

# Faculty of Agriculture, Forestry, and Home Economics

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## 30 The Faculty of Agriculture, Forestry, and Home Economics

### More Than You Expect

We offer nine distinct Bachelor of Science degrees, including two jointly with the Faculty of Business, one with the School of Native Studies, and one with the Faculty of Education. Our strength comes from our diversity and depth in both the natural and social sciences.

Our degrees provide technical and practical skills in addition to sound biophysical and social science background. Five years after their 1995 graduation, none of this Faculty's respondents to the 2000 University of Alberta Employment Survey were unemployed. Only the Faculties of Medicine and Dentistry, Law, and Pharmacy and Pharmaceutical Sciences could say the same.

### Scholarships, Awards, and Bursaries

More than 130 scholarships, awards, and bursaries worth \$300,000 are offered to undergraduate students in the Faculty, making our students among the highest award recipients on campus. This does not include other general scholarships offered by the University (available to all students) or scholarships outside the University from private businesses as well as government.

### Professional Accreditation

Our graduates are eligible for Professional Accreditation in a number of organizations depending on their field of study.

- Alberta Human Ecology and Home Economics Association
- Alberta Institute of Agrologists
- Alberta Registered Professional Foresters Association
- Canadian Institute of Food Science and Technology
- College of Dietitians of Alberta
- Dietitians of Canada

### Internship Program

The Faculty of Agriculture, Forestry, and Home Economics offers an Internship Program (IP) for students in all programs. Through the IP, students have an opportunity to take their studies beyond the classroom and participate in an 8 to 16 month, full-time, competitively paid work placement.

### Graduate and Research Program

The Faculty has an active Graduate and Research Program. Students from around the world are enrolled in MA, MSc and

PhD thesis programs, and non-thesis MA, MF and combined MA/MBA and MF/MBA programs. We are also actively involved in international research initiatives with many other countries in Asia, Africa, and South America.

### Award-Winning Teachers

We are proud of our excellent teaching professors. Teaching awards include three prestigious 3M Teaching Fellowships, five Rutherford Awards for Excellence in Undergraduate Teaching, one Unit Teaching Award and four Students' Union Awards for Leadership in Undergraduate Teaching.

## 31 The Professors

### 31.1 Teaching and Scholarship

Our professors are renowned across campus for their willingness and drive to provide the best guidance and teaching to our students. Faculty are involved in the full chain of scholarly activity, from generation (research) and integration to dissemination (teaching and extension).

Our teaching and research have gained international recognition and various awards. Combined with our patented discoveries, they are a testament to our continued commitment to excellence. Staff members help students choose options and advise them on career opportunities. Students are encouraged to explore their chosen fields and develop practical skills.

### 31.2 Members of the Faculty

#### Officers of the Faculty

##### Dean

IN Morrison, PhD

##### Associate Dean (Academic)

MA Naeth, PhD

##### Associate Dean (Research)

FC Yeh, PhD

##### Assistant Dean

Linda Prud'homme, BA

#### Agricultural, Food and Nutritional Science

##### Professor and Chair

JJ Kennelly, PhD

##### Professors

RO Ball, PhD  
TK Basu, PhD  
PV Blenis, PhD (Joint Appointment with Renewable Resources)  
MT Clandinin, PhD  
JJ Feddes, PhD  
CJ Field, PhD  
GR Foxcroft, PhD  
RJ Hudson, PhD (Joint Appointment with Renewable Resources)  
P Jelen, PhD

JJ Leonard, PhD  
LJ McCargar, PhD  
SS Moore, PhD  
MA Naeth, PhD (Joint Appointment with Renewable Resources)

L Ozimek, PhD  
MA Price, PhD  
FE Robinson, PhD  
WC Sauer, PhD  
JS Sim, PhD  
P Sporns, PhD  
GW Tannock, PhD  
F Temelli, PhD  
RC Yang, PhD

##### Associate Professors

R Bell, PhD  
EW Bork, PhD  
WT Dixon, PhD  
L Dossdall, PhD  
JR King, PhD (Joint Appointment with Renewable Resources)  
LM McMullen, PhD  
SS Narine, PhD  
EK Okine, PhD  
JA Ozga, PhD  
H Rahman, PhD  
KD Raine, PhD  
T Vasanthan, PhD

##### Assistant Professors

GE Allison, PhD  
D Bressler, PhD

M Dyck, PhD  
GM Fasenko, PhD  
N Kav, PhD  
DR Korver, PhD  
DM Spaner, PhD  
SS Strelkov, PhD  
N Willows, PhD  
VV Wismer, PhD

##### Adjunct Professors

J Aalhus, PhD  
S Acharya, PhD  
D Ambrose, PhD  
VE Baracos, PhD  
RN Coleman, PhD  
R Coppock, PhD  
M Flynn, PhD  
LA Goonewardene, PhD  
GG Greer, PhD  
L Hall, PhD  
N Harker, PhD  
S Harvey, PhD  
RJ Howard, PhD  
P Kharbada, PhD  
P Kolodziejczyk, PhD  
H Lapierre, PhD  
TA McAllister, PhD  
FM Nattress, PhD  
J O'Donovan, PhD  
PB Pencharz, PhD  
AL Schaefer, PhD  
J Shan, PhD  
W Willms, PhD

##### Professors Emeriti

W Andrew, PhD  
FX Aherne, PhD  
AW Bailey, PhD  
RT Berg, PhD  
JP Bowland, PhD  
KG Briggs, PhD  
RJ Christopherson, PhD  
L Clegg, PhD  
DR Clandinin, PhD  
E Donald, PhD  
RT Hardin, PhD  
Z Hawrysh, PhD  
C Hiruki, PhD  
H Jackson, PhD  
H Knowles, PhD  
M Makarechian, PhD  
GW Mathison, PhD  
B Ooraikul, PhD  
AR Robblee, PhD  
MS Spencer, PhD  
ME Stiles, PhD  
GR Stringam, PhD  
JP Tewari, PhD  
E Toop, PhD  
VH Vanden Born, PhD  
P Walton, PhD

##### Administrative Officers

JE Carss, BSc  
R Smith, PhD

##### Faculty Service Officer

MC McKay, BSc (H Ec)

#### Human Ecology

##### Associate Professor and Chair

L Capjack, MSc

##### Professors

M Cox-Bishop, EdD, MFA  
EM Crown, PhD  
J Fast, PhD  
NL Gibson, PhD  
N Keating, PhD  
A Lambert, MA  
B Munro, PhD

##### Associate Professors

S Niessen, PhD  
D Williamson, PhD

##### Assistant Professor

L Harach, PhD  
B Skrypnik, PhD

##### Adjunct Professors

J Andrews, MSc  
M Doherty-Poirier, PhD  
R Jevne, PhD  
P McCormack, PhD  
S McDaniel, PhD  
J Morse, PhD  
D Norris, PhD

##### Professors Emeriti

D Badir, MSc  
T Dennis, MSc  
A Kernalleguen, PhD  
N Kerr, PhD  
D Kieren, PhD  
J Montgomery, PhD  
E Richards, PhD

##### Faculty Service Officer

K Chandler, MSc

#### Renewable Resources

##### Professor and Chair

JR Spence, PhD

##### Professors

JA Beck, PhD  
PV Blenis, PhD (Joint Appointment with Agricultural, Food and Nutritional Science)  
JR Butler, PhD

DS Chanasyk, PhD  
PH Crown, PhD  
BP Dancik, PhD (Joint Appointment with Devonian Botanic Garden)  
MJ Dudas, PhD  
RJ Hudson, PhD (Joint Appointment with Agricultural, Food and Nutritional Science)  
NG Juma, PhD  
G Kachanoski, PhD (Professor and Vice-President (Research))  
VJ Lieffers, PhD  
SE Macdonald, PhD  
MA Naeth, PhD (Joint Appointment with Agricultural, Food and Nutritional Science)  
SJ Titus, PhD  
RW Wein, PhD  
PM Woodard, PhD  
FC Yeh, PhD  
J Zwiazek, PhD

##### Associate Professors

PG Comeau, PhD  
Y Feng, PhD

AL Foote, PhD  
LG Fuller, PhD

RF Grant, PhD

F He, PhD

JR King, PhD (Joint

Appointment with Agricultural, Food and Nutritional Science)

##### Assistant Professors

GW Armstrong, PhD  
S Chang, PhD  
D Davidson, PhD (Joint Appointment with Rural Economy)  
FKA Schmiegelow, PhD  
U Silins, PhD  
SA Quideau, PhD

##### Adjunct Professors

SA Abboud, PhD  
ME Alexander, PhD  
MJ Apps, PhD  
MA Arshad, PhD  
L Bach, PhD  
B Beck, PhD  
J Bhatti, PhD  
LN Carbyn, PhD  
G Court, PhD  
SG Cumming, PhD  
DR Farr, PhD  
CG Gates, PhD  
B Grover, PhD  
RJ Hall, PhD  
Y Hiratsuka, PhD  
EH Hogg, PhD  
G Holroyd, PhD  
S Huang, PhD  
A Jobson, PhD  
S John, PhD  
DP Khasa, PhD  
B Kishchuk, PhD  
D Langor, PhD  
FJ Larney, PhD  
K Mallett, PhD  
DH McNabb, PhD  
SS Malhi, PhD  
WB McGill, PhD  
L Morgantini, PhD  
RP Pharis, PhD  
DT Price, PhD  
G Proulx, PhD  
S Song, PhD  
JB Stelfox, PhD  
RH Swanson, PhD  
B Thomas, PhD  
F Tough, PhD  
W Volney, PhD

M Weber, PhD  
RC Yang, PhD

##### Professors Emeriti

A Bailey, PhD  
CF Bentley, PhD  
F Cook, PhD  
KW Domier, PhD  
AK Hellum, PhD  
FV McHardy, PhD  
B McQuitty, PhD  
M Micko, PhD  
PJ Murphy, MScF  
MPK Nyborg, PhD  
S Pawluk, PhD  
DJ Pluth, PhD  
JA Robertson, PhD  
RL Rothwell, PhD  
GR Webster, PhD

##### Administrative Officers

S Gooding, BSc  
RL Longworth, BA (Hon), BSc

##### Faculty Service Officers

R Belland, PhD (Joint Appointment with Devonian Botanic Garden)  
R Pelletier, MSc, MA

#### Rural Economy

##### Professor and Acting Chair

EW Goddard, PhD

##### Professors

WL Adamowicz, PhD  
MK Luckert, PhD  
MM Veeman, PhD  
TS Veeman, PhD (Joint Appointment with Economics)

##### Professor (Cooperative Chair in Agricultural Marketing and Business)

EW Goddard, PhD

##### Associate Professors

PC Boxall, PhD  
KZ Chen, PhD  
SR Jeffrey, PhD  
NT Krogman, PhD  
J Unterschultz, PhD

##### Assistant Professors

SB Cash, PhD  
D Davidson, PhD (Joint Appointment with Renewable Resources)  
GK Hauer, PhD  
DW Ng

##### Adjunct Professors

TM Beckley, PhD  
LM Johnson, PhD  
BR Radke, PhD  
BL McFarlane, PhD  
RC Stedman, PhD  
FJ Tough, PhD  
WA White, PhD

##### Professors Emeriti

L Apedaile, PhD  
L Bauer, PhD  
D Gill, PhD  
M Hawkins, PhD  
ML Lerohi, PhD  
E Murray, PhD  
T Petersen, PhD  
W Phillips, PhD  
J Richter, PhD  
W Schultz, PhD  
E Tyrchniewicz, PhD

##### Faculty Service Officer

JH Copeland, MSc

## 32 General Information

### 32.1 General Information

The Faculty of Agriculture, Forestry, and Home Economics administers undergraduate programs that lead to the following BSc degrees.

#### BSc in Agricultural/Food Business Management

Majors:

- Agricultural Business Management
- Food Business Management

#### BSc in Agriculture

Majors:

- Agricultural and Resource Economics
- Animal Science
- Crop Science
- Range and Pasture Management
- Sustainable Agricultural Systems

#### BSc in Environmental and Conservation Sciences

Majors:

- Conservation Biology
- Environmental Economics and Policy
- Human Dimensions of Environmental Management
- Land Reclamation

#### BSc in Environmental and Conservation Sciences/BA in Native Studies Combined Degrees

Major in Human Dimensions of Environmental Management

#### BSc in Forest Business Management

#### BSc in Forestry

#### BSc in Human Ecology

Majors:

- Family Ecology
- Textiles and Clothing

#### BSc in Human Ecology/BEd Combined Degrees

#### BSc in Nutrition and Food Science

Majors:

- Food Science and Technology
- Nutrition
- Nutrition and Food

#### Pre Professional Program

Pre-Veterinary Medicine

For further information, visit Student Services at 2-10 Agriculture/Forestry Centre, or call us at (780) 492-4933 or 1-800-804-6417 (Western Canada), or e-mail questions@afhe.ualberta.ca. Our homepage is at www.afhe.ualberta.ca.

### 32.2 Faculty Objectives

Our undergraduate mission is to promote the development of graduates who are scientifically competent; sensitive to environmental, global, and other social issues; creative; and capable of leadership in addressing challenges faced by individuals, families, and the agriculture, forestry, food, and other natural resources sectors. The Faculty strives to develop the following skills and traits in its students:

- (1) Critical and creative thinking skills: the ability to analyze, integrate, and extrapolate information;
- (2) Good judgment in problem solving and decision making;
- (3) Good communication skills: literacy, speaking, and listening;
- (4) An appreciation of knowledge and education, and a commitment to continuous learning; and
- (5) An appreciation and understanding of international and cross-cultural considerations.

The Baccalaureate degrees in the Faculty provide students with a broad education and comprehensive preparation in their specialities. Programs provide students with

- (1) a solid foundation in applicable social, physical, and biological sciences, and in the humanities. Programs stress more than simple proficiency in these disciplines; they offer courses that feature an integrated, multidisciplinary treatment of subjects;

- (2) awareness of current issues in the various disciplines and the ability to solve problems in their chosen occupations.

## 33 Faculty Regulations

### 33.1 Admission and Transfer

General University admission requirements are detailed in §§13 and 14. Detailed admission requirements for the Faculty of Agriculture, Forestry, and Home Economics are specified in §15.1.

The Faculty of Agriculture, Forestry, and Home Economics functions under enrolment management. As such, the Faculty's total student enrolment is limited. All applications with the minimum Admission Grade Point Average (AGPA) are evaluated and ranked as part of an applicant pool. Spaces in programs are allocated to the top applications in the applicant pool downward until the spaces in the programs are filled. Therefore, in any given year, the AGPA cutoff to a degree program may be higher than the minimum AGPA required for consideration.

Applicants should indicate their choice of a degree and major on their application. Those who have not selected a major by the end of their first year in the program shall be required to declare one before registering for the next academic year.

- (1) **Residence Requirement:** A maximum of two years of transfer credit completed outside the University of Alberta will be granted toward an undergraduate degree in the Faculty of Agriculture, Forestry, and Home Economics. This consists of ★60 or its equivalent (10 full-courses or 20 half-courses). A minimum of ★60 must be completed at the University of Alberta, of which a minimum of ★30 must be completed while registered in this Faculty. However, the amount of transfer credit granted and the amount of credit completed while registered in this Faculty will vary depending on the requirements of the particular degree. Students are advised to discuss their course and program requirements with Student Services or the Associate Dean (Academic), 2-10 Agriculture/Forestry Centre.
- (2) **Letter of Permission:** Following initial admission, students are expected to complete all requirements at the University of Alberta. Students may apply for permission to take courses at another institution for application to their program here if
  - a. they are degree students in the Faculty of Agriculture, Forestry, and Home Economics;
  - b. they present Satisfactory academic standing (i.e., Fall/Winter Grade Point Average of 2.0 or greater).
 Approval is not granted when the student has already received the maximum allowable transfer credit. There is no obligation to grant transfer credit unless prior permission has been obtained from Student Services. Qualified students must contact Student Services, 2-10 Agriculture/Forestry Centre to obtain the necessary forms and approval before enrolling at another institution.
- (3) **Exchange Programs:** For students already admitted to a program in the Faculty of Agriculture, Forestry, and Home Economics who are participating in approved international exchange programs, credit is considered on a course-by-course basis. The residence requirement defined in (1) above applies to students participating in such exchanges.

### 33.2 Undergraduate Program Bloodborne Pathogens Policy

The University of Alberta recognizes its duty to minimize the risk of transmission of bloodborne pathogens to/by individuals studying or working at this University.

The Bloodborne Pathogens policy limits the possibility of transmission of bloodborne pathogens within the educational setting. The University recognizes, however, that it is not possible to completely eliminate the risk of infection (see §108.12, *General Faculties Council Policy Manual*).

The Faculty of Agriculture, Forestry, and Home Economics in accordance with the University of Alberta policies and other available guidelines, has developed the following policies concerning bloodborne pathogens. These policies are to be reviewed and adapted, as further information on bloodborne pathogens becomes available.

For students in the BSc Nutrition and Food Science program who are accepted into the Integrated Dietetic Internship Program, immunization prior to the first internship placement is required. However, for project assistants in the biological sciences areas, Hepatitis B surface antigen testing will be performed by the University Health Centre. For those students who test negative for the Hepatitis B surface antigen (HbsAg), Hepatitis B vaccination will be required. See §109 of the *General Faculties Council Policy Manual* or contact Student Services (2-10 Agriculture/Forestry Centre) for details about testing and immunization.

Program restrictions will be applied when necessary to minimize the risk of transmission of bloodborne pathogens from students to other students, experimental subjects and service clients. Program restrictions, in keeping with reasonable accommodation guidelines, can be expected in cases where students test positive for any bloodborne pathogen, or refuse to complete the screening questionnaire, or refuse a questionnaire-based requirement for Hepatitis B and Hepatitis C testing. Program restrictions may include prohibition from participating in certain activities and procedures performed as part of research, service testing or teaching function.

Since the risk of HIV transmission from students to other students, service clients and experimental subjects is very low for the procedures followed in these settings, HIV risk assessment and testing will not be made a requirement at this time. However, all students accepted into the Faculty of Agriculture, Forestry, and Home Economics are encouraged to undergo HIV testing whenever concerns about infection arise.

**Note:** For updates on changes to medical testing and immunization refer to the Faculty Office.

### 33.3 Practicum Placements, Professional Practice and the Public Interest

The Dean, or a designate acting on behalf of the Dean, may immediately deny assignments of a student, withdraw a student from, or vary terms, conditions or site of a work experience placement or practicum (Internship, Co-operative Education, Integrated Dietetics and the Human Ecology Practicum), if the Dean or designate has reasonable grounds to believe that this is necessary in order to protect the Public Interest. Refer to §23.8.2 Practicum Placements, Professional Practice and the Public Interest and §87, *General Faculties Council Policy Manual*.

### 33.4 Academic Standing and Graduation

#### (1) Academic Performance

Academic standing will be assessed on the basis of a grade point average (GPA). Students are expected to maintain a GPA of at least 2.0. See §§23.4(6) and 23.9.2 for information on calculation of GPAs and the academic record.

A review of academic performance is conducted for each student at the end of each Fall/Winter.

The assignment and reassignment of academic standing are based on a student's performance in a minimum of ★9. If, at the time of review, the student has attempted fewer than ★9 since the last assignment of academic standing, the review will be deferred and the academic standing assigned at the last review will remain in effect until the next review.

#### (2) Continuation in BSc in Nutrition and Food Science (Nutrition Major)

Continuation in the BSc in Nutrition and Food Science (Nutrition major) requires a GPA of at least 3.0. In addition, continuation into fourth year requires a combined GPA of 3.0 in NUTR 301 and 302.

Students who do not attain the required GPAs will be moved to their previous degree program in the Faculty (provided they are not Required to Withdraw). Students who transferred from another Faculty or institution directly into the Nutrition major will be moved to the NUFS major that best fits their completed courses. Those students may choose to apply to move to any of the following programs; the Food Science and Technology major (see §§15.1.7 and 34.11.2), the Nutrition and Food Science major (see §§15.1.7 and 34.11.3) or the BSc in Food Business Management (see §§15.1 and 34.3). The Academic Standing section below will then be applied.

#### (3) Application of Academic Standing

a. **Satisfactory Standing** [GPA 2.0 or higher; GPA between 2.0 and 2.9 for BSc in Nutrition and Food Science (Nutrition major), see §33.4(2)]. Students who maintain a satisfactory standing are permitted to continue their studies in the Faculty subject to meeting the specific requirements of their degree and the general requirements of the University of Alberta.

b. **Marginal Standing** (GPA 1.7 to 1.9, inclusive). Students receiving their first marginal standing are permitted to continue their studies in the Faculty under academic warning. At the next assignment of academic standing, such students must present a Fall/Winter GPA of at least 2.0 on a minimum of ★9 to clear academic warning and continue their studies with Satisfactory Standing.

Students with Marginal Standing twice during their program in the Faculty will be required to withdraw (see d. Required to Withdraw).

c. **Unsatisfactory Standing** (GPA of 1.6 or lower). Students with unsatisfactory standing are required to withdraw (see d. Required to Withdraw).

Students who are required to withdraw from the Faculty at the end of Fall/Winter may not register for the following Summer Term. Students who register for Summer Term courses prior to the requirement to withdraw will have their registration cancelled without penalty.

#### d. Requirement to Withdraw

Students with Unsatisfactory Standing or who are placed on Marginal Standing twice during their program will normally be required to remain out of the Faculty.

1) Students who have completed less than ★60 and who have achieved a GPA of between 1.3 and 1.6 may be permitted to continue at the University of Alberta in the Fresh Start program providing they have not previously been required to withdraw from any postsecondary program.

The Faculty will determine whether to recommend a student for participation in the program and will notify the student of that option. Successful completion of ★18 with a GPA of at least 2.7 or ★24 with a GPA of at least 2.0 (2.7 for the Business Management programs) will be required for readmission. Further detailed information can be found in §§14.5, 23.6.2(3)a. and 200.5.

If successful in the Fresh Start program and all conditions specified by Open Studies and the Faculty have been fulfilled, students may apply for readmission to the Faculty as transfer students as described in §15.1.8; or

2) Students who complete ★18 transferable to the University of Alberta with an AGPA of 2.7 or ★24 transferable to the University of Alberta with an AGPA of 2.0 (2.7 for the Business Management programs) at another postsecondary institution may reapply for admission to the Faculty, unless they have been required to withdraw more than once from any postsecondary programs [see §15.1.8 (1)(4)]. See §23.6.2(3)a.

Students who have been required to withdraw and who, after being readmitted, again fall below a Fall/Winter GPA of 2.0 will be required to withdraw and will not be readmitted to the Faculty.

Students may petition their Required to Withdraw status and if successful will proceed on probation. At the next assignment of academic standing, such students must raise their Fall/Winter GPA to at least 2.0. Should their Fall/Winter GPA fall below 2.0 at any time during the rest of their program they will be required to withdraw and will not be readmitted to the Faculty.

**Note:** Students with marginal standing or who are on probation are only permitted to interrupt their programs with the prior, written approval of the Associate Dean (Academic). Should students in either of these categories interrupt their programs for more than twelve months without prior approval, readmission will not be granted unless the student meets the current readmission criteria.

(4) **First-Class Standing:** For the purposes of scholarships and awards, First-Class Standing in a given year is awarded to any undergraduate student who obtains a GPA of not less than 3.5, the GPA to be computed on a minimum of ★24 taken during that year, the year to consist of Fall/Winter. Students who attend for only one term of Fall/Winter are eligible if they complete at least ★12 with a minimum GPA of 3.5.

(5) **Dean's List:** This designation is given to students who achieve a GPA of at least 3.7 on a minimum of ★18 in Fall/Winter. Students who attend for only one term of Fall/Winter are eligible if they complete at least ★9 with a minimum GPA of 3.7.

(6) a. **Application for Graduation:** Students must apply for their degree at Student Services, 2-10 Agriculture/Forestry Centre by February 1 for Spring Convocation or by September 1 for Fall Convocation.

b. **Convocation:** All requirements for graduation at Spring Convocation must be met by the end of Fall/Winter. Those completing degree requirements during the Fall Term of Fall/Winter will graduate at Spring Convocation; those completing degree requirements during Spring/Summer will graduate at Fall Convocation.

**(7) Curriculum and Graduation**

The programs for the BSc degrees in Agricultural/Food Business Management, Agriculture, Environmental and Conservation Sciences, BSc (Environmental and Conservation Sciences)/BA (Native Studies) Combined Degrees, Forest Business Management, Forestry, Human Ecology, Human Ecology/BEd Combined Degrees, and Nutrition and Food Science, must conform to the descriptions in §§34.3 to 34.11, respectively. BSc in Environmental and Conservation Sciences/BA in Native Studies Combined students should also see §34.6.2. Although students are advised to discuss their programs with an Academic Advisor, students are ultimately responsible for the completeness and accuracy of their registrations.

Students registered in the BSc in Forestry and BSc in Forest Business Management programs are required to complete Forestry Field Schools (FOR 101, 302, 303, and 304). Students registered in the BSc in Environmental and Conservation Sciences and the BSc in Environmental and Conservation Sciences/BA in Native Studies programs are required to complete ENCS Field School (ENCS 308).

Students registered in the following BSc degree programs require ★120 to graduate: Agriculture, Agricultural/Food Business Management, Environmental and Conservation Sciences, Human Ecology, and Nutrition and Food Science. Students registered in the BSc in Forestry and Forest Business Management degree programs require ★123 to graduate. Students registered in the BSc in Human Ecology/BEd and the BSc in Environmental and Conservation Sciences/BA in Native Studies Combined Degrees require ★150 to graduate.

**(8) Courses Extra to the Degree**

Courses successfully completed while registered in a program which are not being used for degree credit are known as courses extra to the degree. Such courses are, however, included in the assessment of academic standing. Students who register for more than a minimum number of courses for graduation should designate the additional courses as extra. In order to exclude courses in excess of the minimum requirement from the contract for graduation, students must designate such courses as “extras” at the time of registration for their final year.

**(9) Graduation Grade Point Average**

To be eligible for graduation from any of the programs offered by the Faculty of Agriculture, Forestry, and Home Economics, students must present Satisfactory Academic Standing [see (10) below] and obtain a GPA of at least 2.0 [3.0 for BSc in Nutrition and Food Science (Nutrition major)] on their last ★60 normally completed during the third and fourth years.

Where more than ★60 were completed in the last two years, the grades from all courses completed in the last year will be used in this calculation. Additional credits from the previous term(s) (whether completed at this university or at another institution) will be used as necessary to make the ★60 requirement.

Where fewer than ★60 were completed in the last two years, the grades from all courses completed in the last two years will be used in this calculation. Additional credits from the previous term(s) (whether completed at this university or at another institution) will be used as necessary to make the ★60 requirement. The grade points for additional courses needed to make ★60 will be calculated by multiplying the GPA of all courses completed in that term by the number of credits required to make ★60.

Where students have designated successfully complete courses extra to the degree, the designated courses will not be included in the calculation of the graduation GPA.

**(10) Extension to the Graduating Year**

Students who have successfully completed at least ★120, ★123 or ★150 [for programs as indicated in (6)] who do not meet program requirements for graduation, and who are otherwise eligible to continue in their program of study, may continue to register to the end of the next Fall/Winter of study in order to meet graduation requirements.

Students who have been given their first assignment of “Marginal Standing” (i.e. Academic Warning) in their graduating year, may continue to register to the end of the next Fall/Winter of study. Students must complete at least ★9 in order to meet the “Satisfactory Standing” requirement for graduation [see (8) above].

Students who are in Unsatisfactory Standing, (i.e., Required to Withdraw), may petition/appeal to be allowed to complete one further Fall/Winter of study in order to meet graduation requirements. If graduation requirements are not met within the Fall/Winter period, such students will be required to withdraw and will not normally be readmitted.

**(11) Graduation with Distinction**

This designation is awarded to a student achieving a grade point average of 3.5 or greater on the last ★60. The same calculation as detailed in Graduation Grade Point Average in (8) above applies.

**(12) Reexamination Policy**

See §23.5.5 for University Regulations.

**(13) Nonstandard course load**

Students wishing to take more than ★15 in a term must have satisfactory standing and approval of an Academic Advisor and Student Services, 2-10 Agriculture/Forestry Centre.

## 33.5 Interruption of Studies

Students who wish to take a break from studies for more than 12 months follow the new program requirements when they return to the Faculty. Permission to follow their current requirements can be requested by writing the Associate Dean (Academic) at least 14 days prior to the beginning of the term the student wishes to miss.

## 33.6 Time Limit to Complete Program

Although there is no time limit for degree completion, program requirements change with time. Eight years from the year of original admission, students who have not yet completed their degree and wish to do so must follow the program requirements in the current *Calendar*. Exception requests must be submitted to the Associate Dean (Academic).

## 33.7 Petitions and Appeals

The Faculty of Agriculture, Forestry, and Home Economics has petition and appeal procedures so that students who encounter special problems relating to academic standing, grade or course concerns, and program requirements have them reviewed in an equitable manner. A copy of these Faculty regulations regarding petitions and appeals may be obtained from Student Services, 2-10 Agriculture/Forestry Centre.

**Note:** Deadlines exist for submission of petitions and appeals. Contact the Faculty for details.

Under certain conditions, an unsuccessful appeal within the Faculty may be carried to the General Faculties Council Academic Appeals Committee. See §23.8.

## 33.8 Student Advisory Services

Undergraduate students seeking advice on academic matters should do the following:

- (1) For answers to general questions about careers, course content, fields of specialization, and preparation for graduate study, students should consult an Academic Advisor. A list of Academic Advisors is available from Student Services, 2-10 Agriculture/Forestry Centre.
- (2) For information regarding Faculty regulations on admission, readmission, program requirements, transfer credit, course registration, withdrawal, and graduation requirements, students should consult Student Services, 2-10 Agriculture/Forestry Centre.
- (3) Students who are encountering special difficulties related to their programs or to Faculty decisions, and students with problems of an individual nature, should contact the Associate Dean (Academic), 2-10 Agriculture/Forestry Centre.

# 34 Programs of Study

## 34.1 Degrees Offered

The Faculty offers programs leading to nine BSc degrees with a common structure (see §32.1 for a complete program listing). Curricular elements are drawn from the natural and social sciences and consist primarily of courses offered by the Faculty. Foundation courses, which provide basic background principles, are also offered by the Faculties of Arts, Business and Science.

- (1) **Faculty Core (★30):** Each element of the Faculty Core is required in all Faculty programs, and provides a common multidisciplinary background for all students. The Faculty Core requirements are met by specific courses in individual programs. See §§34.3 to 34.11 for course listings.
  - a. ★3 English
  - b. ★3 Communication Theory and Practice
  - c. ★3 Management in Organizations
  - d. ★6 Microeconomics and Macroeconomics
  - e. ★3 Statistics
  - f. ★3 Natural Sciences
  - g. ★6 Free Electives (See 6 below)
  - h. ★3 Capstone course (See 7 below)
- (2) **Program Core (★30 to ★93):** The Program Core consists of the central program elements in each degree. Courses build on the Faculty Core to provide a strong background in the discipline.
- (3) **Requirements of the Major (★24 to ★60):** The major focuses specialization within each degree. Most programs offer majors. In those programs, one or two majors must be declared (see Note)
- (4) **Requirements of Minors (★15 to ★18):** Minors provide structured customization of the degree. Not all programs and majors include minors. Whether minors are optional or required, students who will complete a minor must declare it (see Note).
- (5) **Approved Program Electives (APEs):** APEs build on the requirements of the major and allow some customization of the learning experience. These groupings further develop depth of knowledge in key aspects of the major. Most APEs are taken at the senior level; only ★6 APEs are allowed at the 100- and 200-level. APEs should be selected from lists developed annually by the Faculty; additional assistance is available from Academic Advisors (see Note).
- (6) **Free Electives (★6):** Free Electives allow students to broaden their background and knowledge base. These courses may build on their discipline or be of personal interest but unrelated to their program. Most programs include an additional ★6 Free Electives as part of the Program Core.
- (7) **Capstone Courses (★3):** Capstone Courses synthesize knowledge and skills learned throughout the four years of the program. These courses are integrative and experiential, and are taken in the final year. The Faculty reviews potential Capstone Courses annually to ensure that specific criteria are met. Some programs and majors specify the Capstone Course that must be taken (see Note under individual programs or majors); others allow selection from a defined list of courses or specify a given course in a given year (see Note below).
- (8) **Course Sequencing:** Students should complete all junior requirements before taking senior courses. 100-level courses from Faculty and Program Cores should be taken in first year. Prerequisites must be followed and considered when planning course sequencing. Prerequisites and corequisites for each course are found in the Courses Listings section of the Calendar.

**Note:** Forms to declare majors and minors, lists of APE courses and lists of Capstone Courses for a given year are available from 2-10 Agriculture/Forestry Centre. The lists are also posted at [www.afhe.ualberta.ca](http://www.afhe.ualberta.ca)

The Faculty also jointly offers two BSc degree programs with the Faculty of Business in Agricultural/Food Business Management and Forest Business Management. The Faculty offers two combined degrees, a BSc Human Ecology/BEd and a BSc Environmental and Conservation Sciences/BA Native Studies. In the combined degrees programs students can complete two degrees in five years.

## 34.2 Internship and Cooperative Education Programs

Students in the Faculty of Agriculture, Forestry, and Home Economics have the opportunity to complete a paid work experience component as part of their program. Two options, detailed in §§34.2.1 and 34.2.2 are available.

### 34.2.1 Internship Program

The Internship Program is coordinated by the Faculty and is open to students registered in one of the Faculty programs.

The Internship Program provides experiential learning to augment academic study with an 8-, 12- or 16-month period of paid, discipline-related work experience with a cooperating employer. The work experience period is

usually between the third and fourth years of academic study. Upon completing the work experience period students return for at least one academic term. To accommodate the work experience period, students normally require between four and five years to complete the full degree requirements.

Students can apply for acceptance into the Internship Program following their second year of study if they are in good academic standing, are legally permitted to work in Canada, and are registered in one of the academic programs offered by the Faculty of Agriculture, Forestry, and Home Economics. Application forms are available at Student Services (2-10 Agriculture/Forestry Centre). Applicants must meet a spoken English requirement (see §13.3.2).

The normal sequencing for the IP is as follows: students apply by November 30; they compete for posted jobs December through March; students begin their internships starting May or September.

Students registered in the IP receive assistance in finding suitable work placements. The Internship Coordinator and Faculty mentors are responsible for working with IP students to help them conduct an active job search. The ultimate responsibility for securing work, however, rests with the student and there is no guarantee that all qualified students will be placed.

While engaged in work experience, IP students are enrolled in WKEXP courses, pay part-time tuition and are considered full-time students at the University of Alberta. To successfully complete the IP, students must complete at least two of the following WKEXP courses: WKEXP 981, 982, 983. All WKEXP courses are ★0 and are graded on a pass/fail basis. Grades are determined by the student's job performance, as evaluated by the employer, and by the student's final report, as evaluated by the Internship Coordinator and Faculty mentor.

Further information about the IP can be obtained by contacting the Internship Coordinator in the Faculty of Agriculture, Forestry, and Home Economics.

Students should be aware that under Alberta's *Protection for Persons in Care Act*, they may be required to satisfy a criminal records check before being allowed to serve a period of internship/coop work. See §23.8.3 for further details.

### 34.2.2 Cooperative Education Program

- (1) **General Information:** The Cooperative Education Program is coordinated by the Faculty of Business and is open to students registered in Agricultural/Food Business Management or Forest Business Management programs. Details are described in §54.5 BCom (Cooperative Education Program).

All students who are Canadian citizens or permanent residents are eligible to compete for places in the coop program following successful completion of the second year of studies in Agricultural/Food Business Management or Forest Business Management. Students are admitted to the program based on a combination of grades, letter of intent, letters of reference, and a personal interview. The application deadline is June 30.

- (2) **Course Sequence:** The required courses for Cooperative Education students are the same as provided in the BSc Agricultural/Food Business Management Program or BSc Forest Business Management Program. In addition, Year 3 includes Introduction to Cooperative Education (non-credit seminar) and WKEXP 911. Year 4 (and 5) include WKEXP 912 and WKEXP 913. Note that the final term in the Cooperative Education Program must be a school term.

## 34.3 BSc in Agricultural/Food Business Management

### 34.3.1 General Information

This program is for individuals interested in applying business skills and tools to management of organizations in the agriculture and food industries. Agricultural/Food Business Management graduates develop a strong understanding of business concepts and principles applied to these sectors and have a basic knowledge of the scientific processes involved.

The program provides the background for a career in an agricultural or food business setting. Graduates may choose careers in management, sales or finance, but they also have the ability to interact comfortably with technical specialists and have a good understanding of the products and processes with which they are involved. Graduates may become scientists and technical specialists with a deeper understanding of business management. Graduates are prepared to enter the work force directly or proceed to graduate study. In either case, they are able professionals who enhance the competitive strength of the Albertan, Canadian and global economies.

The program is offered jointly by the Faculty of Agriculture, Forestry, and Home Economics and the School of Business. Although it is administered in the Faculty of Agriculture, Forestry, and Home Economics, the program is managed by an interdisciplinary committee with representation from both Faculties.

See §15.1.1 for admission information and recommended courses in the first year of studies.

Students are provided with the analytical, scientific and educational foundation on which to build the business and technical components of their field. Students in both majors take courses in business including accounting, finance, marketing and human resources. Each student in the program is expected, through a Capstone course, to integrate knowledge from the agricultural or food sciences with the business management disciplines.

(1) **Requirements of the Faculty Core and the BSc in Agricultural/Food Business Management Program Core (★96)**

**Faculty Core (★30)**

- ENGL: Faculty (★3) and Program (★3) requirements jointly met by Program Core requirement (f) below.
- AFHE 304
- ORG A 301, 311, or 321
- ECON 101 and 102
- STAT 151
- ★3 BIOL or CHEM (see Note 1)
- ★6 Free Electives
- ★3 Capstone Course [see §34.1(7) and Note]

**Program Core (★66)**

- ACCTG 311 and 322
- AREC 214
- AREC 313, 473, and 484
- AREC 433 or 482
- ECON 281 and 282
- ★6 ENGL [ENGL 111, 112, 113, or 114 recommended; see Faculty Core requirement (a) above]
- FIN 301
- ★6 Free Electives
- MARK 301
- MATH 113 or 114
- ★21 Approved Program Electives [see §34.1(5) and Note]

**Notes**

- Food Business Management majors are required to take BIOL 107 or 108.
- Approved Program Electives include AFHE electives offered by the Faculty of Agriculture, Forestry, and Home Economics, and BUS electives offered by the School of Business.
- See section §34.1 for program planning and structure details.

### 34.3.2 Agricultural Business Management Major

This major develops graduates with the abilities required of business professionals working within the agri-food industry. Graduates develop an appreciation of the importance of both scientific and economic relationships involved in agriculture. Graduates also fully understand and appreciate the business management skills needed to manage organizations effectively and efficiently within this sector.

Students choosing Agricultural Business Management are challenged with courses in agricultural business management, as well as courses in agricultural science, including animal, plant and soil sciences. Graduates of this major are well prepared for a management career in the agri-food industry. Graduates qualify to apply to be Articling Agrologists which can lead to status as Professional Agrologists.

(1) **Requirements of the Major (★24)**

- ★6 Approved Program Electives
- AREC 200, 333, and 384
- AN SC 200
- PL SC 221
- SOILS 210

### 34.3.3 Food Business Management Major

This major develops graduates with the abilities required of business professionals working within the food processing and retailing sectors. Graduates develop an understanding of the scientific and economic relationships that influence activities in the food industry. Graduates fully understand and appreciate the business management skills needed to manage organizations effectively and efficiently within this industry.

Students in the Food Business Management major complete courses in food chemistry, engineering and microbiology. This provides a solid scientific

background that is combined with food business management and economics courses. Graduates of the major are well positioned for management careers in the food processing and retailing industry.

(1) **Requirements of the Major (★24)**

- AREC 384 or 333
- CHEM 161 and 163
- NU FS 100, 201, 311, 363, and 373 (See Note)

**Note:** Students who take NU FS 373 in the first year of the program should select an Approved Program Elective in place of NU FS 100.

### 34.3.4 Cooperative Education Program

See §34.2.2.

## 34.4 BSc in Agriculture

### 34.4.1 General Information

- The Faculty offers courses leading to the degree of Bachelor of Science in Agriculture. The program provides students with an understanding of the scientific principles underlying the many facets of agriculture together with their application in agricultural systems and related industries. Through a broadly based educational experience, students develop student capacities for critical and independent thought and clear expression of ideas. Throughout the program, emphasis is placed on integrating several areas in the physical, biological, and social sciences relevant to modern agricultural practices.

Graduates will have a background in basic social, natural, and agricultural sciences, with an emphasis on sustainable production, renewable agricultural resource management, and economic analysis. Graduates qualify to apply to be Articling Agrologists which can lead to status as Professional Agrologists.

- During their first year, or before they register for their second year, students should consult an Academic Advisor. Course choices may affect scheduling for majors.
- Students in the Pre-Veterinary Medicine program (§34.4.7) are able to continue in the BSc in Agriculture degree and will normally receive credit for courses already completed successfully.
- Requirements of the Faculty Core and the BSc in Agriculture Program Core**

**Faculty Core (★30)**

- ENGL: Faculty (★3) and Program (★3) requirements jointly met by Program Core requirement (e) below.
- AFHE 304
- AREC 323 or ORG A 301
- ECON 101 and 102
- STAT 151
- ★3 from BIOL 107, 108, 207, 208, EAS 101, 102 (see Note 1)
- ★6 Free Electives
- ★3 Capstone Course [see §34.1(7) and Note]

**Program Core (★30)**

- AREC 200
- AREC 214
- AN SC 200
- ★3 from BIOL 107, 108, 207, 208, (BIOCH 203 or 220 or PL SC 331), (BIOCH 205 or AN SC 391), EAS 101, 102 (See Note 1)
- ★6 ENGL [ENGL 111, 112, 113, or 114 recommended; see Faculty Core requirement (a) above]
- ★6 Free Electives
- MATH 113 or 114
- PL SC 221
- SOILS 210

**Notes**

- BIOL 108 required for Sustainable Agricultural Systems Major.
- See §34.1 for program planning and structure details.

### 34.4.2 Agricultural and Resource Economics Major

- General Information:** This major provides students with an understanding of the basic principles of economics and of technical agricultural sciences related to production, processing, marketing, and financing farm and agri-food industries. Students have access to economic and management

theory about farming and off-farm agriculture firms, and analytical techniques that permit them to understand and assess influences on farms and related industries. The program develops knowledge of economics and agricultural sciences that permits graduates to understand agriculture systems and to develop an ability to integrate ideas and concepts about agriculture industries.

Graduates with this major can work and serve in management, planning, and advisory positions in a wide range of agricultural industries, government agencies, or private consulting firms. In addition, students who complete this major are well prepared for entry into a graduate study program.

(2) **Requirements of the Major (★60)**

- ACCTG 300
- ★6 from 400-level AREC
- AREC 313, 333, 384, and 473
- ECON 281 and 282
- ENCS 473 or FOREC 473
- AREC 365
- ★3 from REN R 432 or R SOC
- ★24 Approved Program Electives [see §34.1(5) and Note]

### 34.4.3 Animal Science Major

- (1) **General Information:** The Animal Science Major encompasses studies of livestock and poultry production.

This major enables students to gain an understanding of the scientific disciplines of animal science including physiology, genetics, biochemistry, nutrition, and behavior. Students will also learn how to integrate and apply these concepts to solve problems in animal production systems.

Graduates with this major find opportunities in a wide range of agri-business industries, government agencies, primary agriculture, and graduate study programs.

(2) **Requirements of the Major (★60)**

- AN SC 310, 311, and 312
- AN SC 385 or 484
- ★6 from AN SC 471, 472, 474, 475, and 476
- ★6 from BIOL 107, 108, 207, 208, (BIOCH 203 or 220 or PL SC 331), (BIOCH 205 or AN SC 391), EAS 101, 102 (not taken in core)
- AN SC 260 or ★3 NUTR
- ★6 from AN SC 461, 462, and 463
- ★6 from Organic Chemistry or Inorganic Chemistry
- ★21 Approved Program Electives [see §34.1(5) and Note]

### 34.4.4 Crop Science Major

- (1) **General Information:** This major focuses on the agronomy and science of agricultural crop production. It provides students with an in-depth understanding of the sciences as applied to plant growth, soils, and plants. Responses to a range of environmental factors are addressed. Students also learn about biotechnological, breeding and production management techniques used to develop, grow and market well adapted, high quality and high yielding crop cultivars, to respond to economic situations, market demands, environmental constraints and societal expectations.

Graduates with this major are able to work and serve in technical, sales and management positions in agri-business industries, or in advisory, regulatory and management positions in government agencies. Students who complete this major are well prepared for entry into a graduate study program.

(2) **Requirements of the Major (★60)**

- ★6 from BIOL 107, 108, 207, 208, (BIOCH 203 or 220 or PL SC 331), (BIOCH 205 or AN SC 391), EAS 101, 102 (not taken in core)
- BOT 240
- ★6 of Organic Chemistry, Inorganic Chemistry or Physics
- PL SC 324, 355, and 495
- ★6 from ENT 207, PL SC 352, 380
- ★3 from ENCS 356, PL SC 354, 357
- PL SC 465 or SOILS 460
- ★24 Approved Program Electives [see §34.1(5) and Note]

### 34.4.5 Range and Pasture Management Major

- (1) **General Information:** In this cross disciplinary major students are introduced to the theory and practice of managing soil-plant-animal relationships within the context of cultivated and native grasslands used

by wildlife and domestic herbivores. Key areas of study include the structure, function, and ecology of native and cultivated plant communities, plant and animal physiology, plant-animal interactions under grazing, response of plant communities to grazing, the complementary and conflicting requirements of domestic herbivores and wildlife, and intensive versus extensive-based production systems.

Graduates are prepared for careers as land and livestock managers with government agencies or businesses involved in the management of private and public (e.g. multiple-use) grazing land.

(2) **Requirements of the Major (★60)**

- ★3 from AN SC 472, 474, or 475
- ★6 from BIOL 107, 108, 207, 208, (BIOCH 203 or 220 or PL SC 331), (BIOCH 205 or AN SC 391), EAS 101, 102 (not taken in core)
- ★3 from AN SC 260, 310, 311, BOT 240, REN R 321
- ENCS 356 and 406
- ★6 of Organic Chemistry, Inorganic Chemistry or Physics
- ★6 from BOT 384, ENCS 407, PL SC 352
- PL SC 354
- SOILS 420 or 460
- ★24 Approved Program Electives [see §34.1(5) and Note]

### 34.4.6 Sustainable Agricultural Systems Major

- (1) **General Information:** Knowledge about individual components of agricultural systems (including people, plants, animals and soil, water and other resources) has expanded rapidly, but less is known about how these systems work as a whole. There is a need to integrate knowledge from a number of disciplines in order to maintain and enhance the performance of agricultural systems so that resource use is efficient and sustainable. Agricultural systems can be viewed from a local, national or international perspective. A systems approach to sustainable agriculture considers the linkages between human activity and institutions with agricultural production systems. Key areas of study include agricultural production systems, natural resource management and the interrelationships of these with social and economic systems.

Graduates are prepared for careers in agriculture and systems analysis within government or the agriculture and food industry.

(2) **Requirements of the Major (★60)**

- ★3 from AREC 333, 384, 473
- ★3 from AN SC 471, 472, 474, 475, 476, ENCS 356, PL SC 354, 355, 357, 440
- ★6 from AN SC 391, BIOCH 220, BIOL 107, 207, EAS 101, 102, Organic Chemistry, Inorganic Chemistry, PHYS (not taken in core)
- BIOL 208
- ★3 from EAS 221, FOREN 201, REN R 410
- REN R 250
- ENCS 461
- AREC 365
- REN R 450
- R SOC 355
- SOILS 420
- ★24 Approved Program Electives [see §34.1(5) and Note]

### 34.4.7 Pre-Veterinary Medicine Program

- (1) **General Information:** The Veterinary Medicine program consists of two years of Pre-Veterinary Medicine at the University of Alberta and four years of Veterinary Medicine at the Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon. A quota exists on Alberta students entering Veterinary Medicine at the University of Saskatchewan, and students with the highest standing in the work of the two pre-veterinary years will receive preference. Because the Western College of Veterinary Medicine is a regional institution, it admits almost exclusively students from western Canada with quotas for each province. For detailed information on residence policy and admissions procedures, contact the Admissions Office, Western College of Veterinary Medicine for a copy of the Admissions Brochure.

Students planning to enter Pre-Veterinary Medicine should note the entrance requirements in §15.1.6. Inquiries about the program should be addressed to Student Services, 2-10 Agriculture/Forestry Centre, Faculty of Agriculture, Forestry, and Home Economics, University of Alberta.

- (2) **Required Courses:** Two full years of university training are required for admission to the Western College of Veterinary Medicine, during which credit must be secured for the number of courses customarily considered a standard load in the curriculum in which they are obtained. The program

of study must include the following: Biochemistry (★6), Biology (★6), Chemistry (★6), English (★6), Electives (★15), Genetics (★3), Introductory Microbiology (★3), Mathematics or Statistics (★6), Organic Chemistry (★3), Physics (★6).

(3) **Courses taken in the Pre-Veterinary Medicine Program (★60)**

- AFHE 304
- (BIOCH 203 and 205) or (PL SC 331 and AN SC 391)
- BIOL 107 and 108
- BIOL 207 and 208
- CHEM 101 and 102
- CHEM 161 and 163
- ECON 101 and 102
- ★6 from ENGL 111, 112, 113, or 114
- ★3 Free Electives (AN SC 200 recommended)
- MATH 113 (or 114)
- PHYS 124 and 126
- ★3 STAT

- (4) **Transfer to Programs in the Faculty:** Students successfully completing the two years of pre-veterinary medicine may continue in the Faculty and earn the BSc in Agriculture or one of the other degrees that the Faculty offers. Two additional years of credit, or more depending on the program selected, may be required to complete the degree.

## 34.5 BSc in Environmental and Conservation Sciences

### 34.5.1 General Information

- (1) The BSc in Environmental and Conservation Sciences program is for students interested in environmental and conservation issues. Graduates have a strong background in basic and applied sciences. They are able to evaluate effects of human land use on plant, soil, water, animal, and human resources and to assess and facilitate conservation, reclamation, and remediation measures for natural and damaged ecosystems. They are not only reactive but also agents for positive, responsible stewardship and change.

Graduates understand the role that social, economic, and political forces play in natural resource management. They integrate knowledge from various disciplines and are cognizant of the various philosophies about the role of humans in the environment. They are able to employ balanced judgment based on a foundation of environmental ethics and philosophy, and suggest appropriate use of natural resources.

The BSc in Environmental and Conservation Sciences emphasizes integrating natural science, management, and social science as related to environmental issues. It offers a program of study emphasizing applied problem solving and environmental management.

Employment opportunities include career paths with government or non-government agencies (such as private corporations and private consulting) concerned with forestry, parks, nature reserves, nature centres, environmental education, recreational areas, wildlife management, environmental policy analysis, rangeland management, land reclamation, environmental sociology, ecotourism, environmental planning, and environmental management.

Graduates would qualify to apply to be Articling Agrologists which can lead to status as Professional Agrologists.

- (2) The BSc in Environmental and Conservation Sciences program requires coursework in resource assessment, environmental philosophy, environmental policy, and natural resource/environmental economics. Students must choose a major by their second year of study. Students may wish to consult with an academic advisor about selection of Approved Program Electives.
- (3) **Requirements of the Faculty Core and the BSc in Environmental and Conservation Sciences Program Core**

**Faculty Core (★30)**

- ENGL: Faculty (★3) and Program (★3) requirements jointly met by Program Core requirement (f) below.
- AFHE 304
- AREC 323
- ECON 101 and 102
- STAT 151
- BIOL 107
- ★6 Free Electives
- ★3 Capstone Course [see §34.1(7) and Note]

**Program Core (★57)**

- AREC 214 and 365
- BIOL 108 and 208
- ★3 Organic Chemistry and ★3 from CHEM, PHYS 124, 126
- ENCS 201, 204, 260, 307, and 473
- ENCS 308 (field school) (See Note 1)
- ★6 ENGL [ENGL 111, 112, 113, or 114 recommended; see Faculty Core requirement (a) above]
- ★6 Free Electives
- MATH 113 or 114
- REN R 250
- R SOC 355
- SOILS 210

**Notes**

- ENCS 308 is normally taken in the summer between third and fourth year.
- See §34.1 for program planning and structure details.

### 34.5.2 Conservation Biology Major

This major builds the foundation in ecological sciences and natural resource management required to understand conservation priorities for both protected areas and lands managed for multiple values. Students are exposed to the competing demands on natural environments and the challenges in developing integrative approaches towards wildlife and habitat conservation. The program places an emphasis on understanding, planning, and managing the complex ecological relationships of natural environments and strategies aimed at securing their biological integrity and sustainability. Graduates are prepared for careers with government and non-government agencies concerned with land management and wildlife and fisheries issues on managed lands or protected areas, as well as advanced degrees in the fields of wildlife ecology and conservation. Employment opportunities also exist with industry and consulting firms.

(1) **Requirements of the Major (★33)**

- ★9 from BOT 332, ENCS 356, 376, 406, 476, FOR 322, ZOOL 332
- ENCS 364
- ENCS 462
- ★18 Approved Program Electives [see §34.1(5) and Note]

### 34.5.3 Environmental Economics and Policy Major

Graduates choosing this major develop skills in the economic analysis of environmental problems and the policy process associated with environmental issues. The interaction among economic, social, political, and legal elements of environmental problems are also addressed. The Environmental Economics and Policy major builds on the Environmental and Conservation Sciences Core with a block of courses intended to provide the background for economic, social, and legal approaches to environmental problems and to build quantitative and analytical skills. Extensions into advanced economic theory, political theory, social theory, and other policy sciences are selected from groups of Approved Program Electives.

Graduates are prepared for careers in government and private industry in environmental economic analysis, policy analysis, and other related areas.

(1) **Requirements of the Major (★33)**

- AREC 465
- ECON 281 and 282
- ENCS 352
- ★21 Approved Program Electives [see §34.1(5) and Note]

### 34.5.4 Human Dimensions of Environmental Management Major

Students in this major will learn about the role of collective action, institutions, policy, and management approaches to address environmental and natural resource issues. A firm foundation in the natural sciences allows students to understand the complexities of environmental change and then focus on the social context and organization through which environmental problems are addressed. Students will take a variety of courses that will prepare them to work in the areas of natural resource management, parks planning, management and interpretation, public outreach for environmental and parks policies and programs, and in other settings as liaisons between members of the public and resource management agencies. Also see §34.6 for information on the BSc in Environmental and Conservation Sciences/BA in Native Studies combined degrees with the Human Dimensions of Environmental Management major.

**(1) Requirements of the Major (★33)**

- ENCS 352 and 462
- HECOL 301
- SOC 315
- ★21 Approved Program Electives [see §34.1(5) and Note]

**34.5.5 Land Reclamation Major**

This major combines the natural and applied sciences to understand and minimize the impacts of anthropogenic activities on natural resources, with emphasis on soil, plant, and water components of the ecosystem. Graduates will be able to conduct and/or direct remediation strategies and conservation measures to maintain quality environments and to reclaim disturbed and damaged ecosystems.

Graduates are prepared for careers in government and nongovernment organizations and deal with a broad range of issues related to soil and water pollution, land reclamation, revegetation, remediation, and soil and water conservation. Graduates will contribute natural science expertise to environmental impact assessments and land-use planning.

**(1) Requirements of the Major (★33)**

- ENCS 455 and 475
- REN R 475
- ★3 from ENCS 356, 406, PL SC 352, 354, 360
- ★6 from SOILS 420, 430, 440, 450, 460
- ★15 Approved Program Electives [see §34.1(5) and Note]

**Note:** The Capstone Course for this major is REN R 485.

## 34.6 BSc in Environmental and Conservation Sciences/BA in Native Studies Combined Degrees—Human Dimensions of Environmental Management Major

**34.6.1 General Information**

(See §§15.1.3 and 15.9.4)

- The Faculty of Agriculture, Forestry, and Home Economics and the School of Native Studies offer a five-year integrated program of ★150 leading to Bachelor of Science and a Bachelor of Arts degrees. A better academic understanding of the Aboriginal use of resources can prepare students to work effectively in various contexts where knowledge of Aboriginal and Treaty rights and issues is required. The Combined Degrees between Environmental and Conservation Sciences and Native Studies are a means for students to specialize in the management of Aboriginal resources. The major in the Combined Degrees program is Human Dimensions of Environmental Management.

The program is open to both Native and non-Native applicants. Enrolment management procedures of the School of Native Studies and the Faculty of Agriculture, Forestry, and Home Economics will apply for all years of the program.

Students will remain in the Faculty or School to which they were admitted for the duration of their program.

- Requirements of the Faculty Cores and Program Cores** (See notes and §113.5.2)

**Faculty of Agriculture, Forestry, and Home Economics Core (★27)**

- ENGL: Faculty (★3) and Program (★3) requirements jointly met by ENCS Program Core requirement (f) below.
- AFHE 304
- AREC 323
- ECON 101 and 102
- STAT 151
- BIOL 107
- ★3 Free Elective (see Note 1)
- ★3 Capstone Course [see §34.1(7) and Note]

**ENCS Program Core (★51)**

- AREC 214 and 365
- BIOL 108 and 208
- ★3 Organic Chemistry and ★3 from CHEM, PHYS 124, PHYS 126
- ENCS 201, 204, 260, 307, and 473

- ENCS 308 (field school) (see Note 3)
- ENGL 111, 112, 113, or 114 [see Faculty Core requirement (a) above]
- MATH 113 or 114
- REN R 250
- R SOC 355
- SOILS 210

**Requirements of the Human Dimensions in Environmental Management Major (★30)**

- ENCS 352 and 462
- HECOL 301 (see Note 2)
- SOC 315 (see Note 2)
- ★18 Approved Program Electives [see Note 1 and §34.1(5) and Note]

**BA in Native Studies Additional Requirements (★42)**

- ★3 Fine Arts from Art, Art History, CLASS 352 or 353, Design, Drama, FMS 200 or 205, HECOL 150, 250, 353, 354, or 454, Music, or NS 260 (see Note 1)
- ★6 Humanities from (CLASS 110 and HIST 110), C LIT 100, (HIST 111 and 112), HIST 120, (PHIL 101 and 102), or RELIG 101
- ★3 from SOC 100 or 300 (see Note 1)
- NS 210, 211, 390
- ★6 from NS 152, (NS 105 and 153), or (NS 154 and 155)
- ★9 from NS 100, or NS courses at the 200- or 300-level (see Note 1 and §113.1.3 Cross-listed Courses)
- ★6 from any NS courses at the 400-level (see §113.1.3 Cross-listed Courses)

**Notes**

- No more than ★48 can be taken at the junior (100) level. ★42 junior level is required in the program. As a result, ★6 is the total 100-level allowable from all of the following combined: ★3 Fine Arts, ★3 from SOC 100 or 300, ★9 from NS 100 or any NS courses at the 200- or 300-level; the Approved Program Electives; and ★3 elective.
- The HECOL 301 prerequisite (HECOL 100) has been waived. The SOC 315 prerequisite (SOC 210) has also been waived.
- ENCS 308 is normally taken in the summer between third and fourth year.
- See §34.1 for program planning and structure details.

**34.6.2 Appeals and Graduation****(1) Appeals**

Students registered in the Combined Degrees can obtain consistent information for formal and informal grade appeal and academic appeal procedures and regulations from both the Faculty of Agriculture, Forestry, and Home Economics, and the School of Native Studies.

**(2) Graduation**

Students registered in the BSc (Environmental and Conservation Sciences/BA (Native Studies) Combined Degrees require ★150 to graduate. The GPA and requirements check will be done in consultation with the School of Native Studies. See §§33.4 and 112.6.

**34.7 BSc in Forest Business Management****34.7.1 General Information**

This program develops graduates with the abilities required of foresters and of business professionals. Graduates appreciate the need to manage forested areas with due concern for all resources and be capable of managing forested areas as integrated ecological entities. Graduates also fully understand and appreciate the business management skills needed to manage organizations effectively and efficiently within the forest industry.

The Forest Business Management degree is intended to prepare students for careers as professional foresters and is for individuals planning careers focusing on forest practices, but who also demand specialized knowledge in business management practices. The Forest Business Management program prepares students for careers as Registered Professional Foresters. Graduates may immediately apply to the Alberta Registered Professional Foresters Association to complete the registration process.

The program is offered jointly by the Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Business. Although it is administered in the Faculty of Agriculture, Forestry, and Home Economics, the program is managed by an interdisciplinary committee with representation from both faculties. See §15.1.4 for admission and recommended courses in the first year of studies.

Students in the BSc in Forest Business Management program are provided with the analytical, scientific, and broad educational foundations on which to build the business and forestry components of their field. The forestry

component includes courses in areas such as ecology, engineering, and conservation.

The program core includes four one-week field schools (FOR 101, 302, 303, and 304) that provide training in technical aspects of forestry. FOR 101 should be taken in the first year (or in the initial year in the BSc in Forest Business Management program) just before the start of regular classes. FOR 302, 303, and 304 are normally taken in the spring between second and third years. They must be taken prior to the fourth year of study, to ensure that students are able to apply the skills learned in their last year in the program.

The business management component of this degree consists of introductory and advanced courses in business, including accounting, finance, marketing, and human resources.

#### (1) Requirements of the Faculty Core and the BSc in Forest Business Management Program Core (★123)

##### Faculty Core (★30)

- ★3 ENGL (see Note 2)
- AFHE 304
- ORG A 301, 311, or 321
- ECON 101 and 102
- STAT 151
- CHEM 161
- ★6 Free Electives (see Note 2)
- ★3 Capstone Course [see §34.1(7) and Note]

##### Program Core (★93)

- ACCTG 311 and 322
- AREC 214
- BIOL 208
- ★6 400-level Approved Program Electives from the Faculty of Business [see §34.1(5)]
- ECON 281
- ENCS 201 or 364
- ENT 280
- FIN 301
- FOR 101, 302, 303, and 304 (field schools) (See Note 1)
- FOR 210, 314, 322, 323, and 340
- FOR EC 345 and 473
- FOREN 201, 335, and 355
- MARK 301
- MATH 113 or 114
- PL SC 385
- REN R 110, 120, 220, 321, 350, and 430
- SOILS 210

##### Notes

- FOR 101 (★0) must be taken in the student's first year (or in the student's initial year in the BSc in Forest Business Management program) just before the start of regular classes. FOR 302 (★1), 303 (★1) and 304 (★1) are normally taken in the spring between second and third year, but must be taken before beginning fourth year (see §211 for Forest Science course descriptions).
- ENGL 111, 112, 113, or 114 (★6) recommended. Students taking ★6 ENGL reduce their Free Electives to ★3.
- See §34.1 for program planning and structure details.

### 34.7.2 Cooperative Education Program

See §34.2.2.

## 34.8 BSc in Forestry

### 34.8.1 General Information

The Faculty offers courses leading to the degree of BSc in Forestry. The program consists of four years of University study with a yearly course load of ★30, as well as field schools taken just prior to first year, and in the spring between second and third year.

The BSc in Forestry develops graduates who appreciate the need to manage forested areas with due concern for all resources and who have the capability and knowledge to manage forested areas as integrated ecological entities. It focuses primarily on forest management, the protection, manipulation, and use of the forest resource while ensuring that sustainability and other social and cultural needs are met.

The field of forestry embraces topics as diverse as economics, ecology, engineering and conservation. As a consequence, a broad range of career opportunities exist for graduates. The program prepares students for careers as Registered Professional Foresters working in government or industrial

organizations or as consultants. To complete the registration process, graduates apply directly to the appropriate Registered Professional Foresters Association.

Field school exercises provide training in technical aspects of forestry, including forest mensuration, engineering, ecology and silviculture. All field schools must be taken prior to the fourth year of study, to ensure that students are able to apply the skills learned in their last year in the program.

#### (1) Requirements of the Faculty Core and the BSc in Forestry Program Core

##### Faculty Core (★30)

- ENGL: Faculty (★3) and Program (★3) requirements jointly met by Program Core requirement (e) below.
- AFHE 304
- AREC 323 or ORG A 301
- ECON 101 and 102
- STAT 151
- CHEM 161
- ★6 Free Electives
- ★3 Capstone Course [see Note 2 and §34.1(7)]

##### Program Core (★93)

- AREC 214
- ★12 Approved Program Electives [see §34.1(5) and Note]
- BIOL 208
- ENCS 201 or 364
- ★6 ENGL [ENGL 111, 112, 113, or 114 recommended; see Faculty Core requirement (a) above]
- ENT 280
- FOR 101, 302, 303, and 304 (field schools) (see Note 1)
- FOR 210, 314, 322, 323, and 340
- FOREC 345 and 473
- FOREN 201, 335, and 355
- MATH 113 or 114
- PL SC 385
- REN R 110, 120, 220, 321, 350, and 430
- SOILS 210
- ★6 Free Electives

##### Notes

- FOR 101 (★0) must be taken just before the start of regular classes in the first year. FOR 302 (★1), 303 (★1), and 304 (★1) are normally taken in the spring between the second and third year, but must be taken before beginning fourth year (see §211 for Forest Science course descriptions).
- The Capstone Course for this program is FOR 431.
- See §34.1 for program planning and structure details.

## 34.9 BSc in Human Ecology

### 34.9.1 General Information

Human Ecology is a multidisciplinary field that uses a holistic approach to solve human problems and to enhance human potential in all environments where people live and work: the social, natural, cultural, political, and material. Completion of ★120 is required.

Students should be aware that under the *Protection for Persons in Care Act*, they may be required to satisfy a criminal records check before being allowed to participate in the required practicum (field placement).

#### (1) Requirements of the Faculty Core and the BSc in Human Ecology Program Core

##### Faculty Core (★30)

- ENGL: Faculty (★3) and Program (★3) requirements jointly met by Program Core requirement (a) below.
- AFHE 304
- AREC 323 or ORG A 301
- ECON 101 and 102
- SOC 210 or STAT 151 (see Note 4)
- ★3 Natural Sciences from BIOL, CHEM, EAS (Faculty of Science), PHYS (see Note 5)
- ★6 Free Electives
- ★3 Capstone Course [see Note 6 and §34.1(7)]

##### Program Core (★42)

- ★6 ENGL [ENGL 111, 112, 113, or 114 recommended; see Faculty Core requirement (a) above]
- HECOL 100, 200, 201, 300, 301, and 408
- ★3 Capstone Course [see Note 6 and §34.1(7)]
- ★3 from MARK 312, NS 390, SOC 315, W ST 302

- e. ★3 Natural Sciences from BIOL, CHEM, EAS (Faculty of Science), NUTR 100, PHYS (see Note 5)
- f. ★6 from Social Science/Humanities (see Note 7)
- g. ★6 Free Electives

**Notes**

- (1) See notes in major and minor sections (§§34.9.3 to 34.9.13) for course selection information.
- (2) Professional Designation: To meet the educational requirements for Professional Human Ecologist or Professional Home Economist designation, students must present ★48 in Human Ecology, Nutrition and Food Science, or Nutrition.
- (3) A course may be used for credit only once in a program.
- (4) SOC 210 is recommended for the Family Ecology major.
- (5) CHEM 161 and 163 are required for senior textile science and conservation courses.
- (6) The Capstone Course for this program is HECOL 409 (★6).
- (7) SOC 100 must be taken for Family Ecology major. Social Sciences/Humanities courses are selected from Anthropology, Classics, Comparative Literature, Earth and Atmospheric Sciences (Faculty of Arts courses only), Economics, Film and Media Studies, History, Languages, Linguistics, Native Studies (except NS 100), Philosophy, Political Science, Psychology (Faculty of Arts courses only), Religious Studies, Rural Sociology, Sociology, Theology, Women's Studies, and courses defined by the Faculty of Arts as Fine Arts.
- (8) See §34.1 for program planning and structure details.

### 34.9.2 Practicum Program

- (1) Two courses comprise the Practicum Program in Human Ecology: HECOL 408 and 409. HECOL 408 must be successfully completed prior to completing HECOL 409.
- (2) Students are not permitted to register in Practicum Program courses while on academic warning.
- (3) Registration in Practicum Program courses is a two-part process. Students must first complete and submit an application form to the Practicum Coordinator in April prior to the academic year they will take their practicum courses. Students then register in HECOL 408 and 409.
- (4) HECOL 408 is offered in Fall Term. HECOL 409 is offered in both Winter Term and Spring Term. Not all cooperating employers offer placements in both Winter and Spring.
- (5) Students registering in Spring Term HECOL 409 will not be eligible for convocation in June immediately following their practicum.
- (6) Because of the intensity of the workload while completing HECOL 409, students must not exceed the ★15 maximum in course registration for that term.
- (7) A student who has been assigned a grade of "W" or "NC" in a Practicum Program course is entitled to a second registration in this course. If a student receives a "W" or "NC" in the second attempt of a Practicum Program course, he/she is normally required to withdraw from the BSc in Human Ecology program.
- (8) Any student who has withdrawn from a Practicum Program course must receive the approval of the Practicum Coordinator to reregister in the course.
- (9) During their practicum students are expected to conduct themselves according to the AHEA Code of Ethics and the University of Alberta Code of Student Behavior.

### 34.9.3 Family Ecology Major

The Family Ecology major with minors in Child and Youth Studies, Community Nutrition, Community Studies, Consumer Studies or Gerontology, provides students with the opportunity to learn about family strengths, issues, prevention and intervention techniques across the life span. Some areas that will be covered are parent-child relationships, family relations, community diversity, community development, sexuality, family challenges, aging, family finances and consumer behavior. Graduates will work in jobs such as program coordinators, day care managers, career counsellors, social workers, family support workers, consumer educators, credit counsellors, financial counsellors, and retirement planners.

- (1) **Requirements of the Major (★33)**
  - a. HECOL 210, 211, 213, 310, 313, 322, 412, 413, and 440
  - b. HECOL 212 or 414
  - c. SOC 271
- (2) **Requirements of the Minor (★15)**  
See §§34.9.5 to 34.9.8 and 34.9.11 for course requirements.

### 34.9.4 Textiles and Clothing Major

The Textiles and Clothing major with minors in Consumer Studies, Community Studies, Design and Product Development, Fashion Merchandising, Interior Design or Museum Curatorship and Conservation provides opportunities for students to learn about textile and apparel design including computer-aided design, the fashion business, the textile and apparel industries both locally and globally, textile and apparel science and quality assurance, theories of fashion and dress, residential interiors and museum curatorship. Graduates are employed in fashion buying and merchandising, apparel design, fashion media, computer-assisted designing, textile and apparel quality assurance, museum management or textile conservation, theatre costume design, interior design and housing, or as business entrepreneurs.

- (1) **Requirements of the Major (★33)**
  - a. HECOL 150, 170, 268, 360, and 441
  - b. ★3 from EDIT 202, ENGG 208, or HECOL 350
  - c. HECOL 370 or 472 (see Note)
  - d. ★12 from HECOL 341, 350, 353, 354, 370, 453, 454, 460, 461, 462, 472, 477, 478

**Note:** HECOL 370 is required for the Design and Product Development minor (see §34.9.9).
- (2) **Requirements of the Minor (★15)**  
See §§34.9.7 to 34.9.10 and §§34.9.12 to 34.9.13.

### 34.9.5 Minor in Child and Youth Studies

Students in the Family Ecology major (see §34.9.3) may choose to complete a minor in Child and Youth. See §34.1(4) and Note.

- (1) **Requirements of the Minor (★15)**
  - a. HECOL 443
  - b. ★12 from LAW 687, PSYCO 223, 325, 423, SOC 224, 321, 377

### 34.9.6 Minor in Community Nutrition

Students in the Family Ecology major (see §34.9.3) may choose to complete a minor in Community Nutrition. See §34.1(4) and Note.

- (1) **Requirements of the Minor (★15)**
  - a. NUFS 223, 305, 356, and 377
  - b. ★3 from ANTH 393, H ED 320, N ST 375, NUFS 100, SOC 382

**Note:** NUTR 100 is required as a prerequisite and can be taken as the Natural Science option in §34.9.1(1).

### 34.9.7 Minor in Community Studies

Students in the Family Ecology major and Textiles and Clothing major (see §§34.9.3 and 34.9.4) may choose to complete a minor in Community Studies. See §34.1(4) and Note.

- (1) **Requirements of the Minor (★15)**
  - a. REN R 401 or SOC 353
  - b. RSOC 355 or RLS 230
  - c. ★3 from ANTH 110, 150, 207, NS 200, SOC 260
  - d. ★6 from (ANTH 455, HE ED 320, HECOL 462, NS 455, POL S 392, 433, SOC 101, 231, 257, 368, 453), (EAS 590, EBCS 467, HECOL 461, INT D 365, 369, POL S 333, R SOC 450, SOC 445, 450, 453), or (EAS 493, EDFN 523, ECON 213, HECOL 462, INT D 370, PHIL 368, POL S 357, 376, R SOC 310) (See Note)

**Note:** Course groupings listed in d. provide a focus in human services, ecological or international community, respectively.

### 34.9.8 Minor in Consumer Studies

Students in the Family Ecology major and Textiles and Clothing major (see §§34.9.3 and 34.9.4) may choose to complete a minor in Consumer Studies. See §34.1(4) and Note.

- (1) **Requirements of the Minor (★15)**
  - a. HECOL 320 or MARK 320
  - b. ★9 from HECOL 321, 421, 441, 442, 461, 462, MARK 420
  - c. B LAW 301 or MARK 432

**Notes**

  - (1) MARK 301 is required as a prerequisite and must be taken as a Free Elective from the Faculty Core in §34.9.1(1). The prerequisite for MARK 301 (MATH 113) has been waived for Human Ecology students.
  - (2) MARK 312 is required as a prerequisite and can be taken as the Research Methods option in §34.9.1(1).

### 34.9.9 Minor in Design and Product Development

Students in the Textiles and Clothing major (see §34.9.4) may choose to complete a minor in Design and Product Development. See §34.1(4) and Note.

(1) **Requirements of the Minor (★15)**

- ★3 from ART, ART H, DRAMA, DES
- ★3 from EDIT 202, ENGG 208, HECOL 350
- ★9 from HECOL 353, 354, 453, 454, 477, 472

**Note:** HECOL 370 is required as a prerequisite and can be taken as part of the requirements in the Textiles and Clothing major §34.9.4(1).

### 34.9.10 Minor in Fashion Merchandising

Students in the Textiles and Clothing major (see §34.9.4) may choose to complete a minor in Fashion Merchandising. See §34.1(4) and Note.

(1) **Requirements of the Minor (★15)**

- HECOL 341
- ★3 from HECOL 354, 454, or 462
- MARK 301 (see Note 1)
- ★3 from ACCTG 300, 311, 322
- ★3 from HECOL 460, 461, MARK 432, 442, 468, ORG A 431

**Notes**

- The prerequisite for MARK 301 (MATH 113) has been waived for Human Ecology students.
- MARK 312 is required as a prerequisite and can be taken as the Research Methods option in §34.9.1(1).

### 34.9.11 Minor in Gerontology

Students in the Family Ecology major (see §34.9.3) may choose to complete a minor in Gerontology. See §34.1(4) and Note.

(1) **Requirements of the Minor (★15)**

- HECOL 212 or 414
- SOC 375 and 475
- PEDS 385
- ★3 from ANTH 110, INT D 415, PHIL 386, RLS 100, SOC 473

### 34.9.12 Minor in Interior Design

Students in the Textiles and Clothing major (see §34.9.4) may choose to complete a minor in Interior Design. See §34.1(4) and Note.

(1) **Requirements of the Minor (★15)**

- ★12 from Faculty of Extension Residential Interiors Certificate Program (credit will not be granted for Colour Theory and Application or Basic Drawing)
- ★3 HECOL 462

### 34.9.13 Minor in Museum Curatorship and Conservation

Students in the Textiles and Clothing major (see §34.9.4) may choose to complete a minor in Museum Curatorship and Conservation. See §34.1(4) and Note.

(1) **Requirements of the Minor (★15)**

- HECOL 460, 462, and 477
- ★6 from ART H 430, ART H 431, ORG A 438

## 34.10 BSc in Human Ecology/BEd (Secondary) Combined Degrees

(1) **General Information** (See also §15.5.6)

The Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Education offer a five-year integrated program of ★150 leading to the degrees of Bachelor of Science in Human Ecology and Bachelor of Education (Secondary). Students can do the Combined BSc in Human Ecology/BEd Degrees to teach in Career and Technology Studies (CTS) strands such as Fashion Studies, Career Transitions, Foods, Community Health, or other teachable majors as well as Career and Life Management (CALM). Students initially apply for admission to the Faculty of Agriculture, Forestry, and Home Economics and are registered in that Faculty for the first three years of the program. All qualified Year 3 BSc in Human Ecology/BEd students will be promoted to Year 4 in the Faculty of Education provided a minimum GPA of 2.0 has been achieved and a minimum of ★90 applicable to the BSc in Human Ecology/BEd program has been successfully completed.

**Notes**

- Students in Year 3 must submit a Readmission or On-Campus Transfer application form. Students in Year 3 who have completed less than ★90 toward the BSc in Human Ecology/BEd program, but who have a GPA of at least 2.0, may remain in Year 3 of the BSc in Human Ecology/BEd program in the Faculty of Agriculture, Forestry, and Home Economics for one additional year.
- A student who has been assigned a grade of "W" or "NC" in an Education Field Experience course is entitled to a second registration in this course. See also §22.1.3 Reregistration in Courses. Notwithstanding §22.1.3, students who receive a "W" or "NC" in the second attempt of a Field Experience course, will be required to withdraw from the combined degrees program, but may transfer back to the BSc in Human Ecology program.
- The final year of the program will normally be taken in attendance at the University of Alberta. Exemptions from this regulation can be made only with approval of the Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Education.

(2) **Required Courses**

Courses for the Combined BSc in Human Ecology/BEd Degrees must be carefully sequenced throughout the five years; therefore, students should plan their programs carefully with help from Academic Advisors from both Faculties.

**Faculty Core (★24)** (see Note 4)

- ENGL: Faculty (★3) and Program (★3) requirements jointly met by Program Core requirement (a) below.
- AFHE 304
- ECON 101 and 102
- STAT 151 or SOC 210
- ★3 Natural Sciences from BIOL, CHEM, EAS (Faculty of Science) (see Note 5)
- ★6 Free Electives

**Program Core (★60)**

- ★6 ENGL [ENGL 111, 112, 113, or 114 recommended; see Faculty Core requirement (a) above]
- HECOL 100, 150, 170, 200, 201, 210, 211, 313, and 354
- HECOL 321 or HECOL 322
- ★6 HECOL at 300-level or above
- ★6 HECOL at 400-level or above
- ★3 Natural Sciences from BIOL, CHEM, EAS (Science) (see Note 5)
- ★3 from EDIT 202, ENGG 208, or HECOL 350
- ★3 from NU FS 100, 372, or 373
- NUTR 100
- ★3 from MARK 312, NS 390, SOC 315, W ST 302

**BEd Core (★66)**

- ★18 Minor (See Note 2)
- EDU 250
- EDFX 350, 450 (★6), and 451
- EDPS 310 and 410
- EDPY 200, 301, and 303
- 300-level EDSE course (Minor)
- EDSE 432, 433
- HE ED 110
- ★6 from Faculty of Education

**Notes**

- Professional Designation: To meet the educational requirements for Professional Human Ecologist or Professional Home Economist designation, students must present ★48 in Human Ecology, Nutrition and Food Science, or Nutrition.
- Students should declare their minor early in the program by filling out a form in 2-10 Agriculture/Forestry Centre.
- See §34.1 for program planning and structure details.
- The Management in Organizations and Capstone Course requirements in §34.1 and 34.9 are met by completion of Faculty of Education requirements.
- CHEM 161 and 163 are required for senior textile science and conservation courses.

## 34.11 BSc in Nutrition and Food Science

### 34.11.1 General Information

The Faculty offers courses leading to the degree of Bachelor of Science in Nutrition and Food Science with majors in Nutrition and Food, Nutrition, and Food Science and Technology. A minimum of ★120 is required to complete the program for the degree of BSc in Nutrition and Food Science.

Students interested in either the Nutrition and Food major or the Nutrition major begin their program in the Nutrition and Food major. Those interested

in applying for the Nutrition major can do so after one year of study; see §15.1.7 for information on admission requirements.

Students in either the Nutrition and Food major or the Nutrition major have the option of completing a minor. By completing a minor in Human Ecology, students can meet the educational requirements for registration as Professional Human Ecologists or Professional Home Economists; students can complete a minor in Physical Activity; or students in the Nutrition and Food major can complete a minor in Food Marketing. Students are recommended to select minors by the second year of their program to facilitate appropriate course selection. All students must follow Faculty core, program core and major requirements (see 1-2 below and §§34.11.3 and 34.11.4). Students who wish to obtain a minor must select Free Electives and Approved Program Electives (APEs) carefully to meet the course and credit requirements of the minor (see §§34.11.6 to 34.11.8).

The Nutrition major program can, with appropriate Approved Program Electives (APEs) course selection, be accredited by the Dietitians of Canada. Students planning to be Registered Dietitians should read the Nutrition major information (see §34.11.4).

The Food Science and Technology major meets the guidelines of the Canadian Institute of Food Science and Technology (CIFST) and the Institute of Food Technologists (IFT).

### Requirements of the Faculty Core and the BSc in Nutrition and Food Science Program Core

#### (1) Faculty Core (★30)

- ENGL: Faculty (★3) and program (★3) requirements jointly met by program core requirement (d) below
- AFHE 304
- AREC 323 or ORG A 301
- ECON 101 and 102
- STAT 151
- BIOL 107
- ★6 Free Electives (see Note 3)
- ★3 Capstone course [see §34.1(7) and notes following each major]

#### (2) Program Core (★30)

- ★3 chosen from BIOCH 203, 220 or PL SC 331 (see Note 2)
- CHEM 101 and 102
- CHEM 161 and 163
- ENGL [★6; ENGL 111, 112, 113, or 114 recommended; see Faculty core requirement (a) above]
- NU FS 361 or 363 (see Note 1)
- NU FS 372 or 373 (see Note 1)
- ★6 Free Electives (see Note 3)

#### Notes

- Food Science and Technology majors are required to take NU FS 361 and NU FS 372, and Nutrition majors planning to enter the Dietetics program are required to take NU FS 363.
- Nutrition majors must take BIOCH 203.
- Students in the Nutrition and Food major or the Nutrition major who plan to complete a minor should see §§34.11.6 to 34.11.8 for information that may affect Free Elective course selection. Students planning to apply for Medicine must take ★6 Physics. Students in the Nutrition and Food major are recommended to take NU FS 100.
- See section §34.1 for program planning and structure details.

### 34.11.2 Food Science and Technology Major

This major focuses on applying chemistry, microbiology, and engineering to the food systems and technological processes used in food manufacturing, preservation, storage, and distribution.

Graduates of this major may enter the food industry as technical specialists or quality control managers. Opportunities also exist in government employment as inspectors, laboratory managers, and extension workers; in international development agencies; and in private laboratories providing consultative or technical service to the food industry and food marketing chains.

#### (1) Requirements of the Major (★60)

- CHEM 211 and 213
- MATH 113 or 114
- MATH 115
- MICRB 265
- NU FS 100 or NUTR 100 (See Note 1)
- NU FS 283, 305, 312, 353, 374, 430 and 454
- NU FS 201 (recommended) or PHYS ★3
- ★18 Approved Program Electives [★9 must be from advanced (300- or 400-level) Food Science courses as noted on the APE list. No Approved Program Electives can be taken at the 100-level. Also see §34.1(5) and Note.]

#### Notes

- Transfer students who are taking NU FS 372 and 374 in their first year in the program should select an Approved Program Elective or NUTR 100.
- The Capstone course for this major is NU FS 450.

### 34.11.3 Nutrition and Food Major

The Nutrition and Food major provides students with a diverse education in nutrition and food science. Graduates have a working knowledge of the fundamentals of nutritional science coupled with basic knowledge in applied chemistry and microbiology as it pertains to food manufacturing, preservation, storage and distribution. This degree integrates course work in the biological, behavioural and applied sciences.

Graduates of this major may find employment opportunities in a variety of public or private enterprises including health education, health industry or international aid. Students can apply for graduate studies, depending on the focus of Approved Program Electives. Careers can also be guided by the selection of a minor in Physical Activity, Human Ecology or Food Marketing (see §§34.11.6 to 34.11.8), which can position graduates for careers in lifestyle management, the community-based human ecology sector or the agri-food-nutrition sector.

Students in the Nutrition and Food major may apply to transfer to the Nutrition major if they meet its required academic standings and courses; this is normally done after first year (see §15.1.7). Students who change to the Nutrition (or Food Science and Technology) major after their first year often require more than four years to complete the entire program (see §§15.1.7 and 34.11.4 for course selection information for the Nutrition major, and §34.11.2 for the Food Science and Technology major).

#### (1) Requirements of the Major (★60)

- BIOL 207
- NUTR 100
- NU FS 201, 223, 305, 311, 352, 356, 374, 377
- PHYSL 252 (★6)
- ★24 Approved Program Electives (See Note 1)

#### Notes

- See §34.1(5) and Note. Students who plan to complete a minor see §§34.11.6 to 34.11.8 for information regarding Approved Program Elective selection. No Approved Program Electives can be taken at the 100-level.
- The Capstone course for this major is NU FS 450.

### 34.11.4 Nutrition Major

The goal of the Nutrition Major is to provide students with a specialized academic program in nutritional science and the related physical, health and social sciences. It incorporates experiential learning into coursework to enable students to develop skills in nutritional science. Completion of this degree will ensure students are highly competitive for studies at the graduate level, in other science and professional programs and/or for postgraduate dietetic internship and professional designations.

The Nutrition major prepares students for careers in general health sciences, dietetics, health promotion, education, private practice, government and health protection agencies, research and nutrition development. Appropriate selection of Free Electives (★6 Physics) will provide the required courses for application to Medicine.

The Nutrition major, with appropriate Approved Program Electives, is accredited by the Dietitians of Canada (see §34.11.5). Students registered in this major can meet the academic competencies to be eligible for either the Integrated Dietetic Internship program or postgraduate internships.

Students not completing competencies required to meet consideration for internships by the Dietitians of Canada can complete a minor in Physical Activity or Human Ecology (see §§34.11.6 and 34.11.7).

Due to the importance of maintaining high grades for the dietetic and other aspects of the program, students will be assessed annually to ensure that they maintain a GPA of at least 3.0 in the previous Fall/Winter [see §33.4(2)].

#### (1) Requirements of the Major (★60)

- PHYSL 252 (★6)
- BIOCH 205
- BIOL 207
- NUTR 100
- NUTR 301 and 302 (See Note 1)
- NUTR 401 and 440
- NU FS 223, 356, 377, NUTR 468
- ★9 from NUTR 452, 476, 477, 478, 479, 480, NU FS 428
- ★12 Approved Program Electives (See Note 2)

**Notes**

- (1) Nutrition majors must achieve a minimum combined average of 3.0 in NUTR 301 and 302 to continue in the program [See §33.4(2)].
- (2) See §34.1(5) and Note. Students who plan to apply for the Dietetic program or to complete a minor should see §§34.11.5 to 34.11.7 for information regarding Approved Program Electives selection. No Approved Program Electives can be taken at the 100-level.
- (3) The Capstone course for this major is NUTR 400.

**34.11.5 Dietetics Program**

To become a registered dietitian, students must complete an undergraduate degree in Nutrition and a dietetic internship. **Students must meet the additional course requirements (beyond those in the Nutrition major) outlined below to be eligible for an approved dietetic internship.** Eligible students may apply for the postgraduate internship in their fourth year. Applicants must meet a spoken English requirement (see §13.3.2)

As an alternative to the postgraduate internship, students may apply for the Integrated Dietetic Internship Program during their third year. In this internship, academic terms alternate with internship terms in cooperation with health care facilities throughout Alberta; the degree plus internship can be completed in approximately 4.5 years and then the student is eligible for membership in the Dietitians of Canada. Applications are accepted from students in the Nutrition major during the third academic year. Under Alberta's *Protection for Persons in Care Act*, students may be required to satisfy a criminal records check before being allowed to participate in an internship program. Students may choose programs emphasizing metabolic, clinical and community areas of concentration. Dietitians are employed in health care institutions, industry, government services, retail food services, teaching, community clinics, public relations, the media, and private practice.

**Required Course List for Dietetics Students**

Students who wish to become Registered Dietitians must complete the Nutrition major, the specific additional undergraduate course requirements noted below and a dietetic internship (see Notes). These additional ★15 may be taken as Approved Program Electives or Free Electives in the Nutrition major. This combination is an accredited university undergraduate program with the Dietitians of Canada.

Students admitted to the U of A Integrated Dietetic Internship program are required to complete NUTR 469, 470, 471 and 472 prior to convocation. Students applying for postgraduate internships through the Dietitians of Canada do not complete U of A professional practice courses.

- (1) **Required Dietetics Courses (★15)**
  - a. INT D 410 (See Note 2)
  - b. NU FS 374, 461
  - c. ★3 Approved Program Elective chosen from NUTR 452, 478, 479, NU FS 428
  - d. NUTR 476

**Notes**

- (1) Students planning to apply for the University of Alberta Integrated Dietetic Internship Program must register in NUTR 468 and one of NU FS 377 or 461 in the third year of their program
- (2) Students must have completed NU FS 468 prior to registering in INT D 410.

**34.11.6 Minor in Physical Activity**

Students in the Nutrition and Food major (see §34.11.3) or in the Nutrition major (see §34.11.4) may choose to complete a minor in Physical Activity by incorporating the following ★15 into their program by careful selection of their Approved Program Electives and Free Electives. This provides the opportunity to integrate nutrition and food sciences with health and physical activity. See §34.1(4) and Note.

- (1) **Requirements for the Minor (★15)**
  - a. HE ED 110 (taken as a Free Elective)
  - b. HE ED 220 and 321
  - c. PEDS 391
  - d. ★3 from PERLS 104, RLS 100, HE ED 221

**34.11.7 Minor in Human Ecology**

Students in the Nutrition and Food major (see §34.11.3) or in the Nutrition major (see §34.11.4) may choose to complete a minor in Human Ecology by incorporating the following ★18 into their program by careful selection of their Approved Program Electives and Free Electives. Depending on course selections made in completing their major and minor areas of study, students may be eligible to apply to become a professional Human Ecologist or Professional Home Economist (information is available from 3-02 Human

Ecology Building). Students in the Nutrition major who are pursuing the competencies for dietetics will require extra credits to obtain this minor. See §34.1(4) and Note.

- (1) **Requirements for the Minor (★18)**
  - a. HECOL 100 (taken as a Free Elective)
  - b. HECOL 200
  - c. HECOL 201
  - d. HECOL 301
  - e. ★6 from HECOL 300, 310, 312, 320, 322, 413, 414, 440, 442

**34.11.8 Minor in Food Marketing**

Students in the Nutrition and Food major (see §34.11.3) may choose to complete a minor in Food Marketing by incorporating the following ★15 into their program by careful selection of their Approved Program Electives and Free Electives. This provides the opportunity to apply a nutrition and food science background to consumer and food marketing. See §34.1(4) and Note.

- (1) **Requirements for the Minor (★15)**
  - a. AREC 200, 384
  - b. HECOL 320
  - c. ★6 from AREC 323 (if not taken to fulfill Faculty Core), AREC 484, 485, 473, 482, HECOL 420

**34.12 BSc After an Undergraduate Degree****General Information**

An applicant holding an undergraduate degree may qualify for the BSc Degree by meeting the following requirements:

- (1) Satisfy all requirements listed in §§34.12.1 or 34.12.2
- (2) Satisfy all admission requirements (see §15.1), as well as program, academic standing and graduation requirements of the particular degree program (see §§33.4 and 34).

The specific course requirements for a degree program are determined at the time of admission by Student Services. The BSc program selected for the After Degree may be the same as the program in the first degree if another major is selected. Combined degrees programs are not available to students who already have one of the two degrees. For further information consult Student Services.

**34.12.1 BSc After an Undergraduate Degree Other than a BSc from the Faculty of Agriculture, Forestry, and Home Economics at the University of Alberta**

In addition to courses counted towards the first degree, students must satisfactorily complete a minimum of ★54 (normally the last 54) while registered at the University of Alberta, ★30 of which must be completed while registered in the After Degree program in the Faculty of Agriculture, Forestry, and Home Economics at the University of Alberta.

**34.12.2 BSc After an Undergraduate Degree from the Faculty of Agriculture, Forestry, and Home Economics at the University of Alberta**

In addition to courses counted towards the first degree, students must satisfactorily complete a minimum of ★30 while registered in an After Degree program in the Faculty of Agriculture, Forestry, and Home Economics at the University of Alberta.

**34.13 Graduate Studies**

Programs leading to advanced degrees at the Master's and Doctorate levels are offered by most Faculty departments. Course programs and thesis projects are arranged in consultation with Faculty members or with the Department's graduate coordinator.

See this Calendar's Graduate Programs section for general information about graduate studies. Specific information about requirements and opportunities in a particular field of study may be obtained from the appropriate Department in the Faculty of Agriculture, Forestry, and Home Economics.

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## 35 Courses

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The Faculty of Agriculture, Forestry, and Home Economics courses are listed in §211, Course Listings, under the following subject headings:

- Agricultural and Resource Economics (AREC)
- Agricultural, Food and Nutritional Science (AF NS)
- Agriculture, Forestry, and Home Economics (AFHE)
- Animal Science (AN SC)
- Bioresource Engineering (BIOEN)
- Capstone Course (CAPS)
- Environmental and Conservation Sciences (ENCS)
- Forest Economics (FOREC)
- Forest Engineering (FOREN)
- Forest Science (FOR)
- Human Ecology (HECOL)
- Interdisciplinary Courses (INT D)
- Nutrition (NUTR)
- Nutrition and Food Sciences (NU FS)
- Plant Science (PL SC)
- Renewable Resources (REN R)
- Rural Sociology (R SOC)
- Soil Science (SOILS)
- University (UNIV)
- Work Experience (WKEXP)