASS 110 The Ancient World**

★3 (fi 6) (either term, 3-0-0). World history from the beginning of written records down to the sixth century AD. The course covers the ancient history of the Mediterranean world, with particular emphasis on Egypt, Greece and Rome and compares developments in civilization in these areas with those in Persia, India, China and Japan. Note: Students choosing CLASS 110 for partial fulfilment of the Humanities Group A requirement must also take one of HIST 110, 111 or 112. Formerly CLASS 210.

**○ CLASS 221 Literature of Greece and Rome**

★3 (fi 6) (either term, 3-0-0). An introductory survey in English translation of major works from Greek and Latin literature. This will include epic, lyric, and drama. Formerly CLASS 201. May not be taken concurrently with or subsequent to CLASS 321/322.

**CLASS 254 Introduction to Greek Art and Archaeology**

★3 (fi 6) (either term, 3-0-0). Survey of the art, artifacts, and monuments of the Ancient Greek World. Formerly CLASS 252.

**CLASS 255 Introduction to Roman Art and Archaeology**

★3 (fi 6) (either term, 3-0-0). Survey of the art, artifacts, and monuments of the Ancient Roman World. Formerly CLASS 252.

**○ CLASS 261 Women in the Ancient World**

★3 (fi 6) (either term, 3-0-0). An introduction to the role of women in the Ancient World as approached through the study of literature, law, religion, and art. Formerly CLASS 361.

**CLASS 280 Introduction to Ancient Greek History**

★3 (fi 6) (either term, 3-0-0). Not open to students with credit in any two of CLASS 371, 372, and 373.

**CLASS 281 Introduction to Roman History**

★3 (fi 6) (either term, 3-0-0). Not open to students with credit in any two of CLASS 365, 366, 378 and 379.

**○ CLASS 294 Ancient Science, Technology, and Medicine**

★3 (fi 6) (either term, 3-0-0). An introduction to the development of science, technology, and medicine in the ancient world with particular reference to the civilizations of Greece and Rome. Not available for those who have successfully completed CLASS 141.

**○ CLASS 302 Classical Myth and Religion**

★3 (fi 6) (either term, 3-0-0). The background and origin of classical mythology and religion; Mycenaean and Near Eastern sources; religious festivals and usages; modern scholarship. Formerly CLASS 357. Prerequisite: CLASS 102 or consent of Department.

**CLASS 303 Religion in Greco-Roman Antiquity**

★3 (fi 6) (either term, 3-0-0). Examination of the nature of pre-Christian religious practices in antiquity.

**○ CLASS 321 Greek Literature in Translation**

★3 (fi 6) (either term, 3-0-0). A study of representative works of Greek literature. Formerly CLASS 349/359. Prerequisite: CLASS 102, 221 or consent of Department.

**○ CLASS 322 Latin Literature in Translation**

★3 (fi 6) (either term, 3-0-0). A study of representative works of Latin literature. Formerly CLASS 351. Prerequisite: CLASS 102, 221 or consent of Department.

**CLASS 354 Topics in Greek Civilization**

★3 (fi 6) (either term, 3-0-0). Examination of one aspect of the Classical Greek World. (Emphasis in any one year may be archaeological, historical or literary). Prerequisites: CLASS 254 or 280.

**CLASS 355 Topics in Roman Civilization**

★3 (fi 6) (either term, 3-0-0). Examination of one aspect of the Classical Roman World. (Emphasis in any one year may be archaeological, historical or literary). Prerequisites: CLASS 255 or 281.

**CLASS 356 Topics in Ancient Art**

★3 (fi 6) (either term, 3-0-0). Examination of one aspect of art in the Greco-Roman world. Prerequisites: CLASS 254 or 255.

**CLASS 358 Topics in the Methodology, Theory and Practice of Classical Archaeology**

★3 (fi 6) (either term, 3-0-0). Prerequisites: CLASS 254 or 255.

**CLASS 360 Ancient Historiography**

★3 (fi 6) (either term, 3-0-0). Examination of the development of history writing in Classical Antiquity. Prerequisite: CLASS 280 or 281.

**○ CLASS 375 History of Medicine in the Ancient World**

★3 (fi 6) (either term, 3-0-0). A survey of medical science from Prehistoric times through Egyptian, Mesopotamian, Greek, and Roman times to the end of the Roman Empire. Normally offered in Spring/Summer.

**○ CLASS 376 Early Civilization I**

★3 (fi 6) (either term, 3-0-0). A survey of the beginnings and development of civilization in the Near East, including Sumer, Babylon, Assyria, and the Hebrews. Formerly CLASS 369. Note: not open to students with credit in RELIG 305.

**○ CLASS 380 History of Palestine**

★3 (fi 6) (either term, 3-0-0). From the Persian Conquest to the time of Jesus. Note: not open to students with credit in RELIG 308.

**○ CLASS 387 Pre-Islamic North Africa**

★3 (fi 6) (either term, 3-0-0). The history of North Africa from the 1st millennium BC to the eve of the Arab conquest. Topics will include the first Phoenician and Greek settlements, Punic civilization, Roman and Vandal occupation and the Byzantine reconquest.

**CLASS 391 Introduction to Classical Field Archaeology**

★3-6 (variable) (variable, 0-10L-0). Not open to students with credit in CLASS 475 or 476. Note: Offered only for fieldwork in the archaeology of the Greek



and Roman world and restricted to those participating in a fieldwork program sponsored by the Department.

**CLASS 399 Topics in the Ancient World**

★3 (fi 6) (either term, 3-0-0).

**CLASS 463 Topics in Roman Republican History**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: CLASS 281 or consent of Department.

**CLASS 473 Topics in Classical Archaeology**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: Any one of CLASS 354, 355, 356, 358 or consent of Department.

**CLASS 474 Pre-Roman Italy**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: Any one of CLASS 254, 255, 280, 281 or consent of Department.

**CLASS 475 Techniques of Classical Field Archaeology**

★3-6 (variable) (variable, 0-10L-0). The techniques of survey, excavation and recording in Classical Archaeology. Prerequisites: Students must be either Classics majors or in a Classics graduate program. Note: Offered only for fieldwork in the archaeology of the Greek and Roman world and restricted to those participating in a fieldwork program sponsored by the Department.

**CLASS 476 Advanced Field Techniques in Classical Archaeology**

★3-6 (variable) (variable, 0-10L-0). Advanced field application of Classical Archaeological Theory. Prerequisites: CLASS 475 or equivalent. Note: Offered only for fieldwork in the archaeology of the Greek and Roman world and restricted to those participating in a fieldwork program sponsored by the Department.

**CLASS 478 Topics in Roman Art**

★3 (fi 6) (either term, 0-3s-0). In-depth study of aspects of Roman art. Prerequisite: CLASS 355 or 356 or consent of Department

**CLASS 479 Topics in Roman Archaeology and Social History**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: CLASS 281 or 355 or consent of Department.

**CLASS 480 Topics in the Archaeology of the Roman Provinces**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: CLASS 281 or 355 or consent of Department.

**CLASS 481 Topics in Greek History**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: CLASS 280 or consent of Department.

**CLASS 498 Individual Study of Literary Problems**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: Any one of CLASS 221, 261, 321, 322, or consent of Department.

**CLASS 499 Individual Study of Historical and Archaeological Problems**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**CLASS 500 Fourth-Year Honors Tutorial**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

## Graduate Courses

**CLASS 501 Research Methods and Resources in Classics**

★1 (fi 2) (first term, 0-1s-0).

**CLASS 515 Topics in the Archaeology of Greece**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**CLASS 516 Topics in the Archaeology of the Roman Provinces**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**CLASS 522 Studies in Ancient History**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**CLASS 574 Pre-Roman Italy**

★3 (fi 6) (either term, 0-3s-0). The native cultures of the Italian peninsula from the beginning of the first millennium BCE to the end of the Samnitic wars. Formerly CLASS 511. Prerequisites: Consent of Department.

**CLASS 578 Roman Art**

★3 (fi 6) (either term, 0-3s-0).

**CLASS 579 Topics in Roman Archaeology and Social History**

★3 (fi 6) (either term, 0-3s-0).

**CLASS 599 Individual Study**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department. Repeatable.

**CLASS 601 Studies in Classical Archaeology I**

★3 (fi 6) (either term, 0-3s-0).

**CLASS 602 Studies in Classical Archaeology II**

★3 (fi 6) (either term, 0-3s-0).

**CLASS 900 Directed Research Project**

★3 (fi 6) (variable, unassigned).

## 221.80 Community Service Learning, CSL

Office of Interdisciplinary Studies  
Faculty of Arts

### Undergraduate Courses

**CSL 300 Theory and Practice in Community Service-Learning**

★3 (fi 6) (either term, 3-0-0). An in-depth exploration of theories and practices of civic engagement and community change for students who have already completed a course with a CSL component and who wish to extend their volunteer experience. Prerequisite: Completion of a course with a CSL component or consent of instructor. Note: For information about courses in programs and departments across the Faculty of Arts that offer a CSL component, see the link on the Faculty of Arts website, [www.arts.ualberta.ca](http://www.arts.ualberta.ca)

## 221.81 Comparative Literature, C LIT

Office of Interdisciplinary Studies  
Faculty of Arts

**Note:** Courses in Comparative Literature teach a number of literatures from an international perspective with the help of translations as necessary.

### Undergraduate Courses

**C LIT 100 World Literature**

★6 (fi 12) (two term, 3-0-0). An introduction to major works of the world's literary heritage, presented in their historical, social, and cultural contexts. This course is designed to acquaint students with literature as an expression of human experience and to provide a foundation for senior courses in literature, and studies in the humanities and social sciences.

**C LIT 171 Introduction to the Comparative Study of the Canadian Literatures I**

★3 (fi 6) (first term, 3-0-0). An introductory course designed to compare the basic texts of English-Canadian and French-Canadian literatures until the 1950s.

**C LIT 172 Introduction to the Comparative Study of the Canadian Literatures II**

★3 (fi 6) (second term, 3-0-0). An introductory course designed to compare the basic texts of English-Canadian and French-Canadian literatures since the 1950s.

**C LIT 201 Literature of the European Tradition I**

★3 (fi 6) (either term, 3-0-0). A survey of European literary tradition from the Biblical and Graeco-Roman heritage to the Renaissance.

**C LIT 202 Literature of the European Tradition II**

★3 (fi 6) (either term, 3-0-0). A survey of the Western literary tradition from the Renaissance to the present day.

**C LIT 206 Introduction to Literary Theory I**

★3 (fi 6) (either term, 3-0-0). Key issues in the comparative study of literature (e.g., the nature of literature, basic text types, genres, literary history, text and reader, international literary relations). Note: Not open to students with credit in ENGL 216.

**C LIT 207 Introduction to Literary Theory II**

★3 (fi 6) (either term, 3-0-0). Major contemporary theoretical schools, including deconstruction, poststructuralism, reader response, hermeneutics, feminism, queer theory, Marxism, and postcolonialism. Note: Not open to students with credit in C LIT 205 or ENGL 216.

**C LIT 228 Introduction to Comparative Studies in Popular Literature and Culture**

★3 (fi 6) (either term, 3-0-0). Poetics of such popular genres as crime fiction, spy fiction, the horror story, etc., and their relation to mainstream literature and culture. Note: Not open to students with credit in C LIT 440.

**C LIT 256 Introduction to Colonial and Post-Colonial Literature**

★3 (fi 6) (either term, 3-0-0). Introduction to the comparative study of the modern literatures of Asia, Africa and Latin America (including the Caribbean).

**C LIT 266 Women and World Literature**

★3 (fi 6) (either term, 3-0-0). An examination of major works of world literature by women from antiquity to the present.

**C LIT 297 Special Topics in Comparative Literature**

★3 (fi 6) (either term, 0-3s-0).

**C LIT 338 Cross-Cultural Studies in Literature**

★3 (fi 6) (either term, 3-0-0). Study of the complexities resulting from the interaction and interpenetration of the literatures of different cultures. Topics will vary from year to year.

**C LIT 342 Science Fiction**

★3 (fi 6) (either term, 3-0-0). An introduction to science fiction as an international genre and a survey of works and trends.

**0 C LIT 343 Fairy Tales and Folk Tales**

★3 (fi 6) (either term, 3-0-0). A survey of European fairy tales, and an introduction to critical and theoretical approaches to the folk tale in general and the fairy tale in particular.

**0 C LIT 344 Elements of Narrative Fiction**

★3 (fi 6) (first term, 3-0-0). An international survey of the main features of a narrative text, with historical examples and an emphasis on theory.

**0 C LIT 345 Elements of Poetry**

★3 (fi 6) (second term, 3-0-0). An international survey of the main features of a poetic text, with historical examples and an emphasis on theory.

**0 C LIT 346 Elements of Drama**

★3 (fi 6) (either term, 3-0-0). An international survey of the basic components and forms of dramatic structure, with historical examples and an emphasis on theory.

**0 C LIT 352 Relations among Literature, the Arts, Film and the Media**

★3 (fi 6) (either term, 3-0-0). Throughout history, literature had close relations with the other arts (such as painting and sculpture, music and theatre): more recently these relations extended to cinema television, and other media. Each year, the course will emphasize one of these relations, in an interdisciplinary perspective which stresses contacts and commonalities, but also the specific differences of art forms and the media.

**0 C LIT 358 Great Themes of Literature and Art**

★3 (fi 6) (either term, 3-0-0). The international and interdisciplinary study of selected international mythical and legendary themes and motifs, such as Faust and Don Juan, their origin, and their literary and artistic developments.

**0 C LIT 360 Marginalized Literatures**

★3 (fi 6) (either term, 3-0-0). An introduction to literatures of minorities and lesser known national literatures.

**0 C LIT 362 International Movements in Contemporary Literature**

★3 (fi 6) (either term, 3-0-0). This course is designed to introduce the student to such topics as literature of the absurd, existential literature, and surrealism.

**0 C LIT 363 Latin America in Its Literature (in English Translation)**

★3 (fi 6) (either term, 3-0-0). Relations among the literature, culture, history, and politics of Latin America through a selection of texts originally written in Spanish, Portuguese and/or an indigenous language. Prerequisite: ★3 in any senior literature course, or consent of Department. Note: not to be taken by students with credit in LA ST 360 or SPAN 360.

**0 C LIT 372 Comparative Studies in Canadian Prose**

★3 (fi 6) (either term, 3-0-0). Study of narrative and other forms of Canadian prose, chiefly French and English, examined on a comparative basis within an international framework.

**0 C LIT 397 Special Topics in Comparative Literature**

★3 (fi 6) (either term, 0-3s-0).

**0 C LIT 440 Comparative Studies in Popular Culture**

★3 (fi 6) (either term, 3-0-0). An international historical and typological analysis of selected topics in popular literature and media, their changing status in society and culture, as well as their interaction with canonized forms of literature and the arts.

**0 C LIT 444 Autobiographical Writing**

★3 (fi 6) (either term, 3-0-0). A survey of autobiographical forms from antiquity to postmodernity and a study of theoretical problems of genre and subjectivity.

**0 C LIT 445 Hermeneutics**

★3 (fi 6) (either term, 3-0-0). History and development of hermeneutics with emphasis on its relevance to the study of literary and religious texts. Note: This course is equivalent to RELIG 445.

**0 C LIT 448 Studies in Critical Theory**

★3 (fi 6) (either term, 3-0-0). An advanced study of a particular critical theory. Topics may include Feminism, Marxism, Post-Colonialism.

**C LIT 460 Fundamentals of Comparative Literature**

★3 (fi 6) (either term, 3-0-3). Disciplinary issues, approaches and methodologies in Comparative Literature as they differ from those of national literatures.

**0 C LIT 464 Studies in Literary Genres**

★3 (fi 6) (either term, 3-0-0). An advanced study of 'genre' (e.g., the novel) in an international and a particular historical context.

**0 C LIT 465 Literature and Society**

★3 (fi 6) (either term, 3-0-0). International comparative studies of the interrelationship of literature and society.

**0 C LIT 466 Literature and Science**

★3 (fi 6) (either term, 3-0-0). The relation between the literary and scientific cultures. Topics may include the Two Cultures debate, social and literary utopia, eugenics, time travel, the atom bomb, futurology, machine intelligence, Internet, and cyberspace.

**0 C LIT 472 Advanced Comparative Studies in Canadian Prose**

★3 (fi 6) (either term, 3-0-0). An advanced study of narrative and other forms of prose of Canadian literatures, chiefly French and English, examined on a comparative basis with an international framework.

**0 C LIT 474 Studies in the Relationship of Literature and the Visual Arts**

★3 (fi 6) (either term, 3-0-0). A cross-cultural study of the interrelations between art and literature.

**C LIT 480 Directed Reading in Comparative Literature**

★3-6 (variable) (variable, 3-0-0). Prerequisite: consent of Department.

**0 C LIT 497 Special Topics in Comparative Literature**

★3 (fi 6) (either term, 0-3s-0).

**0 C LIT 499 Honors Tutorial and Essay**

★3 (fi 6) (either term, 0-3s-0). Preparation of the Honors Essay.

**Graduate Courses****0 C LIT 501 Studies in World Literature I**

★3 (fi 6) (either term, 3-0-0). Prerequisite: Reading knowledge of one relevant language other than English.

**0 C LIT 502 Studies in World Literature II**

★3 (fi 6) (either term, 3-0-0). Prerequisite: Reading knowledge of one relevant language other than English.

**0 C LIT 507 Topics in Major Contemporary Currents in Literary and Cultural Theory I**

★3 (fi 6) (either term, 3-0-0). Variable content. Prerequisite: Reading knowledge of one relevant language other than English. Note: equivalent to EASIA 507 and MLCS 507.

**0 C LIT 508 Topics in Major Contemporary Currents in Literary and Cultural Theory II**

★3 (fi 6) (either term, 3-0-0). Variable content. Prerequisite: Reading knowledge of one relevant language other than English.

**0 C LIT 521 Directed Reading Course I**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**0 C LIT 522 Directed Reading Course II**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**0 C LIT 585 Studies of Forms and Genres**

★3-6 (variable) (variable, 3-0-0). Prerequisite: Reading knowledge of one relevant language other than English.

**0 C LIT 610 Special Topics in Literary Theory and Criticism**

★3-6 (variable) (variable, 3-0-0). Prerequisite: Reading knowledge of one relevant language other than English.

**0 C LIT 630 Cross-Cultural Studies in Literature**

★3-6 (variable) (variable, 3-0-0). The focus of this course will vary from year to year. Topics may include: immigrant literature, literature of the diaspora. Prerequisite: Reading knowledge of one relevant language other than English.

**0 C LIT 696 Seminar Course**

★3-6 (variable) (variable, 0-3s-0). Prerequisite: Reading knowledge of two languages other than English.

**0 C LIT 697 Special Reading Course I**

★3-6 (variable) (variable, 0-3s-0).

**0 C LIT 698 Special Reading Course II**

★3-6 (variable) (variable, 0-3s-0).

**C LIT 900 Directed Research Project**

★3 (fi 6) (variable, unassigned).

**221.82 Computer Engineering, CMPE**

Division of Computer Engineering, Departments of Computing Science, Electrical and Computing Engineering  
Faculties of Engineering and Science

**Undergraduate Courses****CMPE 210 Principles of Software Implementation**

★4.5 (fi 6) (either term, 3-0-3). Guidelines for good programming style: information hiding, coupling and cohesion, high-quality routines, modularity, usage of variables, fundamental and complex data types, conditionals, control loops, quality attributes, inspection and unit testing. Introduction to Personal Software Process (PSP) for improvement of software development on a personal level: measurement of

the process performance, analysis of process measurements, adjustments and improvements of the process. Prerequisite: ENCOMP 100. Corequisite: CMPUT 115.

#### CMPE 300 Introduction to the Software Engineering Process

★3.8 (fi 6) (either term, 3-0-3/2). Complexity and change in software development. Project communication, organization, and scheduling. Team dynamics. Modeling with Universal Modeling Language (UML). Software requirements. Elicitation and analysis. Object modeling. Dynamic modeling. System design. Addressing design goals. Object design. Reuse and interfaces. Software implementation. Software testing. Rationale management. Configuration management. Software life cycle. Software process improvement. Corequisite: CMPUT 201.

#### CMPE 310 Software Requirements Engineering

★3.5 (fi 6) (either term, 2-0-3). Software quality attributes. Software requirements. Requirements elicitation via interviewing, workshops, prototyping, and use case analysis. Vision document and Software Requirement Specification document standards. Formal software specification methods including operational and descriptive models. Design by contract. Verification and validation of requirements. Prerequisite: CMPE 210.

#### CMPE 320 Software Testing and Maintenance Engineering

★3.8 (fi 6) (either term, 3-0-3/2). From software requirements specification to software testing. Risk analysis and metrics for software testing. Software testing process, including test planning, design, implementation, execution, and evaluation. Test design via white box and black box approaches; coverage-based testing techniques. Unit, integration, and system testing. Acceptance tests. Software maintenance and regression testing. Prerequisite: CMPE 310.

#### CMPE 382 Computer Organization and Architecture

★3 (fi 6) (either term, 3-0-0). Survey of modern computer architecture and design concepts. Benchmarks, instruction set design and encoding. Pipelined and superscalar processors. Techniques for exposing and exploiting instruction-level parallelism. Performance of cache and virtual memory hierarchies. Input/output subsystem design. Prerequisite: E E 380 or CMPUT 229. Credit may be obtained in only one of CMPE 382 or CMPUT 429.

#### CMPE 401 Computer Interfacing

★3.8 (fi 6) (either term, 3-0-3/2). The design and use of digital interfaces, including memory, serial, parallel, synchronous and asynchronous interfaces. Hardware implementations of interrupts, buses, input/output devices. Requires payment of additional miscellaneous fees (see S22.2.3). Prerequisite: E E 380 or CMPUT 229.

#### CMPE 402 C/C++ Programming for Engineers

★3.8 (fi 6) (either term, 3-0-3/2). Introduction to the C/C++ programming language and object-oriented software design. Models of software development. Fundamental principles of software engineering. Procedure-oriented versus object-oriented software design. Built-in and user-defined data types. Abstract data types and objects. Basic control structures and input/output in C/C++. Functions, parameter passing mechanisms, and function overloading. Arrays and pointers. Classes and data abstraction. Operator overloading. Class hierarchies, inheritance, virtual functions, and polymorphism. Function and class templates. Exception handling. Generic programming and the C++ Standard Template Library. Prerequisite: ENCOMP 100 or equivalent. Note: Only one of the following courses may be taken for credit: CMPE 210, 402, CMPUT 201, E E 445.

#### CMPE 410 Exploring Software Development Domains

★3.5 (fi 6) (either term, 2-0-3). Advanced programming concepts. Programming language as a vehicle for discussion about programming concepts such as productivity, components and re-use, traditional vs. scripting approaches. Object-oriented construction, systems programming, concurrent programming, Graphical User Interface (GUI) programming, distributed programming, and dynamic programming. Prerequisites: CMPE 320, CMPUT 379.

#### CMPE 420 Reliable and Secure Systems Design

★3 (fi 6) (either term, 3-0-0). Causes and consequences of computer system failure. Structure of fault-tolerant computer systems. Methods for protecting software and data against computer failure. Quantification of system reliability. Introduction to formal methods for safety-critical systems. Computer and computer network security. Prerequisite: CMPE 300. Note: Only one of the following courses may be taken for credit: CMPE 420 or CMPE 510.

#### CMPE 440 Software Systems Design Project

★4 (fi 6) (either term, 1-0-6). Design of software systems from concept to working prototype. Applying software engineering techniques. Working in small groups under constraints commonly experienced in industry. Exposing each team member to the design, implementation, documentation, and testing phases of the project. Managing software development projects. Provides a capstone experience in software development processes. Prerequisite: CMPE 410.

#### CMPE 449 Neural Networks, Fuzzy Systems, and Genetic Optimization

★3 (fi 6) (either term, 3-0-0). Neural networks as adaptive systems. Main architectures and learning paradigms. Supervised, reinforcement, and unsupervised learning. Fuzzy sets. Membership functions, operations, fuzzy relations, approximate reasoning. Rule based systems, fuzzy control, pattern classification. Evolutionary computing. Genetic algorithms as mechanisms of global optimization. Neurofuzzy

systems and genetic optimization of neural and fuzzy systems. Selected applications. Note: May not be taken for credit if credit has already been obtained in either E E 563 or 564.

#### CMPE 480 Advanced Digital Logic Design

★3.8 (fi 6) (either term, 3-0-3/2). Review of classical logic design methods. Introduction to the hardware description language VHDL. Logic simulation principles. Digital system design. Digital system testing and design for testability. Arithmetic circuits. State-of-the-art computer-aided design tools and FPGAs are used to design and implement logic circuits. Prerequisite: E E 351. Note: Only one of the following courses may be taken for credit: CMPE 480 or E E 480 or E E 635.

#### CMPE 487 Data Communications Networks

★3 (fi 6) (either term, 3-0-0). Network topologies. Layered architectures and the Open Systems Interconnection (OSI) reference model. Peer-to-peer protocols, medium access control protocols, and local area network standards. Packet switched networks and routing, the Internet protocol, and the Asynchronous Transport Mode (ATM) standard. Note: Only one of the following courses may be taken for credit: CMPE 487 or CMPUT 313.

#### CMPE 490 Design of Microprocessor-based Systems

★4 (fi 6) (either term, 1-0-6). Design of microprocessor systems, input/output systems, programmable timers, address decoding and interrupt circuitry. This course has a major laboratory component and requires the design and fabrication of a complete microprocessor-based system. Prerequisites: E E 380 or CMPUT 229, CMPE 480 or E E 480. Only one of the following courses may be taken for credit: CMPE 490 or CMPE 582 or E E 582.

#### CMPE 498 Special Topics in Computer Engineering

★3 (fi 6) (first term, 3-0-0). This course is intended to enable individuals or a small group of students to study topics in their particular field of interest under the supervision of a member of the Department of Electrical and Computer Engineering or the Department of Computing Science or other appropriate departments.

#### CMPE 499 Special Topics in Computer Engineering

★3 (fi 6) (second term, 3-0-0). This course is intended to enable individuals or a small group of students to study topics in their particular field of interest under the supervision of a member of the Department of Electrical and Computer Engineering or the Department of Computing Science, or other appropriate departments.

## Graduate Courses

See listing of Electrical and Computer Engineering (ECE) graduate courses.

## 221.83 Computing Science, CMPUT

Department of Computing Science  
Faculty of Science

### Notes:

- (1) Students with appropriate academic standing, and who are enrolled in any Faculty of Science Honors, Specialization, or Computing Science minor programs, will be given preference in registering for computing science courses required in these four-year programs.
- (2) Students with no previous computing experience should enroll in CMPUT 101 instead of CMPUT 114. Students should seek advice from a departmental advisor or visit our website at [www.cs.ualberta.ca/courses/](http://www.cs.ualberta.ca/courses/). Students who have obtained credit in CMPUT 114 cannot take CMPUT 101 for credit.
- (3) The department of Computing Science does not allow audits in any of its laboratory courses.

## Undergraduate Courses

### 0 CMPUT 101 Introduction to Computing

★3 (fi 6) (either term, 3-0-3). A breadth-first introductory treatment of science and engineering concepts in computing science, including number representation, machine architecture, and operation systems: algorithms, their properties, and the control constructs of sequence, selection and repetition: notions of data type and operations on data types in low-level and high-level programming languages. This course cannot be taken for credit if credit has been obtained in CMPUT 114. See Note (2) above.

### 0 CMPUT 114 Introduction to Computing Science

★3 (fi 6) (either term, 3-0-3). An introduction to solving Computing Science problems by writing computer programs in a high-level programming language called Java. Students are introduced to objects and values, messages and methods, control structures, and simple containers. Discussion of elementary algorithms and software engineering techniques for constructing elegant and robust solutions to problems. Prerequisites: Pure Math 30 and Computing Science 30 or equivalent. See Note (2) above.

### 0 CMPUT 115 Programming with Data Structures

★3 (fi 6) (either term, 3-0-3). A study of dynamic data structures (e.g., sets, lists, stacks, queues, dictionaries) and their associated algorithms (e.g., traversal,

sorting, searching, element addition and removal) using Java. An introduction to recursive references and algorithms and to more advanced programming language techniques including inheritance and exceptions. Prerequisite: CMPUT 102 or CMPUT 114. See Note (2) above.

### **CMPUT 201 Practical Programming Methodology**

★3 (fi 6) (either term, 3-0-3). Introduction to the principles, methods, tools, and practices of the professional programmer. The lectures focus on the fundamental principles of software engineering based on abstract data types and their implementations. The laboratories offer an intensive apprenticeship to the aspiring software developer. Students use C and C++ and software development tools of the UNIX environment. Prerequisite: CMPUT 115. Corequisite: CMPUT 272.

### **CMPUT 204 Algorithms I**

★3 (fi 6) (either term, 3-1s-0). The first of two courses on algorithm design and analysis, with emphasis on fundamentals of searching, sorting, and graph algorithms. Examples include divide and conquer, dynamic programming, greedy methods, backtracking, and local search methods, together with analysis techniques to estimate program efficiency. Prerequisites: CMPUT 115, CMPUT 272; MATH 113, 114, or 117.

### **CMPUT 229 Computer Organization and Architecture I**

★3 (fi 6) (either term, 3-0-3). General introduction to number representation, architecture and organization concepts of von Neumann machines, assembly level programming, exception handling, peripheral programming, floating point computations and memory management. Prerequisite: CMPUT 115. Corequisite: CMPUT 201. Credit may be obtained in only one of CMPUT 229, 285 or E E 380.

### **CMPUT 272 Formal Systems and Logic in Computing Science**

★3 (fi 6) (either term, 3-1s-1.5). An introduction to the tools of set theory, logic, and induction, and their use in the practice of reasoning about algorithms and programs. Basic set theory. The notion of a function. Counting. Propositional and predicate logic and their proof systems. Inductive definitions and proofs by induction. Program specification and correctness. Prerequisite: CMPUT 101 or 114 or equivalent. See Note 2.

### **CMPUT 291 Introduction to File and Database Management**

★3 (fi 6) (either term, 3-0-3). Basic concepts in computer data organization and information processing; entity-relationship model; relational model; SQL and other relational query languages; storage architecture; physical organization of data; access methods for relational data. The programming language used in the course project is Java. Prerequisite: CMPUT 115.

### **CMPUT 299 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-3). Prerequisite: A 100-level CMPUT course.

### **CMPUT 300 Computers and Society**

★3 (fi 6) (either term, 3-1s-0). Social, ethical, professional, economic, and legal issues in the development and deployment of computer technology in society. Prerequisites: CMPUT 201, 204. Corequisite: A 300-level CMPUT course or consent of Instructor. Note: this course is an Approved Option, in the Computing Science program, and cannot be used to satisfy a CMPUT 3xx/4xx option.

### **CMPUT 301 Introduction to Software Engineering**

★3 (fi 6) (either term, 3-0-3). Object-oriented design and analysis, with interactive applications as the primary example. Topics include: software process; revision control; Unified Modeling Language (UML); requirements; software architecture, design patterns, frameworks, design guidelines; unit testing; refactoring; software tools. Prerequisite: CMPUT 201. Credit may be obtained in only one of CMPUT 301 and 311.

### **CMPUT 304 Algorithms II**

★3 (fi 6) (either term, 3-0-0). The second course of a two-course sequence on algorithm design. Emphasis on principles of algorithm design. Categories of algorithms such as divide-and-conquer, greedy algorithms, dynamic programming; analysis of algorithms; limits of algorithm design; NP-completeness; heuristic algorithms. Prerequisites: CMPUT 204, 229 or E E 380; STAT 221 or 265; one of MATH 225, 228, 229 or consent of Instructor.

### **CMPUT 306 Introduction to Image Processing**

★3 (fi 6) (either term, 3-0-3). Introduction, history, and applications; scanning and quantization; visual perception; output devices; pattern recognition; feature extraction, decision theory, classification rules; data representation and formats; image enhancement and restoration; edge detection, segmentation and texture; correlation and registration. Prerequisites: CMPUT 201; MATH 214 and STAT 222. Credit may be obtained in only one of CMPUT 306 or EE BE 540.

### **CMPUT 313 Computer Networks**

★3 (fi 6) (either term, 3-0-3). Introduction to computer communication networks. Digital transmission of data, audio and video content. The OSI reference model. Protocols for error and flow control. Medium access protocols. Routing and congestion control. Internet architecture and protocols. Recent advances in networking. Prerequisites: CMPUT 201, 204, 229 or E E 380; STAT 222.

### **CMPUT 320 Geometric Computing**

★3 (fi 6) (either term, 3-0-3). An introduction to the design and implementation of geometric algorithms. Topics include: Terrains and contour lines, Delaunay

triangulations and Voronoi diagrams, volume representations and rendering, winged-edge data structure and Euler operators, solid modeling and boolean operators, k-d trees and range trees. Prerequisites: CMPUT 201 and 204. May not be offered every year.

### **CMPUT 325 Non-Procedural Programming Languages**

★3 (fi 6) (either term, 3-0-3). A study of the theory, run-time structure, and implementation of selected non-procedural programming languages. Languages will be selected from the domains of functional, and logic-based languages. Prerequisites: CMPUT 201, 204, 229 or E E 380, MATH 120.

### **CMPUT 329 Computer Organization and Architecture II**

★3 (fi 6) (either term, 3-0-3). Digital circuits, combinational systems, memory, register transfer, control logic design, CPU design, and advanced topics on micro-architectures. Prerequisite: CMPUT 229 or E E 380. Credit may be obtained in only one of CMPUT 280, 329 or E E 280.

### **CMPUT 340 Introduction to Numerical Methods**

★3 (fi 6) (either term, 3-1s-3). Computer arithmetic and errors. The study of computational methods for solving problems in linear algebra, non-linear equations, interpolation and approximation, and integration. The aim is to teach the student the proper use of mathematical subroutine packages currently available in computer libraries. Prerequisites: CMPUT 204, MATH 120, 214; STAT 222.

### **CMPUT 366 Intelligent Systems**

★3 (fi 6) (either term, 3-0-3). Introduction to artificial intelligence focusing on techniques for building intelligent software systems and agents. Topics include search and problem-solving techniques, knowledge representation and reasoning, reasoning and acting under uncertainty, machine learning and neural networks. Recent applications such as planning and scheduling, diagnosis, decision support systems, and data mining. Prerequisites: CMPUT 201, 204; STAT 221 or equivalent.

### **CMPUT 379 Operating System Concepts**

★3 (fi 6) (either term, 3-0-3). Definition of a process; process states and state transitions; process control block; operations on processes; interrupt processing; parallel processing; resource allocation; shared and unshared allocation; critical sections; semaphores; deadlock; deadlock prevention, avoidance, detection, and recovery; memory management; memory allocation schemes; virtual memory; paging and segmentation; page replacement strategies; working sets; demand paging; job and processor scheduling; scheduling levels, objectives, and criteria; various scheduling algorithms; multi-processor considerations; file system functions; file organization; tree structured file systems; space allocation; file catalogs; file access control mechanisms; operating systems security. Prerequisites: CMPUT 201, 204, 229 or E E 380.

### **CMPUT 391 Database Management Systems**

★3 (fi 6) (either term, 3-0-3). Logical data modeling process, relational database design (normalization), query processing, transaction management, new technological trends (distributed databases, object-orientation, knowledge base systems). Prerequisites: CMPUT 204 and 291.

### **CMPUT 399 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-3). Prerequisite: A 200-level CMPUT course.

### **CMPUT 400 Industrial Internship Practicum**

★3 (fi 6) (first term, 0-3s-0). Required by all students who have just completed a Computing Science Industrial Internship Program. Must be completed during the first academic term following return to full-time studies. Note: A Grade of F to A+ will be determined by the student's job performance as evaluated by the employer, by the student's performance in the completion of an internship practicum report, and by the student's ability to learn from the experiences of the internship as demonstrated in an oral presentation. This course cannot be used in place of a senior-level CMPUT option or a Science option. Prerequisite: WKEXP 922.

### **CMPUT 401 Software Process and Product Management**

★3 (fi 6) (either term, 3-1s-3). All phases of software development are reviewed from a process perspective. Best practices in software project and product development and management are introduced. Architectural and technological impacts on management. Group projects require specification and initial design or redesign of a software system. Prerequisites: CMPUT 301 and 379.

### **CMPUT 402 Software Quality**

★3 (fi 6) (either term, 3-0-3). Software quality issues, metrics, verification, validation, and testing. Students working in project groups are required to complete the implementation of a system or significant subsystem and undertake unit, integration and acceptance testing. Industry standard assessment methods such as CMM or SPICE are introduced. Prerequisite: CMPUT 401.

### **CMPUT 410 Web-Based Information Systems**

★3 (fi 6) (either term, 3-0-3). Overview of Web technologies and applications. This course is project based and addresses issues such as web-based applications and databases design and implementation, XML data exchange and modeling, application component integration over the Web, security mechanisms, and Web Mining for intelligent web-based applications. Prerequisite: CMPUT 301 and 391. CMPUT 313 recommended, or consent of Instructor based on other 300-level courses taken. May not be offered every year.

**CMPUT 411 Introduction to Computer Graphics**

★3 (fi 6) (either term, 3-0-3). 2-D and 3-D transformation; 3-D modeling and viewing; illumination models and shading methods; texture mapping; ray tracing. Prerequisites: CMPUT 204, 301 and MATH 120. Credit may be obtained in only one of CMPUT 311 and 411.

**CMPUT 412 Experimental Mobile Robotics**

★3 (fi 6) (either term, 3-0-3). A project-based course dealing with the design and implementation of behavior-based robots to accomplish specific tasks. Students work in groups and are introduced to concepts in sensor technologies, sensor data processing, motion control, embedded system design, real-time programming, and behavior arbitration. Prerequisite: CMPUT 329 or E E 280. May not be offered every year.

**CMPUT 414 Introduction to Multimedia Technology**

★3 (fi 6) (either term, 3-0-3). Overview of multimedia. Image compression, encryption, and multimedia databases. Audio signal processing, teleconferencing, and video compression. Prerequisite: A 300-Level CMPUT course.

**CMPUT 415 Compiler Design**

★3 (fi 6) (either term, 3-0-3). Compilers, interpreters, lexical analysis, syntax analysis, syntax directed translation, code generation, code optimization. Prerequisites: CMPUT 229 or E E 380 and a 300-level Computing Science course or consent of Instructor.

**CMPUT 422 Analysis of Computer Systems I**

★3 (fi 6) (either term, 3-0-3). An introduction to measurement, simulation and analytical techniques for studying the performance of computer systems; including operating systems and communication networks. Topics include workload modeling; introduction to simulation, measurement and analysis techniques; analysis of results; data presentation. Prerequisites: CMPUT 313 or 379. May not be offered every year.

**CMPUT 425 Object-Oriented Programming Languages**

★3 (fi 6) (either term, 3-0-3). This course will study the computational model and runtime structure of object-oriented programming languages including objects, classes, object creation, initialization, inheritance, polymorphism, message passing, methods, binding, and dispatch. Throughout the course, the object-oriented computing model will be introduced and contrasted with the imperative model. A detailed study of Smalltalk will provide an example of a pure object-oriented programming language. Prerequisite: CMPUT 301, 325, 379. May not be offered every year.

**CMPUT 429 Computer Systems and Architecture**

★3 (fi 6) (either term, 3-0-3). An investigation of computer system design concepts including requirements, specifications, implementation and modification. Instruction sets, arithmetic/logic unit design, bus structures, I/O structures, control organization and implementation. Discussion and use of hardware description languages. Prerequisite: CMPUT 201, 229 or EE 380. Credit may be obtained in only one of CMPUT 429 or CMPE 382.

**CMPUT 466 Machine Learning**

★3 (fi 6) (either term, 3-0-3). Learning is essential for many real-world tasks, including adaptive control, recognition, diagnosis, forecasting and data-mining. This course will present a variety of learning algorithms (for learning decision trees, rule sets, neural networks, and belief nets), as well as general learning frameworks such as reinforcement learning and nearest neighbor approaches. It will also provide the formal foundations for understanding when learning is possible and practical. Prerequisite: CMPUT 366 or consent of Instructor. May not be offered every year.

**CMPUT 474 Formal Languages, Automata, and Computability**

★3 (fi 6) (either term, 3-0-0). Formal grammars; normal forms; relationship between grammars and automata; regular expressions; finite state machines; state minimization; pushdown automata; Turing machines; computability; the halting problem; introduction to recursive function theory. Prerequisite: CMPUT 325 and one of MATH 225, 228 or 229 or consent of Instructor.

**CMPUT 495 Honors Seminar**

★0 (fi 2) (either term, 0-1s-0). Prerequisite: A 300-level Computing Science course. Note: Required of all Honors Computing Science students during their degree program.

**CMPUT 496 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0). Prerequisite: A 300-level CMPUT course.

**CMPUT 497 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0). Prerequisite: A 300-level CMPUT course.

**CMPUT 498 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-3). Prerequisite: A 300-level CMPUT course.

**CMPUT 499 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-3). Prerequisite: A 300-level CMPUT course.

**Graduate Courses****CMPUT 510 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 511 Topics In Computer Graphics**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 521 Topics in Software**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 530 Topics in Computer Architecture**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 531 Topics in Robotics**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 540 Topics in Computer Networks**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 551 Topics in Artificial Intelligence**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 570 Topics in Theoretical Computing Science**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 571 Topics in Bioinformatics**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 580 Topics in Systems**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 582 Topics in Performance Evaluation**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 590 Topics in Databases**

★3 (fi 6) (either term, 3-0-3).

**CMPUT 601 Seminar**

★3 (fi 6) (either term, 0-2s-0).

**CMPUT 603 Teaching and Research Methods**

★3 (fi 6) (first term, 2-1s-0). A description of computing science research, with emphasis on research methodology. Includes techniques and conventions that are employed in various sub-areas of computing science, both for doing research and presenting results. Strategies and information for being an effective teaching assistant are also presented. Required for all graduate students.

**CMPUT 604 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 605 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 606 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 607 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 608 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 609 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 610 Topics in Computer Graphics**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 611 Advanced Computer Graphics**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 612 Virtual Reality**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 613 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 615 Topics in Image Processing and Vision**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 616 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 617 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 618 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 620 Topics in Programming Languages**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 621 Constraint Programming**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 623 Topics in Computing Science**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 625 Object-Oriented Computing**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 630 Topics in Computer Architecture**

★3 (fi 6) (either term, 3-0-0).

**CMPUT 631 Robotics**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 632 Parallel and Multiprocessor Architectures**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 633 Topics in Computing Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 640 Topics in Computer Networks**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 641 Advanced Computer Networks**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 642 Computer Network Protocols**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 643 Special Purpose Networking**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 644 Topics in Computing Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 650 Topics in Artificial Intelligence**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 651 Topics in Computing Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 652 Topics in Computing Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 654 Topics in Computing Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 655 Constraint-Based Reasoning**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 656 Logic Foundations**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 657 Heuristic Search**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 658 AI and Cognitive Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 659 Adaptive Systems**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 660 Topics in Software Engineering**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 661 Software Architecture**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 662 Software Specification and Verification**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 663 Software Process and Quality**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 664 Software Evolution**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 666 Topics in Computing Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 670 Topics in the Theory of Computation**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 671 Empirical Algorithmics**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 672 Algorithmic Graph Theory**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 673 Complexity Theory**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 674 Combinatorial Computing**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 675 Topics in Computing Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 680 Topics in Systems**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 681 Parallel Programming**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 682 Fundamentals of Distributed Systems**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 683 Performance Evaluation**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 684 Topics in Computing Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 690 Topics in Databases**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 691 Object-Oriented Databases**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 692 Modern Database Management Systems**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 693 Distributed Database Systems**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 694 Information Retrieval**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 695 Knowledge Discovery in Data**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 696 Data Management in the Internet**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 697 Topics in Computing Science**  
★3 (fi 6) (either term, 3-0-0).

**CMPUT 701 Essay in Computing Science I**  
★6 (fi 12) (either term, 0-1s-5). A major essay on an agreed topic.

## 221.84 Curriculum et méthodologie, CU ME

Faculté Saint-Jean

### Cours de 1er cycle

**CU ME 308 Introduction à la didactique de la langue (élémentaire/secondaire)**  
★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Les caractéristiques de l'approche communicative. Les caractéristiques des discours. Evolution historique de l'enseignement des langues. Les principes de base pour l'enseignement du français en immersion et en milieu minoritaire. Etude du programme d'études et analyse du matériel didactique.

**CU ME 309 Didactique de la communication orale et écrite à l'élémentaire**  
★3 (fi 6) (l'un ou l'autre semestre, 3-0-2). Etude des quatre habiletés langagières. Stratégies d'enseignement et application pratique. Moyens d'intervention, correction et évaluation. Préalable(s): CU ME 308.

**CU ME 321 Didactique des mathématiques au niveau élémentaire**  
★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Initiation à l'enseignement des mathématiques à l'élémentaire. Sujets étudiés: les programmes d'études, stratégies et techniques d'enseignement et d'évaluation, les calculatrices, les ordinateurs, la communication, la pensée et la compréhension mathématique, les influences sur l'enseignement/l'apprentissage des mathématiques, les techniques d'évaluation.

**CU ME 322 Didactiques des sciences au niveau élémentaire**  
★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Initiation à l'enseignement des sciences à l'élémentaire. Sujets étudiés: les programmes du ministère de l'Éducation, les stratégies et techniques d'enseignement et d'évaluation, le lien entre science/technologie/société.

**CU ME 326 Enseignement de l'éducation physique au niveau élémentaire**  
★3 (fi 6) (l'un ou l'autre semestre, 0-3L-0). Les approches pédagogiques pour l'enseignement en français de l'éducation physique à l'élémentaire. La programmation; les diverses méthodologies et stratégies d'enseignement; les systèmes d'évaluation de l'enfant et du programme.

**CU ME 330 Didactiques des études sociales à l'élémentaire**  
★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Initiation à l'enseignement des études sociales à l'élémentaire. Étude et interprétation des exigences du programme du ministère de l'Éducation et des ressources prescrites pour enseigner les études sociales en milieu francophone et en milieu d'immersion française. Se sensibiliser au rôle que jouent les études sociales dans le développement du citoyen. La planification de l'enseignement des études sociales et stratégies d'enseignement. Note: Ce cours n'est pas accessible aux étudiants ayant des crédits pour CU ME 333.

**CU ME 339 Enseignement de la musique au niveau élémentaire I**  
★3 (fi 6) (l'un ou l'autre semestre, 0-3L-0). Préalable(s): MUSIQ 151 et 155/156 ou l'équivalent.

**CU ME 345 Initiation à la création artistique en milieu scolaire**  
★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Découverte du langage de l'art, de sa spécificité et de son esthétique. Introduction par atelier aux principes fondamentaux

des programmes d'études concernés. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour CU ME 343.

#### CU ME 347 Les technologies de l'information et de la communication (TIC) en éducation

★3 (fi 6) (l'un ou l'autre semestre, 3-0-2). Regard critique sur le rôle et la place de la technologie à l'école ainsi que les méthodes d'enseignement propices à son intégration dans les matières de base.

#### CU ME 358 Enseignement du français au niveau secondaire

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Cours de méthodologie pour l'enseignement du français en immersion et en milieu francophone minoritaire. Etudes des nouvelles tendances dans la didactique de l'écriture et de la lecture. Comparaison de l'approche traditionnelle et de l'approche fonctionnelle dans l'enseignement de la grammaire. Démarche pour la planification d'une unité en production écrite et pour l'enseignement de la grammaire en contexte communicatif.

#### CU ME 359 Enseignement de la littérature au niveau secondaire

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Pédagogie générale et pratique de la littérature: méthode d'enseignement pour le roman, la pièce de théâtre et la poésie. Favoriser la pratique de la lecture libre en français au secondaire. Stratégies de lecture.

#### CU ME 360 Enseignement des études sociales au 1er cycle du secondaire

★3 (fi 6) (premier semestre, 3-0-0). Pédagogie générale et pratique de l'enseignement des études sociales; analyse des programmes d'études sociales pour les francophones en milieu minoritaire et pour le milieu d'immersion française; étude des ressources prescrites par le ministère de l'Éducation; étude des méthodes d'enseignement et d'évaluation, des objectifs d'apprentissage, et le rôle et les responsabilités de l'enseignant des études sociales. Préalable(s): ★6 dans la spécialisation.

#### CU ME 361 Enseignement des études sociales au 2e cycle du secondaire

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Pédagogie générale et pratique de l'enseignement des études sociales; analyse des programmes d'études sociales et des ressources prescrites par le ministère de l'Éducation; étude de l'histoire des études sociales et des conceptions d'études sociales; étude des méthodes d'enseignement et d'évaluation des études sociales; et intégration des actualités aux objectifs des programmes d'études sociales. Préalable(s) ou concomitant(s): CU ME 360.

#### CU ME 363 L'enseignement des mathématiques au niveau secondaire

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Ce cours a pour but de préparer les étudiants à enseigner les mathématiques à tous les niveaux du secondaire; à faire acquérir quelques principes fondamentaux nécessaires à une conception adéquate des mathématiques et de leur didactique. Ce cours propose diverses stratégies pour encourager l'apprentissage des mathématiques d'une façon concrète. Préalable(s): ★3 dans la spécialisation.

#### CU ME 367 L'enseignement des sciences au niveau secondaire

★3 (fi 6) (l'un ou l'autre semestre, 0-3L-0). Ce cours permettra à l'étudiant de connaître à fond le contenu et les objectifs du curriculum de science à tous les niveaux du secondaire; les différentes méthodes de présenter un concept en science; les nouvelles applications technologiques dans l'enseignement de la science; et l'équipement existant pour faciliter l'enseignement de la science. Préalable(s): ★3 dans la spécialisation.

#### CU ME 387 Enseignement de la musique au niveau secondaire I

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Préalable(s) ou concomitant(s): ★6 dans la spécialisation.

#### CU ME 388 Enseignement de la musique au niveau secondaire II

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Préalable(s) ou concomitant(s): CU ME 387.

#### CU ME 389 L'art dramatique comme outil pédagogique

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Ce cours portera sur les pratiques théâtrales et leur utilisation dans les programmes d'études à l'élémentaire et au secondaire; par exemple, jeux de rôles, marionnettes, improvisation.

#### CU ME 410 Enseignement de la littérature enfantine

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Familiarisation avec la littérature enfantine. Cours centré sur la création et l'interaction avec le discours littéraire. Sensibilisation au processus de la lecture esthétique.

#### CU ME 494 Enseignement de l'éducation physique au niveau secondaire

★3 (fi 6) (l'un ou l'autre semestre, 0-3L-0). Les approches pédagogiques pour l'enseignement en français de l'éducation physique au secondaire, la programmation; les diverses méthodologies et stratégies d'enseignement; les systèmes d'évaluation de l'élève et du programme.

#### O CU ME 496 L'enseignement religieux et l'éducation morale

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0).

#### CU ME 498 Séminaire dans le domaine de l'enseignement au niveau secondaire

★3 (fi 6) (l'un ou l'autre semestre, 0-3s-0). Le contenu du cours varie d'une

année à l'autre. Les sujets sont annoncés avant la période d'inscription. Le titre du cours figurera sur le relevé de notes de l'étudiant.

#### CU ME 499 Etude personnelle dirigée dans le domaine de l'enseignement au niveau secondaire

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Préalable(s): l'approbation du professeur et du Vice-doyen aux affaires académiques.

## 221.85 Dance, DANCE

Faculty of Physical Education and Recreation

Note: See also INT D 439 for a course which is offered by more than one Department or Faculty and which may be taken as an option or as a course in this discipline.

### Undergraduate Courses

#### DANCE 200 The Spectrum of Dance in Society

★3 (fi 6) (either term, 1-0-2). The theory and practice of dance as a human physical activity. Focus will be on the aesthetic, expressive, rhythmical dimensions of movement in a culture's artistic and social life. The study will include movement content, techniques, improvisation, composition and performance in a variety of dance forms including modern/creative, social, jazz, and folk dance.

#### L DANCE 340 Modern Dance

★3 (fi 6) (either term, 0-3L-0). The study of creative dance techniques, improvisation, composition, and performance through theory and practical experience.

#### L DANCE 345 Modern Dance Techniques

★3 (fi 6) (either term, 0-3L-0). Development of personal movement skills in a variety of modern dance techniques combined with knowledge of movement and dance principles. Prerequisite: DAC 160 or 165, or DANCE 200 or 340, or equivalent, or consent of Instructor.

#### O DANCE 350 International Folk Dance

★3 (fi 6) (either term, 0-3L-0). The study of folk dances in selected cultures through theory and practical experience. Theory will focus on costume, music, history, geography, and other elements which influence the dances.

#### DANCE 431 Study of Dance for Children

★3 (fi 6) (either term, 1-0-2). Children's dance from the perspective of the child as creator, performer and spectator. Opportunities to observe, work with and instruct children creative dance will be provided. Prerequisite: PEDS 293 or 338 or consent of Instructor.

#### DANCE 446 Modern Dance Composition

★3 (fi 6) (either term, 3-0-0). Theory and practice of modern dance improvisation and composition, principles of form and design, individual and group choreography, evaluation. Prerequisite: One of DANCE 100, 340, 431, or consent of Faculty.

#### DANCE 499 Directed Studies

★3 (fi 6) (either term, 0-3s-0). An individualized course designed to offer an in-depth study in a dance area not covered by regular courses. Prerequisite: consent of Faculty.

## 221.86 Dance Activity, DAC

Faculty of Physical Education and Recreation

Goals of DAC Level I

- (1) Acquisition of basic skills required in the activity and an appreciation of how these skills are used in combination in performance situations.
- (2) Development of the specific theoretical knowledge associated with terminology, history, sociocultural context, rules and organizational aspects, basic strategies and tactics, technique and other concepts relevant to the activity.

#### Notes

- (1) Students enrolled in courses offered by the Faculty of Physical Education and Recreation must take responsibility for ensuring that they are physically and medically fit to be taking such courses. If a student has a physical or medical condition that may compromise his/her participation in a course, it is the student's responsibility to so inform the instructor of that course. Students may contact the Faculty for further information on physical activity requirements and are encouraged to seek medical advice if necessary.
- (2) Students are expected to attend the first class of any activity course appropriately dressed for activity participation.

### Undergraduate Courses

#### DAC 155 Social Dance

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in several variations and sequences of the foxtrot, waltz, tango, jive, rumba, and cha cha. Integral to this will be the development of good partnering and rhythmic abilities.

**DAC 160 Jazz Dance**

★1.5 (*fi 3*) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in body awareness and placement, locomotion and choreographed jazz dance.

**DAC 165 Ballet**

★1.5 (*fi 3*) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in either RAD or Cecchetti syllabus, including barre and centre floor work such as positions, port de bras, elevation and travelling.

**221.87 Danish, DANSK**

Department of Modern Languages and Cultural Studies  
Faculty of Arts

**Notes**

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess prior background. Students with a Danish language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in a more advanced course suitable to their level of ability. Students seeking to fulfill their Language Other than English requirement may begin at any one appropriate level, but must take the full ★6 in one language.
- (3) The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should students with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.
- (4) See also Scandinavian (SCAND) listings.

**Undergraduate Courses****DANSK 111 Beginners' Danish I**

★3 (*fi 6*) (either term, 5-0-0). Designed to give basic practical skill in everyday spoken and written Danish. The oral approach, using the laboratory, is followed. Note: not to be taken by students with credit in DANSK 100, or with native or near native proficiency, or Danish 30 or its equivalents in Canada and other countries.

**DANSK 112 Beginners' Danish II**

★3 (*fi 6*) (either term, 5-0-0). Prerequisite: DANSK 111 or consent of Department. Note: not to be taken by students with credit in DANSK 100, or with native or near native proficiency, or Danish 30 or its equivalents in Canada and other countries.

**DANSK 211 Second-Year Danish I**

★3 (*fi 6*) (either term, 4-0-0). Reading and study of selected texts in Danish literature and culture. Conversation and composition. Prerequisite: Danish 30 (or equivalent) or DANSK 112 or consent of Department. Note: not to be taken by students with credit in DANSK 200.

**DANSK 212 Second-Year Danish II**

★3 (*fi 6*) (either term, 4-0-0). Prerequisite: DANSK 211 or consent of Department. Note: not to be taken by students with credit in DANSK 200.

**221.88 Dental Hygiene, D HYG**

Department of Dentistry  
Faculty of Medicine and Dentistry

**Undergraduate Courses****D HYG 201 Human Morphology**

★3 (*fi 6*) (either term, 39 hours). Overview of human structures. Emphasis will be on anatomical structures as they relate to function.

**D HYG 202 Head and Neck Anatomy**

★1 (*fi 2*) (either term, 16 hours). Detailed gross anatomy of the head and neck. Focus is on structures that are present, their relationships and interactions with each other and on understanding malfunction. Open to dental hygiene students or with permission of the course coordinator.

**D HYG 211 Dental Hygiene Theory and Practice**

★5.5 (*fi 11*) (two term, 84 hours). A lecture course integrating the knowledge and practice of clinical dental hygiene. This course is structured around the four key areas of responsibility for the clinical dental hygienist, namely oral assessment, treatment planning, disease prevention and health maintenance and dental hygiene therapy.

**D HYG 212 Preclinical Dental Hygiene**

★6 (*fi 12*) (either term, 180 hours). An introduction to fundamental techniques in disease control, instrumentation, assessment techniques, and related clinical procedures are presented and discussed.

**D HYG 213 Introduction to Clinical Practice I**

★3 (*fi 6*) (either term, 102 hours). A clinical course integrating the knowledge, practice, and skills of dental hygiene practice.

**D HYG 215 Biomaterials**

★2 (*fi 4*) (two term, 28 hours). The course is designed to give the dental hygiene students a general knowledge of dental materials, to allow them to recognize the various dental materials and to have some knowledge of their manipulation and application, and to be able to intelligently discuss the clinical applications and problems associated with the materials with both the dentist and patient.

**D HYG 220 Oral Health Education**

★3 (*fi 6*) (either term, 54 hours). An introduction to the principles of dental health education, construction and utilization of audiovisual materials, the operation of audiovisual equipment and instructional preparation for group education is included.

**D HYG 230 Dental Anatomy**

★1.5 (*fi 3*) (either term, 20 hours). A self-study course that is concerned with nomenclature, biologic considerations of tooth form and function; permanent and deciduous teeth are studied in detail.

**D HYG 232 Dental Specialties**

★1.5 (*fi 3*) (either term, 35 hours). Introduction to specialties in dental practice and the role of the dental hygienist in each area. A clinical rotation in each specialty is included.

**D HYG 240 Radiology**

★2 (*fi 4*) (two term, 37 hours). A comprehensive didactic, pre-clinical and clinical course that deals with the production of x-rays, their interactions with matter, radiation biology and protection, the appearances of normal anatomy on radiographs and common abnormalities seen on radiographs made in the practice of dental hygiene. Pre-clinical and clinical sessions will introduce students to the basic techniques of intraoral radiography and pantomography.

**D HYG 313 Clinical Practice II**

★16 (*fi 32*) (two term, 484 hours). An advanced clinical course that focuses on oral assessment, disease prevention, and dental hygiene therapies for clients with chronic and acute variances in oral health through the integration of research evidence and dental hygiene practice skills.

**D HYG 316 Management of Special Needs**

★2.5 (*fi 5*) (two term, 40 hours). A lecture course and a practical clinical rotation that emphasizes client centered management and care of clients with special needs; the physically compromised, the mentally compromised, the sensory compromised and the medically compromised. Students are responsible for completing relevant projects for course evaluation.

**D HYG 317 Ethics, Practice, and Leadership I**

★3 (*fi 6*) (two term, 45 hours). A team instructed course that will provide students with a framework for critiquing scientific literature and the implications for dental hygiene practice, and an opportunity to conduct a leadership project within their community and present their project to peers in a scientific meeting format. This course will also discuss many issues related to the practice of dental hygiene.

**D HYG 321 Oral Health Education II**

★2 (*fi 4*) (either term, 52 hours). A continuation of D HYG 220. The application of educational theory to teaching is provided by field experience in a variety of community settings.

**D HYG 322 Community and Preventive Dentistry**

★2 (*fi 4*) (two term, 28 hours). This course prepares students with an understanding of the factors that affect the health and well-being of the population. Students will learn about the determinants of health and suggest strategies for working with other disciplines and community agencies to affect health outcomes. The course demonstrates applied public health principles in today's dental public health practice. Concepts of dental public health practice, examples of current programming in Alberta and Canada, and evidence-based public health prevention will be studied in context of the dental public health practice model.

**D HYG 326 Periodontology for the Dental Hygienist**

★2.5 (*fi 5*) (two term, 38 hours). Periodontology is an integral part of the practice of dental hygiene. This course provides foundational knowledge in the science of Periodontology, as well as an emphasis on non-surgical and surgical periodontal therapies. Through this knowledge, integrated with case studies and presentations, students are able to assess, plan, implement and evaluate client centered evidence based dental hygiene therapy.

**D HYG 329 External Rotation**

★2.5 (*fi 5*) (two term, 75 hours). Each student spends two weeks at an external dental clinic. During this period, students will provide a broad range of health promotional activities including preventive dental hygiene therapies, classroom education and oral health instruction. The aim of this program is to provide a



private practice clinical experience or a community focused opportunity to provide primary and secondary oral health interventions.

#### D HYG 340 Dental Radiography

★1 (*fi 2*) (two term, 24 hours). A clinical course in which students will gain further experience in intraoral radiography and pantomography. Students will also gain limited experience in radiographic interpretation.

#### D HYG 345 Geriatrics

★1 (*fi 2*) (either term, 14 hours). An introductory course describing the needs of the elderly. Examines the changing population balance in Canada involving both medical and dental aspects of people over sixty years of age.

#### D HYG 386 Anaesthesia

★2.5 (*fi 5*) (either term, 60 hours). A didactic and lab course covering anatomy, physiology, and pharmacology of different anaesthetics. Local anaesthetic techniques covering all types of infiltration and intraoral blocks from the major component of the clinic-laboratory sessions. Students will also be able to describe the techniques, drug reactions and complications involving the use of local anesthetics and have practical experience in the administration of local anesthetic drugs.

#### D HYG 413 Advanced Practicum

★7 (*fi 14*) (first term, 190 hours). This six month program will provide students with advanced clinical practice opportunities. The practicum component may encompass hospital, community, and/or dental hygiene practice.

#### D HYG 417 Practice Management and Leadership

★3 (*fi 6*) (either term, 39 hours). This course will provide an opportunity for students to explore and articulate their own philosophy of dental hygiene practice. Additionally, this course will provide an opportunity to explore various facets of practice management in an area of special interest for the student. May contain alternative delivery sections; refer to the Fees Payment Guide in the University Regulations and Information for Students section of the Calendar.

#### D HYG 418 Continuing Care and Dental Hygiene Services

★3 (*fi 9*) (either term, 39 hours). This distance course will focus on the development of dental hygiene care in continuing and long-term care facilities. Approaches to patient-centred care and role of the family will be explored. Students will be involved in experiential learning activities and case based group discussions.

#### D HYG 420 Social Dimensions for Health Promotion in Dental Hygiene

★3 (*fi 6*) (either term, 39 hours). An examination of social determinants of health and cultural influences, social systems and government policies systems that affect them within the Canadian context of community health, health promotion and dental hygiene practice. The course seeks to further the students' understanding of population health, health promotion, community development and social development. Models, theories and approaches that can be applied in the dental hygiene and community health practice are introduced. May contain alternative delivery sections; refer to the Fees Payment Guide in the University Regulation and Information for Students section of the Calendar. Not to be taken by students with credit in HE ED 320.

#### D HYG 422 Health Information and Policy

★3 (*fi 6*) (either term, 39 hours). This course provides students with the opportunity to examine and understand policies that impact oral health in a community setting. Students will follow the development, implementation, impact and evaluation of community-based policies and oral health programs for dental hygiene practice. Course is also offered through WebCT. May contain alternative delivery sections; refer to the Fees Payment Guide in the University Regulations and Information for Students section of the Calendar.

#### D HYG 430 Guided Individual Study in Dental Hygiene

★3 (*fi 6*) (either term, 39 hours). Guided individual study in Dental Hygiene. Prerequisites: consent of Program Director.

#### D HYG 440 Advocacy for Change in Healthcare

★3 (*fi 6*) (either term, 39 hours). Provides an overview of the professional, social, political and global trends and issues affecting health and health care delivery. Through the application of a framework for planned change, this course will demonstrate how health care professionals can act as change agents in society. May contain alternative delivery sections; refer to the Fees Payment Guide in the University Regulations and Information for Students section of the Calendar.

## 221.89 Dentistry, DENT

Department of Dentistry  
Faculty of Medicine and Dentistry

### Graduate Courses

#### DENT 532 Growth and Development

★2 (*fi 4*) (second term, 2-0-0). A detailed review of the postnatal growth and development of human craniofacial structures. Longitudinal and cross sectional growth data are presented. (Course offered in alternate years).

#### DENT 540 Orthodontic Seminars

★6 (*fi 12*) (two term, 175 hours). Selected orthodontically related theoretical

and practical topics along with orthodontic case management presentations are discussed in both seminar and preclinical formats.

#### DENT 541 Orthodontic Clinics

★10 (*fi 20*) (two term, variable). Applied clinical education and experience is obtained through supervised management of selected orthodontic cases.

#### DENT 542 Research Methodology

★1 (*fi 2*) (two term, 30 hours). Review of scientific methodology and direction of students in technic of evaluating dental literature. A research proposal or literature review is required as part of this course.

#### DENT 551 Introduction to Applied Statistics

★3 (*fi 6*) (either term, 39 hours). Analysis of variance, multiple linear regressions, measures of association and agreement, logistic regression, and non-parametric methods. Topics will also include sample size calculation, power analysis, and a brief introduction to meta-analysis. The concepts will be motivated by problems in the dental and medical sciences. Applications to real data will be emphasized through the use of SPSS, Splus and R.

#### DENT 552 Applied Multivariate Statistical Analysis

★3 (*fi 6*) (Spring/Summer, 39 hours). Multivariate analysis of variance, repeated measures, multivariate linear regression, principal components, discriminant analysis, cluster analysis, and multidimensional scaling will be studied. Topics will also include shape analysis in three dimensions. The concepts will be illustrated by problems in dentistry and the medical sciences. Each student will submit a written report and present a research project focusing on these statistical methods. Applications to real data will be emphasized through the use of SPSS, Splus and R. Prerequisite: DENT 551.

#### DENT 562 TMD/Orofacial Pain

★2 (*fi 4*) (second term, 75 hours). Seminars in the diagnosis and treatment of temporomandibular joint problems. Includes a comprehensive literature review. Emphasis placed on orthodontic considerations in the prevention and management of mandibular dysfunction. (Course offered in alternate years.)

#### DENT 565 Evidence Based Dentistry

★2 (*fi 4*) (first term, 26 hours). This course focuses on the general principles of evidence based dentistry. It will cover some basic principles of epidemiology, formulation of the clinical question, search and acquisition of available scientific evidence, critical appraisal and application of evidence in a dentistry context. A final written assignment is a course requirement.

#### DENT 566 Systematic Reviews in Dentistry

★2 (*fi 4*) (second term, 26 hours). This course focuses on the general principles of Systematic Review and Meta-Analysis in Dentistry. It will cover principles, procedures, problems and limitations in Systematic Reviews. Different types of Systematic Reviews would be analyzed. Use of Meta-Analysis as a statistical tool in Systematic Reviews will be also covered. Submission of a Systematic Review to a peer reviewed journal is a course requirement. Prerequisite: DENT 565.

#### DENT 640 Orthodontic Seminars

★6 (*fi 12*) (two term, 175 hours). Second year seminar and preclinical presentations. Requires successful completion of DENT 540.

#### DENT 641 Orthodontic Clinics

★10 (*fi 20*) (two term, variable). Second year applied clinical educational program. Requires successful completion of DENT 541.

#### DENT 740 Orthodontic Seminars

★6 (*fi 12*) (two term, 175 hours). Third year seminar and preclinical presentations. Requires successful completion of DENT 640.

#### DENT 741 Orthodontic Clinics

★10 (*fi 20*) (two term, variable). Third year applied clinical educational program. There will be 3 one-week internships as part of this course. Requires successful completion of DENT 641.

## 221.90 Dentistry, DDS

Department of Dentistry  
Faculty of Medicine and Dentistry

### Undergraduate Courses

#### DDS 506 Gastroenterology and Nutrition

★5 (*fi 10*) (either term, 6 weeks). An integrated course covering nutrition, gastrointestinal physiology, pathophysiology and anatomy. Related surgical, paediatric and geriatric topics will also be addressed. Open only to students registered in the DDS program.

#### DDS 507 Neurosciences

★9 (*fi 18*) (either term, 11 weeks). Fundamental Clinical Neurosciences taught in an integrated fashion. Involves instruction in subject areas related to the head and neck, including Neuroanatomy, Neurophysiology, Neuropathology, Neuropharmacology, Neuroradiology, Neurology, Neurosurgery, Psychiatry, Rehabilitation Medicine, Otorhinolaryngology, and Ophthalmology. Open only to students registered in the DDS program.

**DDS 508 Oncology**

★2 (*fi 4*) (either term, 2 weeks). Principles and concepts of clinical oncology. Open only to students registered in the DDS program.

**DDS 509 Pre-Clinical Practice of Dentistry I**

★12 (*fi 24*) (either term, 10 weeks). An introduction to the art and science of clinical practice. Building on the foundation of epidemiology, bacteriology, and gross and microscopic anatomy of the teeth and jaws, students develop an understanding of the genesis of the carious process, and study the restoration of carious teeth and the related rationale. An introduction to the radiographic imaging process and interpretation of radiographs. Students use restoration materials and learn their physical and chemical properties. The principles of occlusion are also introduced.

**DDS 510 Patient-Centred Care**

★6 (*fi 12*) (two term, 2-6s-0). A discussion of dental skills which may be generalized across different disease states and different specialties. Topics include epidemiology, evidence-based dentistry and public health, history-taking and clinical skills in patients of all age groups and backgrounds, ethics, family issues, health in specific sections of the community and related areas. Open only to students registered in the DDS program. Corequisite: INT D 410.

**DDS 514 Anatomy (Dental)**

★2 (*fi 4*) (either term, 60 hours). Coronal, radicular and pupal morphology of the primary and permanent dentitions.

**DDS 518 Oral Biology I**

★4 (*fi 8*) (either term, 60 hours). Development, histology, and comparative anatomy of the craniofacial complex and dental tissues.

**DDS 520 Patient-Centred Care**

★6 (*fi 12*) (two term, 2-6s-0). A continuation of DDS 510, which involves further discussion of medical skills which may be generalized across different disease states and different specialties. Open only to students registered in the DDS program.

**DDS 522 Reproductive Medicine and Urology**

★1 (*fi 2*) (either term, 7 weeks). A brief overview of the reproductive medicine and urology appropriate for those in the DDS program. Open only to students registered in the DDS program.

**DDS 523 Musculoskeletal System**

★6 (*fi 12*) (two term, 7 weeks). Anatomy, physiology, pathophysiology and management in the musculoskeletal system. Open only to students registered in the DDS program.

**DDS 529 Pre-Clinical Practice of Dentistry II**

★25 (*fi 50*) (two term, 20 weeks). Students begin studying all phases of clinical dentistry including diagnosis and treatment planning, anaesthesia, periodontics, endodontics, fixed and removable prosthodontics and orthodontics. An introduction to ethics in dentistry. Students are introduced to the clinic, and limited diagnosis and treatment of patients begin.

**DDS 532 Oral Biology II**

★4 (*fi 8*) (two term, 60 hours). A multidisciplinary course that examines the unique physiology, biochemistry and nutritional requirements of the oral cavity. Topics include functions of the periodontal tissues, the temporomandibular joint, mastication, swallowing, speech, special reflexes involving cranial nerves, receptors of the stomatognathic system, and salivary glands and the role of saliva in caries. Oral manifestations of metabolic disease, the physiology of pain, and the role of nutrition in the development of oral tissues and the maintenance of oral health will also be discussed.

**DDS 533 Oral Pathology**

★2 (*fi 4*) (either term, 30 hours). The diagnosis, pathology and treatment of common diseases of the oral and maxillofacial structures.

**DDS 541 Dental Pharmacology**

★1 (*fi 2*) (either term, 15 hours). An introduction to the principles of pharmacology including mechanisms of drug action; pharmacokinetics and drug metabolism; and mechanisms of drug interactions and adverse drug reactions. These principles will be applied to groups of drugs acting on various organ systems of the body, representative drugs being selected whenever possible for their physiological and clinical significance to the practice of dentistry. Particular emphasis will be placed on anaesthetics, antacids, autonomic drugs and drugs with selective toxicity employed in infections and malignancies.

**DDS 545 Clinical Practice I**

★52 (*fi 104*) (two term, 40 weeks). An introduction to the art and science of clinical dentistry in the patient care setting. Utilizing a patient-centered approach, students develop the skills to diagnose and develop a treatment plan addressing patients' needs; to deliver basic restorative dentistry; to perform basic endodontic procedures; to assist in oral surgery; to provide periodontal therapy from basic to more advanced needs; to treat pediatric patients; to deliver basic removable prosthodontic services; to provide basic fixed prosthodontic services that may incorporate dental implantology; and to manage basic orthodontic needs of patients. Diagnostic services such as radiology are incorporated during the diagnosis and treatment. Students learn to manage ethical dilemmas and provide care according to existing codes of ethics. Students gain their clinical experience at intramural and extramural sites.

**DDS 547 Geriatrics**

★1 (*fi 2*) (either term, 15 hours). An introductory course describing the needs of the elderly. The course will examine the changing population balance in Canada involving both medical and dental aspects of people over 60 years of age.

**DDS 549 Oral Biology III**

★3 (*fi 6*) (two term, 70 hours). A seminar course designed to give the student an appreciation and understanding of current areas of research in dentistry and the experimental approaches used. Students will be required to design and carry out an independent research project under the guidance of a faculty member.

**DDS 555 Practice Management**

★1 (*fi 2*) (either term, 15 hours). This course introduces the third-year dental students to practice management topics and concepts necessary for today's successful practice of dentistry. These topics include financial planning, banking, dental office records, different modes of practice, marketing, and time management. The emphasis is to achieve an awareness of how these topics affect a dentist in today's society.

**DDS 565 Clinical Practice II**

★50 (*fi 100*) (two term, 30 weeks). A clinical course building on Clinical Practice I with emphasis on more complex patient needs involving all disciplines. Students perform oral surgery procedures as the prime operator. Students are also assigned to external programs such as the satellite clinics. A hospital rotation is included (University of Alberta Hospitals and Glenrose Hospital). Students deliver comprehensive dental care in a Clinical Teaching Unit. The approved research project designed in DDS 549 will be completed and presented in the senior year.

**DDS 800 Special Registration**

★0 (*fi 0*) (either term, unassigned). Dentistry undergraduate and postgraduate students who have been admitted to the University of Alberta Faculty of Medicine and Dentistry as a Visiting Student in accordance with the Faculty guidelines will be required to register in this course for the purpose of entitlement to registration in the Alberta Dental Association and College Education Register if applicable.

**DDS 829 Pre-Clinical Assessment for Students Applying to the Advanced Placement Program**

★12 (*fi 36*) (Spring/Summer, 3-0-0). Students begin studying all phases of clinical dentistry including diagnosis and treatment planning, anaesthesia, periodontics, endodontics, operative dentistry, fixed and removable prosthodontics and orthodontics. Students receive an introduction to ethics in dentistry. Students perform tasks mainly in a pre-clinical (laboratory) environment and have a brief introduction to the clinic with limited diagnosis and treatment of patients. Restricted to candidates registered as Special Students in the DDS Advanced Placement Program.

## 221.91 Dentistry/Medicine, DMED

Department of Dentistry  
Faculty of Medicine and Dentistry

### Undergraduate Courses

**DMED 511 Introduction to Medicine and Dentistry**

★3 (*fi 6*) (either term, 5 weeks). An introduction to the basic health science with a review of some aspects of the essential biochemistry, physiology, anatomy and pharmacology. Particular emphasis on basic medical genetics. Open only to students registered in the MD or DDS program.

**DMED 512 Infection, Immunity and Inflammation**

★6 (*fi 12*) (either term, 7 weeks). Basic and clinical aspects of immunity, inflammation and infection, including relevant parts of haematology. Infection with various classes of micro-organisms, and the appropriate management is an important focus. Open only to students registered in the MD or DDS program.

**DMED 513 Endocrine System**

★6 (*fi 12*) (either term, 6 weeks). An examination of the endocrine system in health and disease, with particular reference to the mechanisms of disturbances in the endocrine system, and the management of these conditions. Open only to students registered in the MD or DDS program.

**DMED 514 Cardiovascular, Pulmonary and Renal Systems**

★11 (*fi 22*) (either term, 14 weeks). The normal function of the heart and blood vessels, lungs and kidney, the changes in these functions which occur in disease and the management of the conditions which result from such changes in function. Open only to students registered in the MD or DDS program.

## 221.92 Design, DES

Department of Art and Design  
Faculty of Arts

**Note:** Since presence at lectures and seminars, participation in classroom discussion, and the completion of assignments are important components of most courses, regular attendance is expected.

This particularly applies to studio courses where attendance will be a factor in grading.

Students are expected to have successfully completed prerequisite course(s) with a minimum grade of B-. Consent of Department may be withheld in cases where the grade in a prerequisite course is below a B-.

## Undergraduate Courses

### DES 135 Design Fundamentals

★3 (*fi 6*) (either term, 0-6L-0). Studio-based introduction to the conceptual and practical concerns of the design disciplines. Two- and three-dimensional design-related studies. Note: ART 134 and DES 135 are required prerequisites for senior level ART or DES courses. Not open to students with credit in ART 131 or ART 132.

### DES 138 Design Fundamentals I

★3 (*fi 6*) (first term, 0-6L-0). Studio-based introduction to the conceptual and practical concerns of the design disciplines. Two- and three-dimensional design-related studies. Note: Restricted to BFA and BDesign students.

### DES 139 Design Fundamentals II

★3 (*fi 6*) (second term, 0-6L-0). Further study of the conceptual and practical concerns of the design disciplines. Two- and three-dimensional design-related studies. Note: Restricted to BFA and BDesign students.

### DES 268 Introduction to Studio

★3 (*fi 6*) (first term, 0-6L-0). Directed study in one subject embraced by DES 370 or DES 390. Prerequisites: ART 134 and DES 135 or ART 136 and DES 138, and consent of Department. Note: Restricted to students in the Faculty of Education only. Formerly DES 368.

### DES 337 Special Projects in Studio Disciplines

★6 (*fi 12*) (two term, 0-6L-0). Special projects in studio disciplines by special arrangement with the Department. Prerequisites: ART 134 and DES 135 or ART 136 and DES 138, and consent of Department. Formerly DES 339.

### DES 338 Special Projects in Studio Disciplines

★3 (*fi 6*) (either term, 0-6L-0). An introductory design course intended to meet special teaching needs not otherwise satisfied under existing course offerings. Prerequisites: ART 134 and DES 135 or ART 136 and DES 138 and consent of Department.

### DES 370 Foundations of Industrial Design

★6 (*fi 12*) (two term, 0-6L-0). Introduction to the principles, methods and techniques of industrial design. Studies of three dimensional design address concept, form and function in a social/environmental context and involve practical, hands-on projects combining theory and practice in two and three dimensions. Prerequisites: ART 134 and DES 135, or ART 136 and DES 138, and consent of Department. Formerly DES 372.

### DES 375 Introduction to Visual Presentation (Non-Electronic)

★3 (*fi 6*) (either term, 0-6L-0). Introductory studies in model and graphics based projects implementing the materials and processes of traditional visualization methods and media. Prerequisites or corequisites: DES 370 and consent of the Department.

### DES 376 Introduction to Visual Presentation (Electronic)

★3 (*fi 6*) (either term, 0-6L-0). Introductory studies in model and graphics based projects implementing the materials and processes of traditional visualization methods and media. Prerequisites or corequisites: DES 370 and consent of the Department.

### DES 384 Introduction to Integrative Design

★3 (*fi 6*) (either term, 0-6L-0). Introductory studies include 3-D model building, application of type, symbols, and signage in 3-D environments, materials and fabrication, and printing processes. Pre- or corequisites: DES 370 or 390 and consent of Department. Not to be taken by students with credit in both DES 370 and 390.

### DES 390 Foundations of Visual Communication Design

★6 (*fi 12*) (two term, 0-6L-0). Introduction to the principles, methods and techniques of visual communication design. Study of communication concerns through the integration of photography and typography. Emphasis on appropriateness, clarity, expression and description. Introduction to information and publication design problems. Prerequisites: ART 134 and DES 135, or ART 136 and DES 138, and consent of Department. Formerly DES 392.

### DES 395 Introduction to Form, Visual Elements and Systems

★3 (*fi 6*) (either term, 0-6L-0). Structure, representation and expression. Creation, observation and categorization. Form, color and tone systems in contemporary and historical design, and in the environment. Prerequisites or corequisites: DES 390 and consent of Department.

### DES 396 Introduction to Research and Theory in Design

★3 (*fi 6*) (either term, 0-6L-0). Introduction to information gathering methods, literature search and empirical research. Problem identification and definition. Purposes, goals, design and evaluation methods. Communication theory. Prerequisites or corequisites: DES 390 and consent of Department.

### DES 425 Word and Image: Intermediate Projects in Printmaking for Designers and Artists

★6 (*fi 12*) (two term, 0-6L-0). Exploration of the multiple relationships between word and image generated through consideration of text. Prerequisites: ART 322 and DES 390. Note: Registration priority will be given to BDesign Printmaking Route students. Not open to students who have successfully completed ART 425.

### DES 437 Special Projects in Studio Disciplines

★6 (*fi 12*) (two term, 0-6L-0). Special projects in studio disciplines by special arrangement with the Department. Prerequisite: consent of Department. Formerly DES 439.

### DES 438 Special Projects in Studio Disciplines

★3 (*fi 6*) (either term, 0-6L-0). An intermediate design course intended to meet special teaching needs not otherwise satisfied under existing course offerings. Prerequisite: Consent of Department.

### DES 470 Intermediate Industrial Design Principles and Practices

★6 (*fi 12*) (two term, 0-6L-0). Subject areas include research methods and the design process; communication skills and collaborative dynamics; human factors; the psychology of design; material properties and applications for fabrication and production; market considerations. Projects are 2-D, 3-D, and computer based. Prerequisites: DES 370 and consent of Department.

### DES 475 Product Design Principles and Practices I

★3 (*fi 6*) (either term, 0-6L-0). A studio-based course which implements design principles and practices with a focus on their application to product design for batch production and mass production. Experimentation and concept development with computer technology, 2-D media, and 3-D models and mock-ups. Prerequisites or corequisites: DES 470 and consent of Department.

### DES 477 Furniture Design Principles and Practices I

★3 (*fi 6*) (either term, 0-6L-0). A studio-based course which implements design principles and practices with a focus on their application to furniture design for batch production and mass production. Experimentation and concept development with computer technology, 2-D media, and 3-D models and prototypes. Prerequisite or corequisite: DES 470 and consent of Department.

### DES 483 Seminar on Design Issues

★3 (*fi 6*) (either term, 0-3s-0). Contemporary design issues in the fields of theory, criticism, history, professional practice and social concerns. Restricted to third-year Bachelor of Design students. Prerequisite(s): ART H 209 and/or consent of Department.

### DES 484 Integrative Design Principles and Practices I

★3 (*fi 6*) (first term, 0-6L-0). Studio-based course which integrates Visual Communication Design and Industrial Design concepts and practices. Individual and group projects address subjects including: signs, symbols, and communication; as well as products, packaging, and graphics. Prerequisites: DES 370 and 390, or DES 370 and 384, or DES 390 and 384, and consent of Department. Note: Not open to students with credit in DES 482.

### DES 485 Integrative Design Principles and Practices II

★3 (*fi 6*) (second term, 0-6L-0). Studio-based course which integrates Visual Communication Design and Industrial Design concepts and practices. Individual and group projects address subjects such as point of purchase displays and retail environments, combining 2-D and 3-D considerations. Prerequisites: DES 370 and 390, or DES 370 and 384, or DES 390 and 384, and consent of Department. Note: Not open to students with credit in DES 482.

### DES 490 Concepts and Systems in Visual Communication Design

★6 (*fi 12*) (two term, 0-6L-0). Systematic approaches to typographic, graphic and diagrammatic communication, image creation and manipulation. Introduction to the computer as a tool for language and visual communication. Black and white photography. Project management and research. Prerequisites: DES 390 and consent of Department. Formerly DES 492.

### DES 495 The Image I

★3 (*fi 6*) (first term, 0-6L-0). Further studies in the use of the photographic image in the design context. The communicative function of the image. Representation, description, expression and persuasion. History and theory of the use of images. Prerequisites or corequisites: DES 490 and consent of Department.

### DES 496 The Image II

★3 (*fi 6*) (second term, 0-6L-0). Complex image creation for communicational purposes mainly in electronic media. Introduction to criticism. Prerequisites or corequisites: DES 490 and consent of Department.

### DES 497 Advanced Typography

★3 (*fi 6*) (either term, 0-6L-0). Typography in the context of language communication. Design of letterforms. The study of notation schemes. The history of letterforms, history of printing and book design. Prerequisite or corequisite: DES 490 and consent of Department.

### DES 498 Information Design

★3 (*fi 6*) (either term, 0-6L-0). Text, tables, charts, diagrams and electronic displays. User-machine interaction: perception and cognition. Visual presentation of abstract and quantitative information. Prerequisite or corequisite: DES 490 and consent of Department.

**DES 525 Word and Image: Advanced Projects in Printmaking for Designers and Artists**

★6 (*fi 12*) (two term, 0-6L-0). Exploration of the multiple relationships between word and image generated through consideration of text. Prerequisite: DES 425 or ART 425. Note: Registration priority will be given to BDesign Printmaking Route students. Not open to students who have successfully completed ART 525.

**DES 537 Special Projects in Studio Disciplines**

★6 (*fi 12*) (two term, 0-6L-0). Special projects in studio disciplines by special arrangement with the Department. Prerequisite: consent of Department. Formerly DES 539.

**DES 538 Special Projects in Studio Disciplines**

★3 (*fi 6*) (either term, 0-6L-0). An advanced design course intended to meet special teaching needs not otherwise satisfied under existing course offerings. Prerequisite: consent of Department.

**DES 570 The Practice of Industrial Design**

★6 (*fi 12*) (two term, 0-6L-0). Subject areas include design and culture; human factors; social, environmental and economic implications of design; appropriate technologies; production considerations; product marketing and case studies; design and project management; professional, business and legal implications. Projects may be realized in any or all available media. Prerequisites: DES 470 and consent of Department.

**DES 575 Product Design Applications and Product Technologies**

★3 (*fi 6*) (either term, 0-6L-0). A studio-based course in which projects address the requirements of special user groups and specific markets with special consideration of the production capabilities of western Canada. Computer Aided Design and Computer Aided Manufacturing will be the focus of at least one project. Prerequisites or corequisites: DES 570 and consent of Department.

**DES 576 Furniture Design Applications and Production Technologies**

★3 (*fi 6*) (either term, 0-6L-0). A studio-based course in which projects address the requirements of special user groups and specific markets with special consideration of the production capabilities of western Canada. Computer Aided Design and Computer Aided Manufacturing will be the focus of at least one project. Prerequisites or corequisites: DES 570 and consent of Department.

**DES 584 Integrative Design Applications I**

★3 (*fi 6*) (either term, 0-6L-0). A 2-D/3-D studio-based course in which projects address the research, development and fabrication requirements of educational and interpretive design, with special consideration of technological and cultural contexts. Prerequisites: DES 484 and/or DES 485 and consent of Department.

**DES 585 Integrative Design Applications II**

★3 (*fi 6*) (either term, 0-6L-0). A 2-D/3-D studio-based course in which projects address the research, development and fabrication requirements of commercial applications of design in specific settings, with special consideration of technological and cultural contexts. Prerequisites: DES 484 and/or DES 485 and consent of Department.

**DES 586 Design Practicum I**

★3 (*fi 6*) (first term, 0-6L-0). Design internship in design offices, industry, museums and other appropriate professional hosts and venues, bridging formal education and professional practice. Prerequisite: consent of Department.

**DES 587 Design Practicum II**

★3 (*fi 6*) (second term, 0-6L-0). Design internship in design offices, industry, museums and other appropriate professional hosts and venues, bridging formal education and professional practice. Prerequisite: consent of Department.

**DES 590 The Practice of Graphic Design**

★6 (*fi 12*) (two term, 0-6L-0). Applied practical projects and complex design systems. Problem definition, strategic planning, project management and design evaluation. Project brief and production specifications, professional practice, procedures, codes of ethics, pricing and intellectual property. Prerequisites: DES 490 and consent of Department. Formerly DES 592.

**DES 595 Communication Design for Interactive Media I**

★3 (*fi 6*) (either term, 0-6L-0). Design for information, education and instruction using multimedia, Navigation, interface design in the context of human-machine interaction. Complex information systems, project planning and development strategies. Prerequisites or corequisites: DES 590 and consent of department.

**DES 596 Communication Design for Interactive Media II**

★3 (*fi 6*) (either term, 0-6L-0). Design issues in new communication media. Open information structures and networks as complex hierarchical systems. Internet as an information resource, research tool and mass communication media. Navigation, interaction and interface design in hypermedia. Prerequisites: DES 592 and consent of Department. Corequisite: DES 590.

**DES 597 Design Management**

★3 (*fi 6*) (either term, 0-6L-0). Project and office management. Design methods and evaluation, systems theory, writing for design. Introduction to marketing and social marketing, motivational and audience studies. Prerequisite or corequisite: DES 590 and consent of Department.

**DES 598 Image, Sound and Narrative in Multimedia**

★3 (*fi 6*) (either term, 0-6L-0). Advanced exploration of the relationship between

sound, image and narrative structures using current computer programs for computer-based multimedia productions. Emphasis on planning, design and planning skills, project management and team work. Prerequisite or corequisite: DES 590 and consent of Department.

**Graduate Courses****DES 672 Industrial Design: Concepts, Analysis and Criticism**

★6 (*fi 12*) (either term, 0-18L-0).

**DES 673 Industrial Design: Conceptual Analysis and Practical Applications**

★6 (*fi 12*) (either term, 0-18L-0).

**DES 675 Industrial Design: Directed Readings**

★3 (*fi 6*) (either term, 0-3s-0).

**DES 692 Visual Communication Design: Concepts, Analysis and Criticism**

★6 (*fi 12*) (either term, 0-18L-0).

**DES 693 Visual Communication Design: Conceptual Analysis and Practical Applications**

★6 (*fi 12*) (either term, 0-18L-0).

**DES 695 Visual Communication Design: Directed Readings**

★3 (*fi 6*) (either term, 0-3s-0).

**221.93 Drama, DRAMA**

Department of Drama  
Faculty of Arts

For Theatre Design courses taught by the Department of Drama please see T DES Course Listings.

**Undergraduate Courses****DRAMA 101 Introduction to Theatre Art**

★3 (*fi 6*) (either term, 3-0-0). The origins and development of theatre art; introduction to theatre aesthetics. This course requires the payment of additional miscellaneous fees. See §22.2.3 for details. Note: Not normally to be taken by BA Drama Majors or BA (Honors) Drama students.

**DRAMA 102 Play Analysis**

★3 (*fi 6*) (either term, 3-0-0). Understanding of Drama through critical analysis of plays and its application to creative solutions in their production. Note: Not to be taken by BA Drama Majors, BA (Honors) Drama students, or BEd (Secondary) Drama Majors.

**DRAMA 103 Critical Analysis of Playtexts**

★3 (*fi 6*) (either term, 3-0-0). Analysis of playtexts in reference to the specific challenges faced by actors, directors, designers, and dramaturgs. Note: Restricted to BA Drama Majors, BA (Honors) Drama students, and BEd (Secondary) Drama majors, or admission by consent of Department based on successful completion of Drama 30 or equivalent. Not to be taken by students with credit in DRAMA 102.

**DRAMA 149 Dramatic Process I**

★3 (*fi 6*) (either term, 0-6L-0). Speech and movement improvisation with an emphasis on imaginative development; introduction to the process of acting and to dramatic form. Note: Designed for students with little or no previous background in Drama. Not to be taken by BA Drama majors, BA (Honors) Drama students, or BEd (Secondary) Drama Majors.

**DRAMA 150 Introduction to Dramatic Process**

★3 (*fi 6*) (first term, 0-6L-0). Dramatic improvisation as an introduction to the process of acting and to dramatic form. Prerequisite: consent of Department. Note: Restricted to BA Drama Majors, BA (Honors) Drama students, BEd (Secondary) Drama Majors, and BFA (Technical Theatre; Stage Management) students, or admission by consent of Department based on successful completion of Drama 30 or equivalent. Note: Not to be taken by students with credit in DRAMA 149.

**DRAMA 208 Theatre History I**

★3 (*fi 6*) (first term, 3-0-0). Development of the styles and crafts of the mise-en-scène, and of the relationship between the playing space and the audience, in the European theatre from ancient Greece to 1650. Prerequisite: Drama 101 or 102 or 103 or consent of Department. Note: Required for BA Drama Majors, BA (Honors) Drama students, and BEd (Secondary) Drama Majors. Not to be taken by students with credit in DRAMA 304.

**DRAMA 209 Theatre History II**

★3 (*fi 6*) (second term, 3-0-0). History of the European theatre from 1650 to 1900, focusing on acting styles, architecture, and conventions of production and performance. Prerequisite: DRAMA 208 or consent of Department. Note: Not to be taken by students with credit in DRAMA 304.

**DRAMA 240 Oral Communication and Interpretation**

★3 (*fi 6*) (either term, 0-6L-0). Voice and speech development and oral interpretation.

Prerequisite: DRAMA 149 or 150 or consent of Department. Note: Restricted to BA Drama Majors, BA (Honors) Drama students, and BEd (Secondary) Drama Majors. Not to be taken by students with credit in DRAMA 247.

#### **O** DRAMA 247 Introduction to Oral Communication

★3 (*fi 6*) (either term, 0-6L-0). Exploration of basic techniques of oral communication and oral interpretation drawing from various forms of literature. Note: Not to be taken by BA Drama majors, BA (Honors) Drama students, or BEd (Secondary) Drama Majors.

#### **DRAMA 249 Dramatic Process II**

★3 (*fi 6*) (either term, 0-6L-0). The theory and practice of improvisation and its application to dramatic form. Prerequisite: DRAMA 149 or 150. Note: Not normally to be taken by BA Drama Majors, BA (Honors) Drama, or BEd (Secondary) Drama Majors. Not to be taken by students with credit in DRAMA 259 or 359.

#### **DRAMA 257 Scene Study I**

★3 (*fi 6*) (either term, 0-6L-0). Study of acting, including the analysis and enactment of scripted scenes, and characterization. Prerequisites: one of DRAMA 102 or 103 and one of 149 or 150; or consent of Department. Note: Priority will be given to BA Drama Majors, BA (Honors) Drama students, and BEd (Secondary) Drama Majors and Minors. Not to be taken by students with credit in DRAMA 353.

#### **DRAMA 259 Performer-Created Theatre**

★3 (*fi 6*) (either term, 0-6L-0). Practice in and theory of the collaborative development of dramatic performance using improvisation and other techniques. Prerequisites: DRAMA 102 or 103, and 149 or 150 or consent of Department. Note: Priority given to BA Drama Majors, BA (Honors) Drama students, and BEd (Secondary) Drama Majors. Not to be taken by students with credit in DRAMA 249 or 359.

#### **DRAMA 279 Introduction to Stagecraft and Design**

★3 (*fi 6*) (either term, 3-0-0). Production techniques, construction, mechanics, lighting and design. Note: Priority given to BA Drama Majors, BA (Honors) Drama students, and BEd (Secondary) Drama Majors and Minors. Note: Not to be taken by students with credit in DRAMA 379.

#### **DRAMA 301 History of Twentieth-Century Canadian Theatre to 1967**

★3 (*fi 6*) (either term, 3-0-0). Evolution of theatre art in English/French Canada from 1900 to 1967, with reference to the actors, directors, playwrights, spaces and major trends in the Canadian theatre. Note: Not to be taken by students with credit in DRAMA 303.

#### **DRAMA 302 Modern Canadian Theatre**

★3 (*fi 6*) (either term, 3-0-0). Development in Canadian theatre and drama since 1967. Note: Not to be taken by students with credit in DRAMA 403.

#### **DRAMA 305 Theatre and Film: From Stage to Screen**

★3 (*fi 6*) (either term, 3-0-1). An examination of problems of theatre and film adaptation, with a survey of theoretical responses, and an exploration of a number of examples from play scripts and films. Prerequisite: ★6 from DRAMA and/or FS courses and/or CLIT 352, FREN 445, SPA 325, JAPAN 330, or consent of Department.

#### **DRAMA 306 Historical Approaches to Western Dramatic and Theatrical Theories**

★3 (*fi 6*) (either term, 3-0-0). Critical theories from Aristotle to Artaud. Pre- or corequisite: DRAMA 308 or consent of Department. Note: Required for BA (Honors) Drama students. Note: Not to be taken by students with credit in DRAMA 405 and 508.

#### **DRAMA 307 Studies in Drama I**

★3 (*fi 6*) (either term, 0-6L-0). Prerequisite: consent of Department.

#### **DRAMA 308 The Modernist Stage**

★3 (*fi 6*) (first term, 3-0-0). Theatre from 19th century Realism to 20th century Absurdism. Note: Required for BA (Honors) Drama students. Note: Not to be taken by students with credit in DRAMA 408.

#### **L** DRAMA 325 Creative Process and the Theatre Artist

★3 (*fi 6*) (either term, 0-4L-0). Theory and practice of the creative process of theatre arts emphasizing its interdisciplinary nature and the development of human resources. Prerequisite: DRAMA 149 or 150 or consent of Department.

#### **L** DRAMA 327 Community-Based Theatre

★3 (*fi 6*) (either term, 0-4L-0). A study of the theory, practice and development of popular, community and collective theatre. Recommended for students who intend to enrol in DRAMA 459.

#### **DRAMA 331 Movement and Physical Theatre**

★3 (*fi 6*) (either term, 0-6L-0). An introduction to the use of improvisational movement in the creation of physical theatre. Prerequisite: DRAMA 149 or 150 or consent of the Department. Note: Priority will be given to BA Drama Majors, BA (Honors) Drama students, and BEd (Secondary) Drama Majors.

#### **DRAMA 334 Beginning Movement**

★6 (*fi 12*) (two term, 0-8L-0). Techniques in ballet and period style for the actor. Exploration of creative forms of movement and the physical self in characterization. Note: Restricted to BFA Acting. Not to be taken by students with credit in DRAMA 336 or 338.

#### **DRAMA 335 Movement in Rehearsal and Performance**

★2 (*fi 4*) (two term, 0-0-1). Restricted to BFA (Acting) students. This is a credit-fail course.

#### **DRAMA 344 Voice and Speech**

★6 (*fi 12*) (two term, 0-8L-0). Introduction to voice and speech improvement; oral interpretation; exploration of the voice for characterization; singing. Note: Restricted to BFA Acting students. Not to be taken by students with credit in DRAMA 346 or 348.

#### **DRAMA 345 Speech in Rehearsal and Performance**

★2 (*fi 4*) (two term, 0-0-1). Note: Restricted to BFA Acting students. This is a credit-fail course.

#### **DRAMA 355 Acting in Rehearsal and Performance**

★2 (*fi 4*) (two term, 0-0-3). Note: Restricted to BFA Acting students.

#### **DRAMA 356 Beginning Acting Technique I**

★3 (*fi 6*) (first term, 0-10L-0). Development of the self as the fundamental instrument of the actor. Introduction to script analysis and scene study. Note: Restricted to BFA (Acting) students.

#### **DRAMA 357 Scene Study II**

★3 (*fi 6*) (either term, 0-6L-0). Acting exercises based on the study of plays emphasizing complexity of language and characterization. Prerequisites: DRAMA 102 or 103, and 240 and 257, and a Theatre History course from the Department of Drama course listings; and/or consent of Department. Note: Not to be taken by students with credit in DRAMA 453.

#### **DRAMA 358 Beginning Acting Technique II**

★3 (*fi 6*) (second term, 0-10L-0). Script analysis, characterization, and the laboratory exploration of scenes and/or plays drawn from Realism. Prerequisite: DRAMA 356. Note: Restricted to BFA (Acting) students.

#### **DRAMA 361 Playwriting**

★3 (*fi 6*) (first term, 0-6L-0). Study of and practice in the creation of a play for the theatre. Prerequisite: DRAMA 101 or one of DRAMA 102, 103, 149, or 150 or consent of Department. Note: Not to be taken by students with credit in DRAMA 360 or 407 in playwriting.

#### **L** DRAMA 383 Introduction to Directing

★3 (*fi 6*) (either term, 0-6L-0). Fundamentals of directing explored through practical exercises. Prerequisites: One of DRAMA 257, 370, 378 and/or consent of Department. Note: Priority given to BA Drama Majors, BA (Honors) Drama students, BEd (Secondary) Drama Majors, and BFA (Theatre Design; Technical Theatre; Stage Management) students.

#### **DRAMA 390 Production Crew I**

★3 (*fi 6*) (variable, 0-8L-0). Production experience in the preparation for and the running of a production for performance. Note: Restricted to BFA (Technical Theatre) students.

#### **L** DRAMA 391 Production Lab I

★3 (*fi 6*) (either term, 0-8L-0). Technical theatre practice. Preparation and running of the production aspects of Departmental plays. Prerequisite: DRAMA 279 or consent of Department. Note: Not to be taken by students with credit in DRAMA 191.

#### **DRAMA 392 Production Lab II**

★3 (*fi 6*) (variable, 0-0-6). Production experience in stage managing and/or technical theatre with qualified technical experts. Prerequisites: DRAMA 191, 391, and/or consent of Department.

#### **DRAMA 393 Production Lab II B**

★2 (*fi 4*) (first term, 0-0-2). Production organization; experience in running of a play in performance. Restricted to BFA (Acting) students. A required non-credit course.

#### **DRAMA 394 Production Techniques - Sound**

★3 (*fi 6*) (second term, 0-6L-0). Theory and practical application of audio equipment and sound design for the theatre. Note: Restricted to BFA Drama (Technical Theatre) students.

#### **DRAMA 396 Stage Management I**

★6 (*fi 12*) (two term, 0-6L-0). Introduction to the fundamentals of stage management addressing the preparation, rehearsal, and running stages of production. Note: Restricted to BFA (Technical Theatre: Stage Management) students.

#### **DRAMA 397 Stagecraft**

★6 (*fi 12*) (two term, 0-9L-0). The study of theatrical production techniques, construction, and mechanics. Note: Restricted to BFA (Technical Theatre: Technical Production) students.

#### **DRAMA 399 Explorations in Acting I**

★3 (*fi 6*) (two term, 0-3L-0). Exploration of dramatic text using exercises devoted to the coordination of the actor's voice, speech and movement. Restricted to BFA (Acting) students. Course grading criterion is in terms of 'credit/non-credit' only.

#### **DRAMA 401 Research and Critical Writing Skills**

★3 (*fi 6*) (first term, 0-3L-0). Prerequisite: DRAMA 306. Note: Required for BA (Honors) students.

**DRAMA 402 Tutorial Fourth-Year Honors Essay**

★3 (fi 6) (second term, unassigned). Prerequisite: DRAMA 401. Note: Not to be taken by students with credit in DRAMA 505.

**DRAMA 406 Contemporary Approaches to Dramatic and Theatrical Theories**

★3 (fi 6) (either term, 3-0-0). Modernist to contemporary theories applied to dramatic texts in performance. Prerequisite: consent of Department. Note: Required for BA (Honors) Drama students. Not to be taken by students with credit in DRAMA 503 and 509.

**DRAMA 407 Studies in Drama II**

★3 (fi 6) (either term, 0-6L-0). Prerequisite: consent of Department.

**DRAMA 409 Contemporary Theatre**

★3 (fi 6) (either term, 3-0-0). Exploration of issues and trends of theatre movements which form the mosaic of contemporary theatre. Prerequisite: A Theatre History course from the Department of Drama course listings, or consent of Department.

**DRAMA 434 Theatre Movement**

★6 (fi 12) (two term, 0-8L-0). Studies of, and projects in styles of movement and dance, both period and contemporary. Prerequisite: DRAMA 334. Note: Restricted to BFA Acting students. Not to be taken by students with credit in DRAMA 436 or 438.

**DRAMA 435 Movement in Rehearsal and Performance**

★2 (fi 4) (two term, 0-0-2). Note: Restricted to BFA Acting students. This is a credit-fail course.

**DRAMA 444 Advanced Voice and Speech**

★6 (fi 12) (two term, 0-6.5L-0). Extension of the voice; sight reading, oral interpretation of period dramatic forms; singing. Prerequisite: DRAMA 344. Note: Restricted to BFA Acting students. Not to be taken by students with credit in DRAMA 446 or 448.

**DRAMA 445 Speech in Rehearsal and Performance**

★2 (fi 4) (two term, 0-0-2). Note: Restricted to BFA (Acting) students. This is a credit-fail course.

**DRAMA 451 Make-up for the Stage**

★2 (fi 4) (first term, 0-3L-0). Practice in use of basic and special materials in creating character make-up for the stage. Note: Restricted to BFA (Drama) and BMus (Voice) students. Not open to students with credit in DRAMA 351 or 551. This is a credit/fail course.

**DRAMA 454 Performance Creation**

★3 (fi 6) (either term, 0-6L-0). Exploration, practice, and experimentation in performer-created theatre. Prerequisite: DRAMA 259 and 391 and/or consent of Department.

**DRAMA 455 Acting in Rehearsal and Performance**

★3 (fi 6) (two term, 0-4L-0). Note: Restricted to BFA Acting students.

**DRAMA 456 Advanced Acting Technique I**

★3 (fi 6) (first term, 0-10L-0). Studies in characterization leading to laboratory performance. Prerequisite: DRAMA 358. Note: Restricted to BFA (Acting) students.

**DRAMA 457 Production/Performance**

★6 (fi 12) (either term, 0-8L-0). Research, rehearsal, design, staging and presentation of a play by an acting ensemble. Prerequisites: DRAMA 357 and 391, a Theatre History course from the Department of Drama course listings, and/or consent of Department.

**DRAMA 458 Advanced Acting Technique II**

★3 (fi 6) (second term, 0-10L-0). Study of, and practice in, the main period styles of acting. Prerequisite: DRAMA 456. Note: Restricted to BFA (Acting) students.

**DRAMA 459 Collective Creation**

★3 (fi 6) (either term, 0-6L-0). The collaborative preparation and presentation of performer-created theatre within a social context. Prerequisite: DRAMA 259 and/or consent of Department. DRAMA 327 is recommended.

**DRAMA 461 Script Writing**

★3 (fi 6) (second term, 0-6L-0). The theory and practice of writing for dramatic media: theatre, film, radio, or television. Prerequisite: DRAMA 361 and consent of Department. Note: Not to be taken by students with credit in DRAMA 460.

**DRAMA 483 Elements of Directing**

★3 (fi 6) (either term, 0-6L-0). Developing the director's creative use of the elements of directing through practical exercises in scripted scenes. Prerequisites: DRAMA 102 or 103, 383 and 391, and/or consent of Department.

**DRAMA 490 Production Crew II**

★3 (fi 6) (variable, 0-8L-0). Production experience in the preparation for and/or the running of a production for performance. Prerequisite: DRAMA 390. Note: Restricted to BFA (Technical Theatre) students.

**DRAMA 492 Running Crew Projects**

★3 (fi 6) (either term, 0-0-6). Production organization: experience in preparing

and running of a play in performance. Prerequisites: DRAMA 191, or 391 and/or consent of Department.

**DRAMA 494 Specialized Skills in Stage Management**

★3 (fi 6) (either term, 0-6L-0). Skill sets for the practice of Stage Management. Note: Restricted to BFA Technical Theatre (Stage Management) students. Repeatable (to be taken two years in succession).

**DRAMA 495 Management-Practices for Technical Theatre**

★3 (fi 6) (either term, 4-0-0). Administrative practice directed toward production shop facilities and personnel. Note: Restricted to BFA (Technical Theatre) students.

**DRAMA 497 Workshops in Technical Theatre**

★6 (fi 12) (two term, 0-10L-0). Technical production techniques and practice (i.e., health and safety, rigging, flying, rolling stock and tracked stages, hydraulics, pneumatics, plastics and metal fabrication, etc.). Prerequisite: DRAMA 397. Note: Restricted to BFA (Technical Theatre: Technical Production) students. Repeatable (to be taken two years in succession).

**DRAMA 499 Explorations in Acting II**

★3 (fi 6) (two term, 0-3L-0). Exploration of dramatic text related to period style with emphasis on characterization, and special problems. Prerequisite: DRAMA 399. Restricted to BFA (Acting) students. Course grading criterion is in terms of 'credit/no credit' only.

**DRAMA 507 Senior Projects**

★3 (fi 6) (either term, 0-5L-0). Prerequisite: consent of Department.

**DRAMA 534 Advanced Movement**

★6 (fi 12) (two term, 0-6L-0). Instruction and projects for individual growth in movement expression. Prerequisite: DRAMA 438. Note: Restricted to BFA (Drama) students.

**DRAMA 535 Movement in Rehearsal and Performance**

★3 (fi 6) (two term, 0-0-3). Note: Restricted to BFA Acting students. This is a credit-fail course.

**DRAMA 544 Dialects and Accents/Language Styles**

★6 (fi 12) (two term, 0-7L-0). Survey of dialects and accents; intensive practice in representative examples from the British Isles, Europe and North America; tutorial instruction to suit the actor's vocal needs; singing. Prerequisite: DRAMA 448. Note: Restricted to BFA (Drama) students.

**DRAMA 545 Speech in Rehearsal and Performance**

★3 (fi 6) (two term, 0-0-3). Note: Restricted to BFA Acting students. This is a credit-fail course.

**DRAMA 554 Rehearsal and Performance**

★6 (fi 12) (two term, 0-25L-0). Rehearsal and performance of roles in public production. Workshops in acting for film and radio. Prerequisite: DRAMA 458. Note: Restricted to BFA (Acting) students.

**DRAMA 577 Special Projects**

★3 (fi 6) (either term, 0-6L-0). Special projects in design and production. Formerly part of DRAMA 507.

**DRAMA 590 Production Crew III**

★6 (fi 12) (two term, 0-15L-0). Production experience in preparing and/or running of a production for performance. Prerequisite: DRAMA 490. Note: Restricted to BFA (Technical Theatre) students. Repeatable.

**DRAMA 599 Explorations in Acting III**

★2 (fi 4) (either term, 0-2L-0). Prerequisite: DRAMA 499. Restricted to BFA (Acting) students. Course grading criterion is in terms of 'credit/no credit' only.

**Graduate Courses****DRAMA 596 Advanced Stage Management**

★3 (fi 6) (either term, 0-6L-0). Stage management practice as it applies to different types of production. Prerequisite: DRAMA 396. Note: Restricted to BFA Technical Theatre (Stage Management) students. Repeatable (to be taken two years in succession).

**DRAMA 601 Methods and Tools of Research**

★3 (fi 6) (either term, 0-3L-0).

**DRAMA 602 Theatre Historiographies**

★3 (fi 6) (either term, 0-3s-0). Critical approaches to historical research.

**DRAMA 605 Special Projects in Theatre**

★3 (fi 6) (variable, 0-3L-0). Prerequisite: consent of Department.

**DRAMA 607 Dramaturgy I**

★3 (fi 6) (variable, 0-3s-0).

**DRAMA 608 Historical Approaches to Dramatic and Theatrical Critical Theories**

★3 (fi 6) (either term, 0-3s-0). An in-depth analysis of selected theories of aesthetics, drama and theatre, from Aristotle to Modernism.

**DRAMA 609 Contemporary Approaches to Dramatic and Theatrical Critical Theories**

★3 (*fi 6*) (either term, 0-3s-0). An in-depth analysis of selected contemporary theories of aesthetics, drama and theatre, from Structuralism to the present.

**DRAMA 617 Dramaturgy II**

★3 (*fi 6*) (variable, 0-9L-0). Practical studies in dramaturgy. Prerequisites: DRAMA 607 and/or consent of Department.

**DRAMA 621 Research Seminar I**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics in Theory and Criticism.

**DRAMA 622 Research Seminar II**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics in Theory and Criticism.

**DRAMA 623 Research Seminar III**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics in Theatre History and Theatrical Theory.

**DRAMA 624 Research Seminar IV**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics in Theatre History and Theatrical Theory.

**DRAMA 625 Research in Canadian Drama I**

★3 (*fi 6*) (either term, 0-3s-0). Research in selected topics related to Canadian Drama.

**DRAMA 626 Research in Canadian Drama II**

★3 (*fi 6*) (either term, 0-3s-0). Research in selected topics related to Canadian Drama.

**DRAMA 640 Voice Pedagogy I**

★3 (*fi 6*) (two term, 0-2s/2-6). Study of theory and pedagogical approaches to teaching voice, speech and text for the theatre.

**DRAMA 641 Voice Pedagogy II**

★3 (*fi 6*) (two term, 0-2s/2-6). Advanced study of theory and pedagogical approaches to teaching and coaching voice, speech and text for the theatre, and for presentation skills. Prerequisite: DRAMA 640.

**DRAMA 642 Vocal Coaching for the Theatre I**

★3 (*fi 6*) (either term, 0-12L-0). Observation and analysis of approaches to coaching voice, speech and text for the theatre.

**DRAMA 643 Vocal Coaching for the Theatre II**

★3 (*fi 6*) (either term, 0-12L-0). Advanced observation, analysis and supervised teaching and coaching of voice, speech and text for the theatre and for presentation skills. Prerequisite: DRAMA 642.

**DRAMA 644 Vocal Coaching for the Theatre III**

★3 (*fi 6*) (either term, 0-12L-0). Supervised and independent teaching and coaching of voice, speech and text for the theatre and for presentation skills. Prerequisite: DRAMA 643.

**DRAMA 659 Popular Theatre: Theory and Methodology**

★3 (*fi 6*) (either term, 0-9L-0). This course will examine the principles on which popular theatre rests, the objectives of popular theatre, various approaches to popular theatre, and evaluation of popular theatre. Students will examine these topics through a mix of academic study, practical introduction of specific popular theatre techniques, and an experience in a popular theatre process. Prerequisite: consent of Department.

**DRAMA 680 Styles of Directing**

★6 (*fi 12*) (two term, 0-3s-6). Note: Restricted to MFA (Drama) students.

**DRAMA 681 Advanced Projects in Directing**

★6 (*fi 12*) (two term, 0-3s-6). Note: Restricted to MFA (Drama) students.

**DRAMA 690 Topics in Applied Theatre Aesthetics**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: consent of Department.

## 221.94 Earth and Atmospheric Sciences, EAS

Department of Earth and Atmospheric Sciences  
Faculty of Science

### Undergraduate Courses

#### 221.94.1 Faculty of Arts Courses

**Note:** See Also INT D 451 for courses which are offered by more than one Department or Faculty and which may be taken as options or as a course in this discipline.

**0 EAS 192 Cultures, Landscapes and Geographic Space**

★3 (*fi 6*) (either term, 3-0-0). Introduction to geographical techniques and the

spatial organization of human landscapes and significance of the distribution of human activity. Not open to students with credit in EAS 190 or 191. [Faculty of Arts]

**0 EAS 293 The Urban Environment**

★3 (*fi 6*) (either term, 3-0-0). Introduction to urban geography emphasizing interactions between the physical environment and patterns of human settlement. Topics include models of urbanization and urban form, growth and decline in North American cities. Prerequisite: EAS 190, 191, 192 or one social science core course in the Faculty of Arts. [Faculty of Arts]

**0 EAS 294 Natural Resources and the Environment**

★3 (*fi 6*) (either term, 3-0-0). Geographic concepts and perspectives on renewable and non-renewable natural resources. Prerequisite: One of EAS 100, 101, 102, 190, 191, 192, 201 or 210. Not to be taken by students with credit in EAS 290 or 291. [Faculty of Arts]

**0 EAS 295 Human Dimensions of Environmental Hazards**

★3 (*fi 6*) (either term, 2-1s-0). Interactions between environmental hazards, individuals and communities; risk reduction strategies by members of the public and management agencies. Prerequisite: One of EAS 100, 101, 102, 190, 192, 201 or 210. [Faculty of Arts]

**0 EAS 391 Introduction to Environmental Planning**

★3 (*fi 6*) (either term, 3-0-0). Introduction to issues in policy making, planning and management related to human interaction with the physical environment. Prerequisite: Any EAS 29X course. [Faculty of Arts]

**0 EAS 392 Research Methods in Human Geography**

★3 (*fi 6*) (either term, 3-0-0). Collection and analysis of data for research in human geography. Research design and sampling procedures. Special emphasis on social surveys, analysis and interpretation of quantitative data, and report writing. Field work required. Prerequisites: Any EAS 29X course and one of EAS 220, SOC 210 or STAT 141. [Faculty of Arts]

**0 EAS 394 Issues In Human Geography**

★3 (*fi 6*) (either term, 3-0-0). Theory and application of contemporary issues in human geography. Prerequisites: Any EAS 29X course. [Faculty of Arts]

**0 EAS 395 Health, Space and Place**

★3 (*fi 6*) (either term, 2-1s-0). Geographic research on health and disease, including environmental, social, individual and institutional factors. Prerequisites: Any 100-level human geography (19X) course plus any one 200-level (29X) human geography course. [Faculty of Arts]

**0 EAS 491 Resource Management and Environmental Policy**

★3 (*fi 6*) (either term, 3-0-0). Roles of governmental and nongovernmental organizations, industry and private enterprise, and advocacy organizations in addressing issues of resource scarcity and environmental policy. Institutions, policies, and strategies for resource and environmental management at the provincial/state, national, and international levels. Prerequisites: Any EAS 39X course or consent of Instructor. [Faculty of Arts]

**0 EAS 492 Geographical Information Systems for Social Science**

★3 (*fi 6*) (either term, 2-0-1). This course provides spatial analytic tools to social geographers and provides a social science perspective to geoprocessing students. Examples arise from marketing, operations research, sociology, and urban and economic geography. Assignments impart technical aspects through hands-on experience with commercial and in-house spatial analysis software. Prerequisite: EAS 221. [Faculty of Arts]

**0 EAS 493 Human Dimensions of Global Change**

★3 (*fi 6*) (either term, 3-0-0). Investigation of issues related to the human use of resources and impact on the regional and global environment. Critical review of alternative frameworks for assessing, mitigating and adapting to global environmental change. Prerequisite: Any EAS 3XX course or consent of Instructor. [Faculty of Arts]

**0 EAS 494 Environment and Health**

★3 (*fi 6*) (either term, 3-0-0). An examination of relations between human health and environmental issues, particularly those related to the natural, built, and social environments. Prerequisite: consent of Department. [Faculty of Arts]

**EAS 497 Directed Study in Human Geography I**

★3-6 (*variable*) (variable, 3-0-0). Prerequisite: Any EAS 39X course. [Faculty of Arts]

**EAS 498 Directed Study in Human Geography II**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: EAS 497. [Faculty of Arts]

#### 221.94.2 Faculty of Science Courses

**Notes**

- (1) Students are responsible for their own accommodation and meal expenses on all Earth and Atmospheric Sciences field trips.
- (2) A list of paleontology courses and course descriptions may be found under Paleontology.