The following Motion and Documents were considered by an electronic vote of the Board Finance and Property Committee on April 23, 2015:

Agenda Title: **University of Alberta 2015 Comprehensive Institutional Plan (CIP)**

APPROVED MOTION: THAT the Board Finance and Property, on the recommendation of the GFC Academic Planning Committee, recommend that the Board of Governors:

a) approve the 'revised' 2015 *University of Alberta Comprehensive Institutional Plan* (*CIP*), as provided by the President's Executive Committee (PEC) and as set forth in Attachment 3; and concurrently

b) rescind the CIP 2015, as approved on March 13, 2015

all to take effect upon final approval.

Final recommended item: 1

Item No. 1

OUTLINE OF ISSUE

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Item

Action Requested	☐Approval ☒Recommendation ☒Discussion/Advice ☐Information
Proposed by	Don Hickey, Vice-President, Facilities and Operations
Presenter	Pat Jansen, Associate Vice-President, Planning and Project Delivery, Project Management Office, Facilities and Operations
Subject	Edmonton Clinic Diagnostic Centre – Translational Labs, University of Alberta – A joint initiative with Alberta Health Services (AHS); their lab service provider and the university are working towards the development of an integrated innovation centre housing provincial testing labs, private diagnostics facilities and translational labs for the University of Alberta. The translational lab program would encompass an area of approximately 7,300 m^2 and be located within a multi-storey facility of approximately 59,000 m^2.

Details

Responsibility	Office of the Provost and Vice-President (Academic), Office of the Vice-President (Facilities and Operations), and Office of the Vice-President, (University Relations)
The Purpose of the Proposal is (please be specific)	To correct a Facilities and Operations oversight whereby the Edmonton Clinic Diagnostic Centre (ECDC) Translational Lab was not included in the Comprehensive Institutional Plan (CIP). Government of Alberta deadline for receipt of the Comprehensive Institutional Plan (CIP) is May 1, 2015.
The Impact of the Proposal is	This is a significant opportunity to not only increase efficiencies and utilization of resources, but to improve collaboration, training, innovation and foster translational science and innovation. A fully integrated facility will provide great potential for rapid adoption and commercialization of next generation precision diagnostics developed right here in Alberta.
Replaces/Revises (eg, policies, resolutions)	Delete: "Pedway – Underground 115 Street and 87 Avenue Construction of an underground pedway to allow easy and safe access between the Physical Activity and Wellness Centre and the Edmonton Clinic Health Academy. This will finalize the connection of the Health Sciences precinct to the campus north of 87 Avenue." And replace with the following:

	"Translational Lab Edmonton Clinic Diagnostic Centre (ECDC) – The project represents an opportunity to co-exist in a new translational lab with diagnostic services to improve collaboration, training, innovation and to foster translational sciences." Specific changes are proposed as follows: p. 128 Focus Area 4: New Space The following has been added in the second paragraph to the second sentence after "highest-priority projects include. . .": an integrated innovation centre housing provincial testing labs, private diagnostics facilities and translational labs for the UofA, ….. pgs. 136-7 Highest New and Expansion Priorities (table) Deleted from table: Pedway – Underground 115 Street and 87 Avenue Construction of an underground pedway to allow easy and safe access between the Physical Activity and Wellness Centre and the Edmonton Clinic Health Academy. This will finalize the connection of the Health Sciences precinct to the campus north of 87 Avenue. Added to table (in alphabetical order): Translational Lab Edmonton Clinic Diagnostic Centre (ECDC) – The project represents an opportunity to co-exist in a new translational lab with diagnostic services to improve collaboration, training, innovation and to foster translational sciences. p. 161 The following has been added to the list under North Campus: Edmonton Clinic Diagnostic Centre – Translational Labs U of A ($63M)
Timeline/Implementation Date	To be determined
Estimated Cost	Final operational models, siting and financing logistics are yet to be confirmed. Value of the contract is estimated to be $63M.
Sources of Funding	Unknown at this time
Notes	The CIP was approved by the Board of Governors at its meeting on March 13, 2015. The Motion empowered Administration to make any editorial changes to the CIP, as needed, as long as the changes do not have the force of policy. Following the March Board meeting, and while working to finalize the document, it was noted that the Edmonton Clinic Diagnostic Centre (ECDC) Translational Lab was not included in the Comprehensive Institutional Plan (CIP). Administration is proposing that the CIP include the brief description of the project as well as add this item to the list of projects captured in the document.

Alignment/Compliance

Alignment with Guiding Documents	*Dare to Discover*, *Dare to Deliver*, Capital Plan, Budget, Business Plan, Other
Compliance with Legislation, Policy and/or Procedure Relevant to the Proposal (please quote legislation and include identifying section numbers)	1. ***Post-Secondary Learning Act* (*PSLA*)** Section 26(1) states: "Subject to the authority of the board, a general faculties council is responsible for the academic affairs of the university and, without restricting the generality of the foregoing has the authority to […] (o) make recommendations to the board with respect to affiliation with other institutions, academic planning, campus planning, a building program, the budget […] and any other matters considered by the general faculties council to be of interest to the university[.] […]" 2. ***Post-Secondary Learning Act* (*PSLA*)** Section 78 states: "**Business plans** **78(1)** Each year a board must prepare and approve a business plan that includes (a) the budget, and (b) any other information required by the Minister. **(2)** The business plan approved under subsection (1) must be submitted to the Minister on or before the date specified by the Minister. […] **Access plan** **78.1** Each year a board must prepare an access plan in accordance with the regulations and submit it to the Minister on or before the date specified by the Minister." 3. ***Post-Secondary Learning Act* (*PSLA*)** Section 80 states: "The board must submit to the Minister any reports or other information required by the Minister." 4. **Board Finance and Property Committee (BFPC) Terms of Reference, Section 3.c.** states that the Committee shall "[…] review and recommend to the Board the annual and other budgets and major issues of policy related to budgets[.][…]" 5. **Board Learning and Discovery Committee (BLDC) Terms of Reference/Mandate of the Committee (Section 3)**: "Except as provided in paragraph 4 hereof and in the Board's General Committee Terms of Reference, the Committee shall, in accordance with the Committee's responsibilities with powers granted under the Post-Secondary Learning Act, monitor, evaluate, advise and make decisions on behalf of the Board with respect to matters concerning the teaching and research affairs of the University, including proposals coming from the administration and from General Faculties

Council (the "GFC"), and shall consider future educational expectations and challenges to be faced by the University. The Committee shall also include any other matter delegated to the Committee by the Board.

Without limiting the generality of the foregoing the Committee shall:
[…]
a. review and approve initiatives related to the overall academic mission and related plans and policies of the University;
[…]
d. review, provide feedback and approve the enrolment management strategy and annually review such plans;
[…]
g. undertake studies and review academic matters that pertain to the quality of the educational experience at the University;
h. monitor educational and research trends, community expectations and demands;
[…]
j. ensure that the academic teaching and research activities at the University are administered and undertaken in a manner consistent with the vision and mission of the University;
k. consider future educational expectations and challenges to be faced by the University;
[…]
m. review recommendations of GFC Academic Planning Committee concerning the Comprehensive Institutional Plan (CIP) and/or a similar document as required, and make recommendations to the Board in respect thereof;
[…][.]

The Committee shall review, evaluate, and provide information and recommendations to the Board where the Board is making decisions in areas generally related to areas of responsibility of the Committee."

6. **GFC Academic Planning Committee Terms of Reference/3. Mandate of the Committee**: "The Academic Planning Committee (APC) is GFC's senior committee dealing with academic, financial and planning issues. […]

APC is responsible for making recommendations to GFC and/or to the Board of Governors concerning policy matters and action matters with respect to the following:

1. Planning and Priorities: To recommend to GFC and/or the Board of Governors on planning and priorities with respect to the University's longer term academic, financial, and facilities development.

[…]

4. Budget Matters […]

b. To recommend to the Board of Governors on the annual budget,

	excluding budgets for ancillary units." **5. Facilities […]** d. To recommend to the Board of Governors on matters regarding planning and use of physical facilities where these facilities are deemed to have a significant academic and/or financial impact on the University. (The determination of what constitutes a "significant academic and/or financial impact" will be made by the Provost and Vice-President (Academic).

Routing (Include meeting dates)

Consultative Route (parties who have seen the proposal and in what capacity)	• Confidential Briefing was presented to the President's Executive Committee – Strategic (PEC-S) Meeting on October 9, 2014 • President Samarasekera wrote a letter to the President and CEO of AHS on January 28, 2015 outlining the University's desire to collaborate with AHS on this project – see Attachment 1.
Approval Route (Governance) (including meeting dates)	• Board Finance and Property Committee (BFPC) Meeting – verbal briefing - April 21, 2015 • GFC Academic Planning Committee – April 22, 2015 • Board Finance and Property Committee- April 23, 2015 (electronic vote) • Board of Governors - TBD
Final Approver	Board of Governors

Attachments:

1. Letter From President Samarasekera to the President and CEO of Alberta Health Services (AHS) (3 pages)
2. Summary of Proposed Specific Changes within the 2015 Comprehensive Institutional Plan (CIP) (4 pages)
3. Final Proposed Version of the 2015 Comprehensive Institutional Plan (CIP) (for reference) (169 pages)

Prepared by: Pat Jansen, Associate Vice-President, Planning and Project Delivery, Facilities and Operations
Phone: 780-492-1747, Email: pat.jansen@ualberta.ca

UNIVERSITY OF ALBERTA

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28 January 2015

Ms. Vickie Kaminski
President and CEO
Alberta Health Services
Seventh Street Plaza
14th Floor, North Tower
10030 – 107 Street NW
Edmonton, AB T5J 3E4

Dear Ms. Kaminski:

The current Alberta Health Services (AHS) initiative of consolidating clinical laboratory services in Northern Alberta and seeking a private laboratory services partner represents a significant opportunity to not only increase efficiencies and utilization of resources, but to improve collaboration, training, innovation and foster translational science and innovation. A fully integrated facility will provide great potential for rapid adoption and commercialization of next generation precision diagnostics developed right here in Alberta.

The biggest single risk to this vision is not co-locating these services. Co-location would allow a seamless integration of all aspects of the chain from research and discovery, to clinical treatment and diagnostics. This risk is the reason for reaching out to you, personally, to ensure all steps are being taken to fully realize this initiative.

Precision diagnoses are an essential prerequisite for targeted treatment in the individual patient. The integration of a large, global, commercial laboratory services vendor not only provides for efficient cost effective services offering, but offers a distribution channel of choice for developers of new tests to access the global marketplace. This unique relationship between the academic medical community and pharmaceutical and biotechnical firms is well positioned for bringing technical innovation from Alberta to the global market, positioning Edmonton and the Province as a global health sciences innovation hub.

Preliminary reviews conducted through TEC Edmonton and the Faculty of Medicine and Dentistry indicates very positive financial results from the implementation of this full vision. Based on information available within the industry, similar investments into biotechnology and medical genomics partnerships have yielded excellent returns on investment, both in terms of new economic activity and economic return to the funders. The results of a preliminary study indicates an estimate of $250 million of new academic activity being generated and a $52 million economic return on the investment being realized by government by year ten following the investment of $60-63 million associated with the translational labs.

For these reasons, the University of Alberta would welcome the opportunity to work with AHS, the laboratory services provider and government, as required, to help realize this opportunity including seeking support from the federal government through Western Economic Diversification. Our organizations have successfully collaborated on multiple land initiatives and ongoing operations over the years, as demonstrated with the land lease for the Kaye Edmonton Clinic.

Over the past 12 years, the university has successfully implemented a capital program in excess of $2.6 billion adding over 2.7 million sq. ft. of space to our campuses. This program was delivered on time and on budget through active management of project scope and budget/schedule control. The expertise, policies and procedures are project proven and available to deploy, as needed.

Over the past few years, we have been asked by government to look at alternative delivery strategies given the current fiscal realities of today's economy, including project partnerships, debt financing, and various project delivery options in both heightened and recessive marketplaces. We have learned what works and what does not. One thing we have learned is that our ability to obtain debt financing from Alberta Capital Finance Authority (ACFA), provides significant financial benefits to any project. This is directly attributable to the fact that ACFA fully benefits from the province's AAA credit rating. The province's utilization of P3s has provided good value for money for horizontal infrastructure (roads, bridges, etc.), while their experiences with vertical infrastructure (buildings) has been a little more mixed. Historically, a major benefit realized by government in P3s has been in the areas of cost and budget certainty, on time completion, as well as scope control - all areas where the university has shown considerable success.

Based on the preliminary project analysis provided to AHS, we are confident that a partnership between AHS, the laboratory services provider and the university will deliver the project in an efficient and cost effective manner regardless of whose land the building is on. The benefits associated with the university's "alternative jurisdiction" zoning would be brought to the project avoiding extensive and prolonged public consultation and coordination with the city. The biggest advantage that can be brought to the project by the university is that of project financing through ACFA and proactive project control from programming through to successful commissioning and move-in. This will result in substantially lower annual costs over the contract term for the physical space and ownership of that space at the end of the term with no further expenditure of funds necessary. The basic differences between private sector financing and ACFA financing are generally as follows:

1) Private financing:
    a. Equity and land, and the cost of equity raises the costs of the project due to opportunity cost for the entity;
    b. Debt financing rate for 25-30 year money is more costly often in the order of 100 basis points over bond financing;
    c. Up-front financing fees usually required (in the order of 2-3%);
    d. And profit incentive for the entity.

2) ACFA financing:
    a. Other than land no equity required;
    b. Fixed bond level debt financing for 25-30 years (3.0-3.5%);
    c. And limited front end financial costs.

Given the likely project financing model is based on a shell and core base building with separate fit-up packages, debt financing and, with the laboratory services provider, a lease-to-own or lease and purchase option, and the financial differences noted above, we would anticipate that the net present value of AHS payments associated with a private sector financing model versus the ACFA financing model to be over $200 million higher for the same project scope with a private laboratory services provider. This easily represents more than the estimated cost of the translational labs themselves, offering a significant and timely benefit to AHS and the provincial government.

Given the current situation of the provincial economy and the desire to not negatively impact the province's consolidated financial statements, we do not anticipate that the university's debt from an ACFA borrowing would negatively impact the province's net asset position since the asset would offset the liability.

Our two organizations remain strongly aligned. We stand by to assist, as required, in realizing this strategic initiative for Edmonton and the province.

Yours sincerely,

Indira Samarasekera

Indira V. Samarasekera, O.C.
President and Vice-Chancellor

cc: The Honourable Don Scott, Minister of Innovation and Advanced Education
402 Legislature Building, 10800 – 97 Avenue, Edmonton, AB T5K 2B6

The Honourable Stephen Mandel, Minister of Health
208 Legislature Building, 10800 – 97 Avenue, Edmonton, AB T5K 2B6

O:\AD06 External Institutions - Organizations (SO)\Alberta Health Services\AHS - Alberta Health Services 2015\2015-01-21- Letter to Vicki Kaminski from IVS re ECDC.docx

FOCUS AREA 4: NEW SPACE

BACKGROUND

Between the 2011 opening of the Edmonton Clinic Health Academy and the pending opening of the Donadeo Innovation Centre for Engineering, the university, with the support of government, has added approximately 150,000 square metres of new and expanded space, most of which has already been accounted for in approved program expansions. As the university continues to take a measured response to growth, there is still a need for strategic construction of critical new facilities. It is also important to recognize that the needs of the U of A's five campuses vary, each serving unique and separate constituencies within Alberta.

The institution has identified a number of new expansion projects critical to its mission, vision, reputation, and global competitiveness. Some of the highest-priority projects include an integrated innovation centre housing provincial testing labs, private diagnostics facilities, and translational labs for the university; a building expansion to accommodate science programs on Augustana Campus; a new Alberta School of Business building to accommodate growth within the faculty; a new School of Music and Art & Design facility within the Faculty of Arts; the fit-up of the Donadeo Innovation Centre for Engineering; a new hockey arena; and a metabolic unit replacement on South Campus.

There are also a number of critical academic support facilities that have been identified for renewal, replacement, or expansion, including the Research and Collection Resource Facility (RCRF) formerly known as BARD. Academic support facilities are discussed in greater detail in the next section.

OBJECTIVES

- Outline the capital needs of the institution in order to deliver the vision and programs included within this Comprehensive Institutional Plan. Space must not only provide simple access, but also ensure that the entire educational and life experience of students is supported.

- Confirm the state of the current inventory of academic support facilities; identify adequacy, appropriateness, and availability; and engage government in discussions to outline the importance of these facilities and remediate identified shortfalls in these integrated program areas.

North Campus

- Chemical Materials Engineering ($24.8M)
- Dentistry/Pharmacy Repurposing ($250M)
- Edmonton Clinic Diagnostic Centre - Translational Labs U of A ($63M)
- Heating Plant Expansion ($40M)
- Gathering Place ($18M)
- School of Business ($185M)
- Research and Collections Resource Facility ($30M)
- Edmonton Downtown Arts Campus ($30M/year operating lease: term of 30 years)

South Campus

- Twin Arena ($30M)
- District Energy Plant – Phase 1 ($127M)

Augustana Campus

- Augustana Science Building ($40M – Phased Delivery)

Campus Saint-Jean

- Science Lab Renovation and Renewal ($40M)

As in the past, the university will continue to investigate strategies for leveraging existing assets through partnerships, and alternative and private funding.

❖ **The University of Alberta is seeking funding for critical deferred maintenance, planning and pre-design, and capital projects as indicated.**

COMPLETING THE ACCESS TO THE FUTURE PROGRAM

In today's environment, strong endowments are a vital source of funding to advance the university's priorities. Endowments provide a relatively stable and predictable source of ongoing funding that allows academic institutions to sustain their efforts over time and tackle large-scale, complex problems that may take generations to solve. Endowments also help attract and retain exceptional faculty and students, sending a signal of significant commitment and support for their work and allowing them to commit to in-depth study.

The Access to the Future Fund was a highly successful tool in attracting donations to the university. With the desire to grow its endowment, the university directed donations made as a result of the Access to the Future Fund to its endowment. Founded in March 2005, the Access to the Future Fund successfully stimulated $425 million in philanthropic support, with only $25 million in donations having been matched to date. The suspension of the program frustrated and disappointed a significant number of donors, making it much more difficult to engage with them for further donations until their matching gifts are received. It is vitally important to the university that the remaining balance of the Access to the Future funds be paid out.

❖ **The University of Alberta is seeking a payout of approximately $98.4 million in yet-unmatched donations within the Access to the Future Fund. Completing the match of donations in the program will increase the institution's success in securing philanthropic funding that supports broad-based excellence.**

TABLE 3 HIGHEST NEW AND EXPANSION PRIORITIES (LISTED IN ALPHABETICAL ORDER)

PROJECT	DESCRIPTION	NEW SPACE (M^2)
Agricultural, Life and Environmental Sciences Building – South Campus	Planning for the growth and emerging priorities of the faculty in research and teaching, and the feasibility of consolidating faculty departments in a single facility within South Campus. Assessment of the impact of other lands being utilized by the faculty on its operations and programs.	60,000 (est)
Arena and Academic Sport Centre	The Arena Project is part of the long-range plan of moving all varsity programs to South Campus and having these buildings serve not just the university but the community at large. This facility will provide needed space for our hockey, wrestling and golf programs and will provide needed administrative, learning, and research space associated with varsity programs. The project assumes funding through various partnership resources, including philanthropy, borrowing, and government support. As well, this facilitates the replacement and relocation of our aging and antiquated metabolic facility.	14,954
Augustana Science Expansion and Renewal and Classroom Building Upgrade	Expansion and renovation of the existing building and infrastructure to meet the needs of the student enrolment and science program requirements.	6,046
Cameron Library and Information Pavilions (CLIP) – Phase 2: Research and Collections Resource Facility (RCRF)	Renovation and expansion of a recently purchased Federal Archive building to support our need for the Research and Collections Resource Facility (RCRF). A new South Campus facility is being planned; this will replace a previous request for $85 million that was to accommodate two distinct occupancies.	Phase 2 – 3,437
CLIP – Phase 3: Curatorial Facility	New space for Museum and Collections Services (MACS) to provide centralized space for collections with proper temperature and humidity controls.	32,437
Campus Saint-Jean Science Building	Expansion and renovation of existing facility to meet needs related to differential program enrolment throughout the entire campus, creation of new programs and partnerships with other faculties, and dedicated research space, which will allow opportunities for reuse within the backfill area. The university is targeting an additional $10 million in federal support.	5,319
Ecological Learning Centre – Devonian Botanic Garden	New facility to allow Devonian Botanic Garden to open year-round and support community outreach. Addition of parking lot and sound walls, as well as a new formal gate. This project will be programmed in conjunction with the developing Islamic Garden. The university is targeting $10 million of fundraising.	2,789
Gathering Place	Centre focused on Aboriginal students, faculty, and staff to serve as a community gathering place that embraces and provides an inclusive and supportive learning environment. Project will be aligned with current Education Tower location and be aligned with the building's current infrastructure and program areas. The university has secured a donation of $1 million to initiate the project.	2,100
Housing – East Campus Village	Development of up to 600 additional bed spaces to enhance the university's ability to accommodate projected growth. The request represents a cost of $115,000 per bed with an equity component of 30 per cent.	32,900
Housing – Michener Park	Complete redevelopment of buildings and supporting infrastructure doubling the current density in Phase 1. Assumes a 30 per cent equity component.	61,321
Metabolic Research Facility	Replacement and relocation of the outdated and aging metabolic facility on South Campus. The current facility is at the end of its life and relocation is part of the long-term vision of the South Campus. See Twin Arena project.	TBD

PROJECT	DESCRIPTION	NEW SPACE (M^2)
School of Business Building/Social Sciences Departments	Development of a building for the Alberta School of Business in a partnered opportunity with private sector. A building for the school would facilitate accommodation of the backfill requirements of the social sciences and support their growth needs. The social sciences are currently experiencing significant shortfall of space.	32,650
School of Music/Art and Design	Development of a building that could house the School of Music and the Department of Art and Design in partnership with a private-sector developer. The budget represents the potential equity required within the partnership arrangement.	32,500
Science Backfill	Various backfill renewal and repurposing of space as a result of the completion of CCIS (BioSci, Earth Sciences, Chemistry, South Academic Building).	TBD
South Campus – Infrastructure for Shared Use Facilities	New infrastructure to support the development of the northeast sector of South Campus—deep sewer, water supply, road lighting, and improvements specifically to support the siting of community complexes on campus. Work has proceeded in support of projects and timelines to accommodate federal grant timing.	N/A
South Campus – Utility Infrastructure	Initial infrastructure to provide first phase of utility and services in support of campus growth and to accommodate infrastructure located on adjacent Government of Alberta land (could also be provided through a P3 model).	N/A
TEC Edmonton Expansion	The success of TEC Edmonton in assisting startup companies through mentorship and business planning calls for a need to fit up additional space within Enterprise Square per original vision.	2,000
Translation Lab – Edmonton Clinic Diagnostic Centre	The project represents an opportunity to co-exist in a new translational lab with diagnostic services to foster translational science and to improve collaboration, training, and innovation.	6,900

UNIVERSITY OF ALBERTA

2015 COMPREHENSIVE INSTITUTIONAL PLAN

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EXECUTIVE SUMMARY

At the University of Alberta, we begin with ideas, talent, and purpose. We ask the big questions. We explore ideas that push the limits of understanding and knowledge. We allow creativity—and creative people—to take root and flourish.

Why? The answer is simple: for the public good. Widespread social, cultural, and economic benefits stem from the excellence that defines our work. We endeavour to lead advances in knowledge, to be at the forefront of the most important global conversations, and to develop widely compelling and effective solutions for the benefit of those we serve—indeed, for the uplifting of the whole people.

Our vision is to bring together talented people; inspire them to outstanding acts of learning, discovery, and citizenship; compel them to reach out and connect with communities near and far; and provide them with the support they need to thrive. Building on these four cornerstones, the U of A has risen to become one of Canada's and the world's finest universities with a reputation for excellence, bold thinking, and purpose. In the September 2014 QS World Rankings, the U of A was ranked 84th in the world, 31st among all universities in North America, and 14th among North America's public research universities, in particular.

The recently established Peter Lougheed Leadership College is not only shaped by faculty expertise in leadership studies existent across campus. It is also headed by one of Canada's most highly respected global leaders, the Right Honourable Kim Campbell—attracted to the U of A by its reputation for excellence and service.

Achieving excellence across the disciplines, U of A researchers are changing the lives of many. Major medical breakthroughs—such as Michael Houghton's advance toward a hepatitis C vaccine, Robert Burrell's nano-particle wound dressing, and Paul Armstrong's cardiac research—have eased the suffering of people close to home and around the world. Catherine Bell's celebrated research in indigenous and Métis law has helped to reshape Canada's justice system. Anne Naeth's techniques for reclaiming land damaged by resource development and Jillian Buriak's work on solar cells are not only helping us imagine a more sustainable world, but also bringing us much closer to that reality. Sociologist Kevin Haggerty's research is providing new understanding and analyses of how the ubiquitous presence of surveillance influences the individual's relation to society. The contributions of physicists James Pinfold,

Roger Moore, and Doug Gingrich to the international team that discovered the Higgs Boson goes to the most fundamental understanding of our universe.

Such excellence enables—and is enabled by—constant evolution and creativity in the development of academic programs and degrees. From exceptional expertise in the science of land reclamation, for example, emerges the U of A's Land Reclamation International Graduate School. Through its Faculty of Native Studies, one of the only faculties of its kind, the U of A has developed the capacity to offer a combined bachelor of science in environmental and conservation sciences/bachelor of arts in native studies degree and a joint certificate in Aboriginal sport and recreation with the Faculty of Physical Education and Recreation. Dino 101, the U of A's first and highly successful massive open online course, is founded on the world-renowned discoveries of paleontologist Philip Currie.

The U of A's reputation is rooted in its 107-year history of providing the educational opportunities and research that matter to Albertans. From the earliest days of the university, professors have pursued research to help Alberta farmers and ranchers improve yields, strengthen animal breeds, prevent soil erosion, and protect wetlands and ranchlands. U of A research played a critical, historic role in oilsands research and development—a role that continues to be central today.

The province of Alberta—along with its flagship university—now sits in an unprecedented position of national and international leadership, blessed with an abundance of both natural and human resources. Alberta today attracts Canada's talented youth at a rate that outstrips almost all other regions. Like so many who have been attracted to this province over the last century, they seek to be part of creative, entrepreneurial, and prosperous communities. They expect and deserve the benefits that a global university such as the University of Alberta brings.

The Academy

As Alberta's flagship comprehensive academic and research institution, the University of Alberta provides a broad, diverse range of undergraduate, graduate, and professional programming to serve the broad, diverse needs, talents, and passions of today's students. We continually expand opportunities for students to engage in community service-learning, undergraduate research, study and work abroad, and capstone projects. Embedded certificates, which recognize the skills and knowledge gained in extra- and co-curricular activities that cross disciplinary and faculty lines, are also increasing in areas as diverse as leadership, entrepreneurship, sustainability, writing, and global citizenship.

These degrees and programs—delivered by world-leading academics—form a rich soil that grows the imaginations of undergraduates and feeds the talents and ideas of graduate students and post-doctoral fellows. Undergraduate students find themselves embedded in an educational ecosystem where research surrounds them and actively engages them in a multilayered learning experience, one that both facilitates the transfer of knowledge and skills and inspires open inquiry, curiosity, and exchange.

Graduate students and post-doctoral fellows play a critical role in mentoring undergraduates and fuelling inquiry. They often form the core of research teams working on complex research projects, headed by leading researchers who, in turn, have sought to work at an institution with a reputation for attracting strong graduate students and post-doctoral fellows. Over the last three years, the U of A has been engaged in a major process of review, analysis, and revision of graduate student education. Our aim is to ensure that we have appropriate and competitive systems, funding, educational offerings, and pedagogical frameworks in place to identify and nurture exceptional graduate talent.

In partnership with northern colleges, the Alberta Teacher Education Program celebrated its 10th anniversary this year. Expanding the program over the last decade to a total of 167 graduates, the U of A has been delivering the education that teachers need in the communities where they live, and helping Aboriginal communities and teachers understand how best to develop pedagogies and curricula that will meet the needs of their students and ensure they succeed.

With the level of knowledge and skill that teams of graduate students and post-doctoral fellows possess, professors can pursue large-scale, visionary, and sometimes risky research agendas—agendas that often have the greatest potential for producing major discoveries and innovations.

Raising the U of A's international reputation and enriching the learning experiences of both undergraduate and graduate students is closely tied to our ability to build partnerships across local, national, and international communities. The U of A has taken a targeted, strategic

approach to internationalization, with a focus on India, China, Germany, the United States, and Brazil. We strive to create high-quality, multi-level partnerships that are more than exchange agreements. The aim is to enable interdisciplinary, cross-border research teams and projects; open up graduate student and post-doctoral internships; and link universities with industry, community organizations, and government agencies.

The U of A's largest international research partnership, the Helmholtz-Alberta Initiative (HAI), has grown in only five years from an idea to a multilayered collaboration around six energy and environmental themes, ranging from carbon storage to geothermal systems to tailings pond management. Two hundred seventy-eight U of A researchers, including principal investigators, research associates, graduate students, post-doctoral fellows, and others, are working with 104 researchers from Helmholtz on 46 distinct projects. In the five years since the initiative was established, these highly qualified people have produced several patents, 185 peer-reviewed publications, and 499 conference presentations. Thus far, a total of 28 graduate degrees have been awarded, with another 45 expected in 2015. Armed with skills and education, and prized by governments, industry, and the academy, HAI graduates will enter the workforce and, by sharing and using their learning, will become knowledge translators. From the successful launch of the HAI Energy and Environment Program, new areas of collaboration are emerging in infectious disease, neurodegenerative disease, and terrestrial ecosystem resource informatics. The connections made through Helmholtz have also allowed for the development of new partnerships between the U of A and other German institutions, such as the partnership with the Leibniz Association that is focused on the social sciences and humanities, and the partnership with the Fraunhofer Society that focuses on food science and bioenergy.

OUR ACADEMIC PRIORITIES ARE:

- That the University of Alberta's academy has the balance of professors, post-doctoral trainees, graduate students, and undergraduate students necessary for exceptional learning, teaching, discovery, and creative activities
- That University of Alberta graduates be prepared, through an innovative learning environment, to think critically, to act entrepreneurially, to create cultural and technical innovation, to be successful in the global marketplace, and to assume positions of leadership in public and private sectors
- That the University of Alberta has the current, secure, state-of-the-art information and communications technology infrastructure and systems that support research, creative activities, and digital learning technologies and pedagogies to enhance the on-campus, in-class experience and online learning environments
- That the University of Alberta be a valued and innovative leader and partner of other post-secondary institutions in Campus Alberta and across Canada in achieving shared academic and organizational aspirations
- That the University of Alberta forms international collaborations that create exceptional learning, discovery, citizenship, and innovation opportunities, advancing our vision to be one of the world's top publicly funded institutions for the benefit of our students and the province
- That the University of Alberta always be among the top public institutions that are internationally recognized for areas of excellence and impact across the breadth of discovery, innovation, and creative activities

The Capital Plan

Sustaining the ecosystem of talent, learning, discovery, and innovation is the physical infrastructure of the University of Alberta's five campuses—infrastructure that has steadily grown and evolved in line with increases in student demand as well as pedagogical and technical changes in teaching and research needs. Over the last decade, the U of A has constructed and renovated buildings to meet the needs of 21st-century teaching, learning, and discovery. Since 2005, numerous state-of-the-art buildings have opened on time and on budget, the latest being the Medical Isotope and Cyclotron Facility, the Jeanne and Peter Lougheed Performing Arts Centre, student residences in East Campus Village, and the Van Vliet Complex/PAW Centre.

The university maintains, renews, and operates several highly specialized core research facilities needed to conduct large-scale scientific research. These include animal lab facilities; bio-containment labs; speciality fabrication labs for machining, plastics, and glass-blowing; biochemical analytics labs; biotron and aquatic facilities; and greenhouses. These facilities not only support cutting-edge U of A research, but also enable collaborative sponsored research with public and private sector partners across Alberta.

In the competitive world of 21st-century post-secondary education, the vitality, vibrancy, and sustainability of the U of A's multi-campus educational and research ecosystem can only be maintained through well-supported, well-planned strategic construction of new facilities and repurposing and renewal of existing ones. As the university changes, space must transform to meet new needs and requirements.

A long-term (25-year outlook) strategy will guide five-year capital planning, based on key requirements of a research-intensive university with five separate and distinct campuses, considering the age of infrastructure asset inventory and the provincial economy.

OUR CAPITAL PRIORITIES ARE:

- Functional renewal and reduction in deferred maintenance liability: Address deferred maintenance and functional renewal of existing physical assets. This will play a critical role in the university meeting space utilization requirements, attracting staff and students, and supporting the pedagogical needs of tomorrow's learners.
- Envelope funding for pre-design services: Target planning dollars for priority projects, thereby ensuring well-defined project scope and budget accuracy.
- Student and workforce housing: Provide purpose-built, supportive student housing for up to 25 per cent of full-time enrolment to keep pace with U15 peers, enhance completion rates, and ensure accessibility for rural and under-represented Albertan students as well as international students.
- New space: Strategically plan and construct critical new facilities, respecting the varied needs of the university's five distinct campuses as they each serve unique and separate constituencies within Alberta.

Institutional Budget and Financial Sustainability

Although Alberta is today facing significant financial challenges, there is no more important time than now to invest in higher education. The University of Alberta's proven capacity to deliver excellence in research and teaching will continue its upward trajectory with steadfast support from the public we serve. With predictable levels of funding support from government, an increased ability to respond to market conditions, and flexible systems to fully utilize its resources to generate new revenues, the U of A can continue to maintain its highly productive education and research ecosystem, and in doing so, inspire students, faculty, and alumni to fulfil their potential to the benefit of society, and help to diversify Alberta's economy.

The U of A recognizes that funding models are changing for public universities throughout the global post-secondary sector; we recognize that universities are expected to generate a greater proportion of the operating revenues that sustain and enhance the quality of their research and the student experience. The university is pursuing steps that include but are not limited to growing its endowment, generating new net revenues, increasing federal government support for the indirect costs of research, adjusting tuition to reflect market conditions, and leveraging the establishment of its land trust.

This past fall, the university submitted five successful proposals for market modifiers; when fully implemented (with Board of Governors approval), they will generate additional annual revenues of $8 million. This revenue will ensure we can maintain and enhance program quality and compete appropriately with similar programs across the country in the five targeted programs.

While the university is working hard to identify alternative funding sources, it is critical to note that substantial growth in revenue generation will take years to develop. The university risks losing some of the major gains achieved in attracting global partnerships, top students, exceptional faculty, and more without sufficient and predictable funding from our primary partner: the Government of Alberta.

Over the last four years, the U of A has invested in its own fundraising and advancement enterprise to ensure that we have the right people and systems in place to build a strong endowment. In fall 2014, we reached two notable milestones: first, the U of A's endowment increased to $1 billion. Second, total dollars raised since the beginning of President Indira Samarasekera's presidency also reached the $1 billion mark.

2015–2016 BUDGET HIGHLIGHTS

For 2015–2016, the consolidated budget reflects an excess of revenue over expense of $23 million on budgeted revenue of $1,823 million and budgeted expense of $1,800 million.

Key revenue assumptions include:

- a zero per cent change to the Campus Alberta grant
- a 2.2 per cent increase in general tuition fees and the phased implementation of market modifiers for economics, pharmacy (for 2017–2018), law, master of business administration, and master of science in physical therapy
- a 2.3 per cent increase to all mandatory non-instructional fees
- marginal growth in investment income

Key expenditure assumptions include:

- salary and benefit adjustments subject to ongoing negotiations
- employer-paid non-statutory benefit cost increases averaging 6.9 per cent driven by annual increases of 10 per cent to the pension plans
- faculties and administrative units assuming responsibility for the funding of negotiated ATB and merit increases
- a 1.5 per cent overall average cut
- increase in scholarship funding

A 2013 study estimates that U of A alumni have founded 70,258 organizations across the world with annual revenues of $348.5 billion. They have created more than 1.5 million jobs, nearly 400,000 of them in Alberta. U of A alumni head organizations that range from multinational corporations such as PCL Construction, BioWare, and Ledcor to non-profit organizations with a cultural, environmental, or social mission.

Conclusion

Alberta's future prosperity and increasing national prominence depend upon continued strong, stable government support for the knowledge ecosystem that defines the University of Alberta. Why? Because it is from the research-intensive ecosystem built and sustained by the U of A that this province's social and technical innovators and entrepreneurs emerge. Indeed, U of A graduates have a record of transforming ideas into public and private enterprise.

Enriched education and research environments not only nurture potential, spark ambition, and inspire individuals to fulfil their potential as people and citizens; they also form the foundation from which these individuals launch new organizations and initiatives that become the building blocks of a robust, diverse, and growing economy.

Since its establishment in 2008, TEC Edmonton has become one of the most successful business incubators in Canada. In July 2014, it was named the 10th best business incubator in the world by the University Business Incubator Index. In the last year alone, TEC Edmonton's 100 client companies grew revenue by 25 per cent, compared with 10 per cent for companies in the broader economy. They executed 12 licences, created five spinoffs, and filed 61 patent applications. Twenty-one U.S. patents were issued to U of A inventors. The TEC Centre itself employs 280 people.

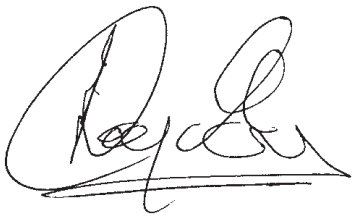
The U of A, as an institution, also continues to play a lead role among our Campus Alberta partners. This year, the university implemented the $10-million Campus Alberta Unified Service Project, which allows participating institutions to manage core business needs in a common administrative service environment. Through an innovative proposal, NAIT asked the U of A to take over management of its security division because of the high level of professionalism and customer service provided by U of A Protective Services. Facilities and Operations has identified substantial opportunities to provide post-secondary partners with support services that leverage the skills and experience of our staff. A prime example of this is Norquest College's $190-million North Learning Centre capital project. The Planning and Project Management unit is providing project management and administrative support on a fee-for-service basis.

Ideas, talent, and purpose: create a space for these to flourish, and outstanding achievements in learning, discovery, and citizenship follow. For more than a century, the U of A has responded to changes in social, economic, and cultural forces shaping both society as a whole and the field of higher education in particular. Under the leadership of incoming president David Turpin we will respond once again throughout 2015–2016, creating a renewed vision and strategic plan for the U of A's next exciting chapter. By doing so, we will continue to play our vital role in building Alberta's ability to envision and capitalize on strategic opportunities, find effective solutions to issues of provincial interest, and provide leadership in areas of international importance. We *are* Alberta's university—a great global university for the public good.

The U of A's highly qualified graduates also fill important roles in the province's public sector. Sixty per cent of Alberta's K–12 teachers are graduates of our Faculty of Education. The U of A is a vital partner in delivering health care in Alberta: 28 per cent of Alberta's doctors, 25 per cent of its laboratory technologists, 52 per cent of its dentists, and 40 per cent of its dental hygienists hold U of A degrees. About 75 per cent of U of A graduates stay, work, and make their home in this province, building businesses, filling leadership roles, and providing valuable service to their communities.

ACCOUNTABILITY STATEMENT

This Comprehensive Institutional Plan was prepared under the Board's direction in accordance with legislation and associated ministerial guidelines, and in consideration of all policy decisions and material, economic, or fiscal implications of which the Board is aware.



Douglas O. Goss, QC, AOC
Chair, University of Alberta Board of Governors

INSTITUTIONAL CONTEXT

University of Alberta Mandate

As approved by the Minister of Advanced Education and Technology, July 2009

Created by the *University Act*, 1906, of the Legislative Assembly of the Province of Alberta, the University of Alberta is a board-governed, publicly funded university that operates as a Comprehensive Academic and Research Institution under the authority of Alberta's Post-Secondary Learning Act. Its fundamental mandate is to offer a broad range of outstanding learning and research programs to prepare citizens and leaders who will make a difference. The university plays a leading role in Campus Alberta through collaboration with other Alberta institutions, responding to vital community relationships at every level and giving a national and international voice to Alberta innovation. Its activities enhance student opportunities and build Alberta's capacity for long-term, knowledge-driven sustainable development at the global forefront.

The university provides instructional excellence through both on-campus and distance delivery in a vibrant and supportive learning and research environment. Its residential, multi-campus setting includes many research and field facilities. The university community discovers, disseminates, and applies new knowledge through the following interrelated core activities.

In a dynamic and integrated learning and research environment, the University of Alberta offers graduate and undergraduate students the opportunity to earn internationally respected credentials, including bachelor's, master's and doctoral degrees, and university certificates and diplomas. It also offers French-language programs leading to university degrees, certificates, and diplomas, as well as college certificates and diplomas. A number of its programs are unique within Alberta. Post-doctoral fellows come to the university to refine their teaching, mentoring, and research skills.

The University of Alberta is a balanced academy, with strong arts and sciences programs featuring the faculties of Agricultural, Life and Environmental Sciences, Arts, Augustana, Extension, Native Studies, Physical Education and Recreation, Science, and Campus Saint-Jean. These faculties are foundational to and interlinked with the university's network of strong professional faculties, including Business, Education, Engineering, Graduate Studies and Research, Law, Medicine and Dentistry, Nursing, Pharmacy and Pharmaceutical Sciences, Public Health, and Rehabilitation Medicine. In addition, all of our faculties are involved in professional development and continuing education.

The university establishes and maintains an environment of inquiry-based learning anchored in strong academic programming and an array of co-curricular student life opportunities. Academic support, social/community enrichment, health and wellness, and career and life development are cornerstones of the University of Alberta student experience. The intellectual and creative diversity of the campus, including its international and multicultural population and exchange programs, makes for an engaging student experience. Fine arts displays, stage performances, museum collections, athletics, and recreational opportunities combine with residence life to present multi-dimensional possibilities. Experiential learning opportunities based in the community augment on-campus activities with real-life applications.

Transfer and collaborative degree completion agreements with partner institutions broaden student opportunities and provide rural, northern, and Aboriginal communities with access to University of Alberta credentials. Similar innovative arrangements centred at the university deliver information and knowledge resources to post-secondary and government communities through both inter-library and online access.

The university's research and creative activities produce a dual impact through the preparation of highly qualified graduates and a continuous flow of innovation. The university attracts scholars of international reputation: undergraduate and graduate students, post-doctoral fellows, staff, and faculty. Collectively, they foster, conduct, and disseminate research and creative activity, both pure and applied, within and across all the major program areas at an internationally recognized level of excellence.

University faculties, centres, and institutes combine resources and talents for collaborative advantage through research partnerships with other academic institutions, business, governments and public agencies. The university actively transfers new knowledge and creative works to Alberta, Canada, and the world for community benefit, including commercial development of intellectual property when appropriate and feasible.

In every aspect of its mandate, the University of Alberta is a partner in social, cultural, and economic development, fostering and establishing the provincial, national, and international connections and understandings that support leading global enterprise and citizenship for Albertans. University administrators, faculty, staff, and students contribute regularly to public debate and to government and corporate examination of issues. Startup companies and new technologies licensed to existing companies lead Alberta in new directions and employ graduates.
The university continually moves out into its communities through its graduates, its creative and research advances, and its ongoing opportunities for experiential and lifelong learning.

University of Alberta Vision, Mission, Cornerstones, and Values

The University of Alberta *vision* is to inspire the human spirit through outstanding achievements in learning, discovery, and citizenship in a creative community, building one of the world's great universities for the public good.

Our *mission* is to create and sustain a vibrant and supportive learning environment that discovers, disseminates, and applies new knowledge through teaching and learning, research and creative activity, community involvement, and partnerships. The University of Alberta gives a national and international voice to innovation in our province, taking a lead role in placing Canada at the global forefront.

The U of A aspires to become one of the top public universities in the world by 2020 by focusing academic planning and strategic decision-making on *four cornerstones*:

1. Talented People
2. Learning, Discovery, and Citizenship
3. Connecting Communities
4. Transformative Organization and Support

Our values: The U of A community of students, faculty, staff, and alumni rely on shared, deeply held values that guide behaviour and actions. These values are drawn from the principles on which the university was founded in 1908 and reflect a dynamic, modern institution of higher learning, leading change nationally and internationally.

Excellence: Excellence in teaching that promotes learning; outstanding research and creative activity that fuel discovery and advance knowledge; and enlightened service that builds citizenship.

Student Experience: The centrality of our students and our responsibility to provide an intellectually superior educational environment.

Integrity and Academic Freedom: Integrity, fairness, and principles of ethical conduct built on the foundation of academic freedom, open inquiry, and the pursuit of truth.

Diversity and Creativity: A diverse, yet inclusive, dynamic collegial community that welcomes change and seizes opportunity with passion and creativity.

Pride: Pride in our history and traditions, including contributions from Aboriginal people and other groups, which enrich and distinguish the university.

Comprehensive Institutional Plan Development

The University of Alberta operates within a four-year integrated planning and budgeting framework. The framework is based on the principles of long-term planning, openness and transparency, comprehensive consultation, accountability through performance tracking, and academic priorities (teaching and research) as the drivers of resource allocation decisions.

The university's Board of Governors approves the university's vision document, *Dare to Discover*; the academic community, through General Faculties Council, approves the current academic plan, *Dare to Deliver 2011–2015*. The preparation of the Comprehensive Institutional Plan (CIP) is based on these two guiding documents as well as the guidelines provided by the Ministry of Innovation and Advanced Education.

The development of the CIP involved both internal and external consultation for key messages, priorities, and needs. Information from the faculties on the evolution of teaching and research priorities and initiatives, including pan-Albertan and Campus Alberta activities, was solicited in Fall 2014. This information was integrated with other consultations regarding the operating pressures associated with shared research resources and services, and ongoing dialogue on emerging initiatives with local, provincial, national, and international external stakeholders.

The U of A's Office of the Vice-President (University Relations) assumes overall responsibility for the process of preparing the CIP and leading it through the review and governance approval process. Once the final CIP is prepared, the entire document is taken through several

rounds of briefings and consultations. The U of A's governance processes include the participation of all constituencies (students, alumni, faculty, staff, and general public). The 2015 review process for the CIP involved the President's Executive Committee (January 23, 2015), briefings to the General Faculties Council Academic Planning Committee and the Board of Governors Finance and Property Committee (for information on February 6, 2015), the General Faculties Council Academic Planning Committee (for recommendation on February 11, 2015), the Board Learning and Discovery Committee (for information and for recommendation on February 23, 2015), the Board Finance and Property Committee (for information and for recommendation on February 24, 2015), and the full Board of Governors (for information and for approval on March 13, 2015). Detailed briefings of the CIP are presented to these committees, along with motions from the General Faculties Council Academic Planning Committee, the Board Finance and Property Committee, and the Board Learning and Discovery Committee to the Board of Governors recommending approval. The Board of Governors is the university's final approving body of the CIP.

Upon approval by the Board of Governors, the document is submitted under the signature of the chair to the Minister of Innovation and Advanced Education.


COMMUNITY
CONNECTIONS
AWARDS
UAMC

ENVIRONMENTAL SCAN

Alberta is changing. Opportunity exists but with it come risks and challenges. Resource revenues are expected to be lower while the population is expected to be higher, posing unique challenges to Albertans. Provincial leadership must continue to make difficult and strategic decisions to guide Alberta through simultaneous growth and economic uncertainty in order to address current needs and to shape the province for its next century of prosperity. These decisions will guide our collective future and position Alberta to remain competitive within an increasingly interconnected and innovative world.

Future success will depend on Alberta's ability to continue to develop top talent, to attract and retain world-class leaders and visionaries across disciplines, to advance the province as a global economic leader, to foster an innovative and entrepreneurial society, and to encourage a thriving creative culture. The University of Alberta, as the province's flagship research-intensive post-secondary institution, will be a critical partner in achieving a prosperous future.

In addition to educating, credentialing and employing generations of Albertans, the U of A is also a gateway through which Albertans and Alberta industry can access the world and, in turn, a key entry point for global talent and innovation to come to Alberta. In fact, global companies are attracted to Alberta by the research and innovation partnering opportunities presented by the university. With every innovation, every discovery, every global partnership formed, every alumnus working in the international market, the U of A advances the province's global brand.

These successes come as many jurisdictions have recognized the imperative for even greater investment in education, research, development, and innovation. Regions and countries around the world are aligning their resources and reviewing their educational and research sectors to better compete within the global marketplace. As a result, the knowledge economy is fiercely competitive. Alberta's long-term success depends upon remaining competitive within this reality.

Consistent, adequate, long-term funding for post-secondary education and innovation, specifically with strong support for the province's comprehensive academic and research institutions, is essential to securing Alberta's prosperity long into the future. As Alberta's *2013–16 Strategic Plan* states, "The economic and intellectual centre of gravity is shifting away from traditional economic powers in the West, and the pace at which knowledge and technology are advancing is altering how the world does business. Albertans have always been innovators and leaders, resilient and resourceful. These are the qualities that build the province and remain critical to Alberta's continued future success. Alberta's path for a successful and dynamic economy that can compete in, and contribute to, the global knowledge economy requires having the right people with the right skills. Future success also requires strong strategic relationship between government, post-secondary institutions, the research and innovation system, and the province's entrepreneurial business sector.[1]

ALBERTA'S DEMOGRAPHIC CONTEXT

Within Canada, Alberta faces significant and distinct challenges now and in the future in relation to its human capital. As a province, it has low levels of participation among 18- to 24-year-olds, low completion rates of bachelor degrees and an aging population, which is leading to a decline of skilled labour in the workforce.

Additional population pressures make Alberta's demographic risks more significant—including projections that the province's population will grow by one million people over the next decade.[2]

Budget 2014 noted that Alberta's "tremendous"[3] population growth necessitates strategic investment to respond to Alberta's demographic challenges and to secure Alberta's future. Regarding this demographic pressure, it was noted that "the actions [the government] take[s] today under the Building Alberta Plan will have a direct bearing on life in Alberta 20 years from now."[4] In the last two years, "Alberta has added over 100,000 per year."[5] At the same time, "the recent decline in oil prices will slow the momentum of Alberta's fast-growing economy, which has averaged real GDP growth of over four per cent per year over the past five years—by far the highest of any province. In 2015, the economy is expected to grow much more slowly."[6]

Traditionally under-represented groups in higher education, such as immigrants and Alberta's Aboriginal population, have been growing rapidly, necessitating a

[1] Government of Alberta, 2013–16 Government of Alberta Strategic Plan, p.6.

[2] Government of Alberta, Alberta's population reaches four million, September 26, 2013, as accessed on January 3, 2014 at: http://alberta.ca/release.cfm?xID=350618FCB7CB9-D315-C7B6-3A1E8521B366D28A

[3] Government of Alberta, Budget Address 2014 (delivered by the Honourable Doug Horner), March 6, 2014, as accessed on January 23, 2015 at: http://finance.alberta.ca/publications/budget/budget2014/speech.pdf

[4] Government of Alberta, Speech from the Throne, March 3, 2014, as accessed at http://alberta.ca/thronespeech.cfm

[5] Government of Alberta, Backgrounder on Alberta's Fiscal Situation, January 2015, as accessed on January 23, 2015 at: http://Alberta.ca/budget-fiscal-situation.cfm

[6] Government of Alberta, Backgrounder on Alberta's Fiscal Situation, January 2015, as accessed on January 23, 2015 at: http://Alberta.ca/budget-fiscal-situation.cfm

strategy to ensure their inclusion in higher education and in Alberta's job market. As a result of overall population growth and demographic pressures, demand for skilled labour will undoubtedly increase. The province estimates that, over the coming decade, it will face a labour shortage of about 114,000 workers and that, of these, more than 62,000 will require a post-secondary education.[7]

Graduate Students and Post-Doctoral Fellows

Even more concerning are the low numbers of master's and PhD students currently enrolled in Alberta—students who are traditionally a measure of an economy's innovation success. According to data from the Association of Universities and Colleges in Canada and Statistics Canada, in 2011, graduate student enrolment per thousand of population in Alberta was at 4.1, compared with 5.3 in British Columbia and 8.5 in Quebec.[8] As the national and international sections of this chapter will demonstrate, other jurisdictions are aggressively investing in funding and recruiting graduate students, as well as post-doctoral fellows, as a critical dimension to gaining a competitive advantage in the global knowledge economy. Given the size and scope of its research enterprise, the University of Alberta is well positioned to play a central role in expanding the complement of graduate students and post-doctoral fellows who choose to build their careers in Alberta.

Economic Diversification

Although Alberta's economy and communities have benefited greatly from the extraction of natural resources, the nature of the province's revenue structure is also a challenge due to its sensitivity to fluctuations in energy prices. While managing the current fiscal situation, it will be important to continue to build and leverage the world-class talent, research, and innovation being cultivated within Alberta's post-secondary education sector. The U of A is at the core of delivering the credentialing and performing the research that Alberta requires to remain economically competitive and to address the challenges of the modern global knowledge economy. Indeed, in addition to being one of the largest drivers of the provincial economy, the university fulfils its promise through the achievements of its alumni.

A recent study estimates that U of A alumni have collectively founded 70,258 organizations globally, creating more than 1.5 million jobs and generating annual revenues of $348.5 billion. By comparison, the annual gross domestic product of the province of Alberta is $306.7 billion. Of

[7] Government of Alberta, Alberta's Occupational Demand and Supply Outlook 2011–2021, as accessed on January 3, 2014 at: http://0101.nccdn.net/1_5/0fa/328/17c/AB-occupational-demand-supply-outlook-1-.pdf

[8] [Data extrapolated from] Association of Universities and Colleges in Canada,"Enrolment by university: 2011 preliminary full-time and part-time enrolment at AUCC member institutions,"Canadian Universities, <http://www.aucc.ca/canadian-universities/facts-and-stats/enrolment-by-university/>

those jobs, 390,221 were created in Alberta. With 2.1 million people being employed in Alberta in 2012, roughly one in every five Albertans is employed by a company founded by a U of A graduate. The report also concludes that a U of A education is a major catalyst for innovation and entrepreneurship and that faculty interactions, more than any other experience, have the highest impact on alumni after graduation. The success of the U of A is inextricably linked to the position of Alberta on the global stage.

International Students

Attracting international students will help address the province's need for human capital for research, innovation, and highly skilled labour in a dynamic economy. Currently, international students and faculty members are studying and teaching in universities and colleges throughout Alberta, but recruiting and retaining more of these highly skilled individuals is critical to realizing the immediate and long-term economic aspirations of the province. In 2014–2015, international students accounted for 14 per cent of undergraduate students and 35 per cent of graduate students at the U of A. Having come here for education, many students decide to stay: 60 per cent of Alberta's international students have stated that they will look for work in the province after completing their studies.

According to UNESCO, Canada currently attracts only 2.7 per cent of the 3.6 million students studying abroad, with the United States attracting the lion's share at 19 per cent. Unsurprisingly, China and India are the top two source countries. The *Campus Alberta Planning Resource 2012* shows that, among Alberta institutions, the U of A consistently attracted the largest number of international students in 2010–2011, with that number significantly increasing over a three-year period. However, Citizenship and Immigration Canada put that in context, noting that Alberta attracted only five per cent of all international students entering Canada in 2011. This is the fourth-highest number in Canada, below Ontario (42 per cent), British Columbia (30 per cent) and Quebec (15 per cent).

ALBERTA'S INNOVATION ECOSYSTEM

Another important development that will have an impact on the post-secondary sector—specifically, the comprehensive academic and research institutions—came with the release of the final report of the expert panel tasked with a review of Alberta's innovation system. Economic diversification has long been a key goal of the government, and the panel was tasked with examining opportunities, challenges, and design and implementation options that will ensure long-term economic growth in the province by increasing "the effectiveness and efficiency of Alberta's innovation ecosystem," and by filling "critical gaps in the facilitation and brokerage between the public and private sectors while recognizing the many strengths of the current system."[9]

[9] Government of Alberta, Sustainable Prosperity Through Innovation – Expert Panel Report on Transforming Alberta's Innovation System, p. 1.

It is exactly the present degree of interconnectivity that brings into question the implications of such potentially far-reaching changes to the research system on the higher education system and on the University of Alberta in particular. The critical role played by the U of A in Alberta's innovation ecosystem cannot be overstated. Ranking among the top five Canadian universities in annual sponsored research funding, including clinical trials and related research funding, the U of A is home to eight of 17 Campus Alberta Innovation Program Chairs. As well, the university has 48 Tier 1 and 42 Tier 2 Canada Research Chairs at an annual value of $13.8 million. The U of A also has three prestigious Canada Excellence Research Chairs, and is currently recruiting a fouth.

The Canadian Environment

Much like the provincial landscape, the Canadian environment is characterized by considerable change and uncertainty, with the respective roles of government, academia, industry, and other stakeholders shifting in response to emerging opportunities and risks. As the analysis below reveals, many of the critical issues shaping the Alberta context—bringing advanced research to market, supplying the economy with the skills sought after by industry, and an intensifying focus on the tangible outcomes resulting from investments in advanced education and research—are also salient to the national scene.

Canada's Labour and Skills Shortages

The issue of emerging labour and skills shortages has the potential to profoundly affect the trajectory of provincial post-secondary education systems as well. Both the Canadian Chamber of Commerce and the Canadian Council of Chief Executives have launched initiatives in recent years highlighting the seriousness of this issue. In 2013, the Conference Board of Canada established a new Centre for Skills and Post-Secondary Education and held a summit on talent development. In an appearance before a Canada-U.S. business forum, Prime Minister Stephen Harper deemed skill shortages "the biggest challenge our country faces."

Budget 2014 continued the trend of Budget 2013 in adding significant support to "equipping Canadians with the skills and training they need [and] supporting advanced research and innovation." In terms of connecting Canadians with available jobs, the government committed $40 million over four years, starting in 2015–2016, to the Canadian Accelerator and Incubator Program for partnerships between small and medium-sized enterprises and post-secondary institutions, increasing its total funding to $100 million. It also announced that the Canada Jobs Grant, introduced in Budget 2013, will come into effect in 2014. The federal government has also committed to a review of the Youth Employment Strategy and dedicated $40 million from 2014 to 2016 toward supporting 3,000 full-time internships for post-secondary graduates in high-demand fields such as science, technology, engineering, mathematics, and the skilled trades.

The outcomes of the national labour and skills shortages could have important implications for research-intensive post-secondary institutions such as the University of Alberta, particularly if governmental policies, programs, and funding priorities shift towards a strict understanding of the present and future needs of the labour market in particular occupations. Comprehensive research and teaching institutions will continue to be challenged to articulate the importance of a broad-based education that promotes values such as critical thinking, citizenship, and entrepreneurialism in addition to occupation-specific skills training.

CANADA'S EVOLVING SCIENCE AND TECHNOLOGY LANDSCAPE

The Government of Canada has long appreciated the integral role for science, technology, and innovation in stimulating economic growth and long-term prosperity. The federal government has crafted several important new initiatives that have bolstered Canada's reputation as a global knowledge leader, such as the Banting Postdoctoral Fellowships, the Canada Vanier Scholarships, the Canada Excellence Research Chairs, and, most recently, the Canada First Research Excellence Fund. These investments were guided by the government's overarching science and technology strategy, entitled *Mobilizing Science and Technology to Canada's Advantage*, released in 2007.

As global competition intensifies, however, the federal government has also been continuously evolving its approach. Highlights of this evolution include:

- recognizing the importance of private sector research and development (R&D) to productivity growth by tasking an expert panel led by OpenText CEO Tom Jenkins with a review of federal policies and programs in this area

- positioning Canada for success in the competition for international students by adopting an ambitious target of doubling its complement to 450,000 such students by 2022

- designing innovation as an eligible category for applications to the new Building Canada Fund for major provincial and territorial infrastructure projects

Canadian policymakers are acutely aware that rapidly changing structural conditions are affecting the dynamics of the global economy. These long-term forces include globalization, shifts in economic power to the Asia-Pacific region, accelerating technological change, demographic aging, and an increased sensitivity to the sustainability of economic growth, particularly related to the use of natural resources to meet the world's energy needs.

In the 2014 *Economic Action Plan*, the government recognized that "Canadian post-secondary institutions face significant competition from their counterparts in other countries for the best minds, partnership opportunities, and breakthrough discoveries."[10] Numerous independent

[10] Government of Canada, The Road to Balance: Creating Jobs and Opportunities: Economic Action Plan 2014, p. 115.

studies confirm a gradual erosion of Canada's competitive position on the global stage—caused less by declining domestic support and more by a failure to keep pace with the world's best. The latest report of the Science, Technology and Innovation Council showed that, when ranked according to total R&D intensity, Canada fell from 16th to 23rd among 41 OECD nations between 2006 and 2011.[11] The most recent assessment of global competitiveness by the World Economic Forum found Canada remaining in 14th position, down five spots from 2009.[12]

The Need for Talent

One of the inescapable features of the knowledge economy is an increasingly heightened premium placed on talent. Development, retention, and attraction of talent is critical not only for nation-states, but also for sub-national jurisdictions, provinces, communities, and organizations. Kevin Lynch, former clerk of the Privy Council and current vice-chair of BMO Financial Group, devoted a speech to Canada's performance in the global hunt for talent. He argues that "talent will be one of the great differentiators among nations in the coming decades, and we have to ask ourselves whether we are playing to win or just to stay in the game."[13] For comprehensive academic and research institutions such as the U of A, the ability to attract the best and brightest students, faculty, and researchers is the surest path to global competitiveness.

[11] Science, Technology and Innovation Council, State of the Nation 2012: Aspiring to Global Leadership, 2013, p. 28.

[12] World Economic Forum, Global Competitiveness Report, 2013-14, September 13, 2013, p. 148.

[13] Kevin Lynch, "The Global Talent Hunt: Are We Playing to Win," Public Policy Forum 2014 Lecture Series, January 10, 2014, p. 4. Available from: http://ppforum.ca/sites/default/files/THE%20GLOBAL%TALENT%20HUNT%20UBC%20Speech%20Jan%2010%202014.pdf

Federal Granting Agencies

With talent becoming increasingly mobile, successful jurisdictions must continuously monitor, strengthen, and communicate the incentives they can offer to the world's most innovative and dynamic minds. In Canada's case, core federal agencies such as the Tri-Councils and the Canada Foundation for Innovation have been at the forefront of the national talent agenda. These agencies, however, have not been immune to the difficult funding climate in effect since the 2008–09 financial crisis. The Tri-Councils have seen the elimination and consolidation of some programs, as well as a redistribution of funding toward academic-industry partnerships in Budget 2013. As noted in a commentary on the 2014 federal budget released by Higher Education Strategy Associates, all three agencies have experienced declining support in real dollars since 2009.[14] In the case of CFI, continued instability and uncertainty surrounding future funding competitions inhibits advance planning by institutions, which heightens the potential for lost opportunities to use the acquisition of advanced infrastructure as a talent attraction tool.

International Engagement

International education continues to be a priority, particularly following the release of the 2013 *Global Markets Action Plan* announcing a global education strategy to attract international students to Canada and to strengthen partnerships between Canadian and international educational institutions.[15] Details were unveiled on *Canada's International Education Strategy*

[14] Higher Education Strategy Associates, The 2014 Federal Budget: A Higher Education Strategy Associates Commentary. Available from: http://higheredstrategy.com

[15] Government of Canada, Global Markets Action Plan: The Blueprint for Creating Jobs and Opportunities for Canadians Through Trade, p. 11.

in January 2014. The Advisory Panel on Canada's International Education Strategy also determined that Canada should accept double the number of international students, at both the undergraduate and the graduate level. The panel recommended that Canada strengthen its educational brand and expand its global marketing campaign. As it continues to reach out to international students and international research partners, the U of A is strategically improving its global brand and, by extension, Alberta's and Canada's global brands.

As additional chapters of this document illustrate, the U of A remains a leader in Canada in attracting the best and brightest students and researchers. Given intensifying global competition, however, further collaboration is needed from both the federal and provincial levels of government, as well as the higher education sector, to continue to position Canada strongly on the international stage.

The International Environment

One of the most salient characteristics of the Alberta and Canadian environments for advanced education and research is change. This includes structural changes in the policies, programs, and funding climates for post-secondary institutions, as well as shifting expectations from government, industry, students, and the public in terms of the role and competencies of advanced learning systems. These trends, however, are also situated within an international context that, if anything, is adapting even more rapidly. According to the World Bank, the share of global GDP contributed by non-OECD nations climbed from 19 per cent to an astonishing 34 per cent between 2001 and 2011. Changes in the geographic concentration of economic and political power are having a profound effect on industries and sectors around the world, including in higher education and research. As the Conference Board's Michael Bloom argues in the above-mentioned article, "Countries everywhere are themselves reforming and enhancing their PSE systems and institutions. It's all part of their national competitiveness strategies."

CANADA'S ABILITY TO COMPETE

Declining Canadian competitiveness has real consequences, such as continued lacklustre productivity, stagnation in the growth of innovative firms, and ultimately, weak economic growth that affects our quality of life as well as the fiscal viability of important social programs at a time of population aging. A recent report from the Council of Canadian Academies starkly warns that the structural conditions that have reliably compensated for Canada's past weak innovation performance—such as preferential access to the world's largest market, and a global commodities boom—will be of less and less relevance in the altered global environment that is emerging. "Now," the report's authors argue, "because circumstances are radically different from those that shaped Canadian business culture and strategic behaviour for more than a century, business will have to embrace innovation-focused business strategies to compete and survive." Similarly, nations around the world are also making strategic choices within their post-secondary education systems to compete globally.

GLOBAL RESEARCH EXCELLENCE

Undoubtedly, Alberta and Canada face growing international competition as both advanced and emerging economies invest in research and innovation. A new dynamic, however, is that nations are increasingly crafting frameworks that allow for the concentration of resources to secure a global competitive advantage. In a context of economic and fiscal uncertainty, these governments are advancing overall system efficiency and co-ordination, but they are also focusing resources on a core number of institutions that have the potential to compete globally.

Countries around the globe are selectively investing in their major research-intensive universities to enable them to compete for the most talented students and researchers, the most important research projects, and the most valuable international and corporate partnerships. From new players such as China, India, and Brazil to advanced economies such as Japan, South Korea, France, and Germany, university funding mechanisms are being reviewed to ensure they recognize and support top performance. The United States and the United Kingdom already have measures in place to provide strong incentives for research excellence—and these efforts are producing results.

Examples of this growing trend include the following:

- The United States awards the vast majority of its federal research and development grants through merit-based award competitions, with the top 100 (out of 4,800) academic institutions in the U.S. accounting for about 80 per cent of total federal R&D support.

- The United Kingdom requires universities to provide submissions to Research Excellence Framework panels, which assess institutional results prior to allocating future research funding decisions. The 24-member Russell Group (out of a total of 115 public universities) receives about two-thirds of all university research grant and contract income. U.K. Research Councils also support doctoral training centres housed within universities or a consortium of institutions. The Scottish Funding Council has also recently opted to allocate research grants to institutions that score highly in international rankings.

- Australia awards research and research training funding to institutions through several performance-based programs, with 70 per cent of available funding directed to the Group of Eight leading research institutions. Australia's post-secondary system includes 39 universities. The government also oversees the Sustainable Research Excellence Program, which targets a 50 per cent top-up for the indirect costs of research and released a *Strategic Roadmap for Australian Research Infrastructure* in 2011.

- Germany's Excellence Initiative, which continues through 2017, concentrates resources in areas of superior performance. The initiative operates in two tiers of competitive funding. To promote top-level research at 39 universities, the German government approved a budget of €2.4 billion in 2012 to fund 45 graduate schools, 43 clusters of excellence, and 11 institutional strategies.

- France's Excellence Initiative "Index" also directs funding to areas of superior performance, with the aim of building research capacity and international reputation. Index held two competitive calls, which led to the selection of eight clusters of higher education institutions. Index launched a third call in April 2013. The initiative provides financial support of €7.7 billion. In total, Index will allocate €19 billion to projects in higher education and research from a €35-billion national fund that then-president Nicolas Sarkozy announced in 2009 to support "Investments for the Future."

- China launched Projects 211 and 985 over the past decade. Project 211 aims to raise the research standards of some 100 high-level universities, cultivating an elite cohort capable of advancing national economic and social development strategies. Project 985 provides additional funding to 39 universities within Project 211. Funding is allocated to these universities to build new research centres, improve facilities, hold international conferences, attract leading faculty, and send Chinese faculty to conferences abroad. More recently, Project 2011 focuses on accelerating the innovative capacities of Chinese universities through international partnerships and exchanges.

- India has designated 40 of its 567 institutions as an "Institute of National Importance," a status that is connected to special recognition and funding arrangements. The government has also created the "University with Potential for Excellence" Program, which currently comprises 15 institutions, and the "Centre with Potential for Excellence in Particular Area" Program, which provides funding for five years (with a potential five-year extension) to 23 universities.

As one of Canada's leading research-intensive institutions, the University of Alberta continues to work in partnership with national stakeholder organizations such as the U15 and the AUCC to advocate for instilling an increased emphasis on global research excellence in the overall suite of federal science and technology programs.

Conclusion

Alberta is changing. As this chapter has explored, national and international developments are profoundly affecting Alberta's economic and social future. Within a global knowledge economy characterized by intense competition, advanced education and research remain essential to ensuring Alberta's people are skilled and adaptable, our economy is robust and diversified, and our culture and quality of life is vibrant and prosperous. At this critical juncture, however, it is important that Alberta not simply respond to developments elsewhere, but lead them through carefully considered, bold, and strategic action. As this environmental scan has made clear, national and sub-national governments in Canada and around the world are closely examining their post-secondary education and research policies and programs to ensure they are not merely competitive, but world-class. Given its wealth, creativity, and entrepreneurial spirit, Alberta has distinct advantages on the national and international stages. Through sustained, strategic investments in building blocks such as talented and creative people, advanced infrastructure, and research excellence, Alberta has the potential to emerge as one of the most dynamic and energetic jurisdictions in the world.


LAW
GRADUATING
University of Alberta
1949

THE ACADEMY

The University of Alberta is recognized as one of the top 100 public universities in the world, and as one of Canada's top five comprehensive academic and research institutions. This reputation is grounded in nationally and internationally competitive undergraduate degrees; professional credentials; medical, doctoral, and post-doctoral training; and exceptional research capacity and impact in seven critical areas of human inquiry and global challenge: food and bio-resources, energy, environment, health and wellness, humanities and fine arts, science and technologies, and society and culture. The U of A has a significant economic impact in the province of Alberta.

With this full spectrum of research and scholarship, the U of A can offer undergraduate, graduate, and professional degree programs within Alberta that are nationally and internationally competitive and make the comprehensive contributions toward the scientific, social, and cultural innovations needed to support Alberta's vision for its citizens and their province.

Post-secondary education systems and research-intensive universities, such as the U of A, are undergoing academic transformation in response to new opportunities and expectations. Alberta and Canada need an educated citizenry and a skilled population. As a comprehensive academic and research institution, and as one of Canada's leading medical/doctoral universities, the U of A provides the broad range of foundational BSc and BA degrees required to prepare informed citizens and fill the projected gap in highly qualified personnel across nearly all private and public sectors. Offered within an integrated environment of advanced research, scholarship, and creative activity, these degree programs develop graduates who bring a particular and highly valuable set of skills, competencies, and perspectives to colleagues and employers upon graduation. The U of A also provides a

variety of embedded and free-standing certificate options that allow the institution to be responsive to the needs of society and to provide continuing professional education opportunities.

The U of A also provides professional degrees that must meet increasingly rigorous accreditation standards. They must also meet demands for professional skills development for all undergraduate and graduate students, as well as post-graduate and continuing professional education.

Finally, the U of A provides graduate programs for master's and doctoral students from all disciplines. Along with post-doctoral fellows, many of these highly qualified individuals eventually undertake public and private sector positions as academics, managers, and leaders of technology, research, and innovation. They often instigate the growth in new sectors for economic diversification.

To support and sustain the learning and discovery ecosystem that underpins the comprehensive academic and research-intensive environment of the U of A, the university operates highly specialized core research facilities essential in supporting internationally competitive research. Examples of these facilities include animal lab facilities; bio-containment labs; specialty fabrication labs for machining, nanotechnology, plastics, glass blowing, and electrical activity; biochemical analytics labs; biotron and aquatic facilities; and greenhouses. These facilities not only support research at the U of A, but also enable collaborative sponsored research with national and international public and private sector partners.

The impact and competitiveness of both research and education activities continues to depend on global connections. The placement of Canadian undergraduate and graduate students in foreign research internship positions for a portion of their degree programs is an emerging tactic for ensuring that Alberta and Canada are globally connected. Undergraduate students and employers alike are looking for increased experiential, internship, and co-op experiences in both domestic and international settings.

Conversely, bringing international students into Canada for graduate work and post-doctoral training continues to be a key complement to addressing Canada's and Alberta's globalization objectives. Here, both Alberta and the U of A are competing with other Canadian provinces and universities, respectively, for those international students with inclinations to study in Canada, and who may remain in Canada as part of the professional workforce or create international connections upon their return home. Our investments in global academic programs and research consortia remain a foundational part of an institutional strategy to create such opportunities for Alberta's students and for Alberta's established and emerging private sectors. These collaborations continue to accelerate the development of advanced joint degree programs with global partners and to secure new federal and international funding resources.

Within Alberta, the U of A is responding to the increasing need for post-baccalaureate continuing education for professionals coming from or returning to rural and Aboriginal communities. In partnership with other Campus Alberta institutions, we have a number of well-established programs and initiatives in place, and we will continue this collaborative work to address new needs and opportunities. Within the academy, transformation is occurring through the development of innovative credentials to meet all these new opportunities and expectations, and through the targeted adoption of e-learning and blended learning technologies and approaches for program delivery. The U of A engages in a number of self-examination and review exercises, including quality reviews of programs and faculties, and exercises like the recent Renaissance Report, to engage in dialogue on its evolution into the future.

The academic priorities summarized below and elaborated upon in this chapter are based on the U of A's academic plan, *Dare to Deliver 2011–2015*, and its four cornerstones (talented people; learning, discovery, and citizenship; connecting communities; transformative organization and support). These priorities focus the university's activities to support our overall vision to be one of the world's great universities for the public good.

Our priorities are:

- that the U of A's academy has the balance of professors, post-doctoral trainees, graduate students, and undergraduate students necessary for exceptional learning, teaching, discovery, and creative activities
- that U of A graduates be prepared, through an innovative learning environment, to think critically, to act entrepreneurially, to create cultural and technical innovation, to be successful in the global marketplace, and to assume positions of leadership in public and private sectors
- that the U of A has the current, secure, state-of-the-art information and communications technology infrastructure and systems that support research, creative activities, and digital learning technologies and pedagogies to enhance the on-campus, in-class experience and online learning environments
- that the U of A be a valued and innovative leader and partner of other post-secondary institutions in Campus Alberta and across Canada in achieving shared academic and organizational aspirations
- that the U of A forms international collaborations that create exceptional learning, discovery, citizenship, and innovation opportunities, advancing our vision to be one of the world's top publicly funded institutions for the benefit of our students and the province
- that the U of A always be among the top public institutions that are internationally recognized for areas of excellence and impact across the breadth of discovery, innovation, and creative activities

Access and Enrolment

PRIORITY: That the University of Alberta's academy has the balance of professors, post-doctoral trainees, graduate students, and undergraduate students necessary for exceptional learning, teaching, discovery, and creative activities

The strength of the University of Alberta is founded on the quality and diversity of its people, programming, research, and resources. The U of A remains committed to attracting outstanding undergraduate and graduate students, post-doctoral fellows, and professors from Alberta, across Canada, and abroad. Our academy represents Canada`s and Alberta`s cultural diversity and is an inclusive community that values its founding Aboriginal people, minorities, and rural and northern communities. Along with an exceptional and highly skilled technical and professional staff, these individuals create an integrated environment of teaching, learning, research, and creative activities. They enable the breadth and quality that characterizes the U of A's public and private partnerships in Alberta, its participation in national consortia and initiatives, and its collaborations with top-tier international institutions and agencies.

The U of A aims to provide enriched and transformative student experiences, resulting in graduates who are engaged, global citizens prepared to contribute to the social and economic well-being of the province, the nation, and the world.

Access to programs at the U of A evolves in response to student demand, workforce needs, and new fiscal resources or constraints. For example, in 2014, the university received targeted enrolment funding to support growth in the Faculty of Engineering's undergraduate programs, and in the occupational therapy and physical therapy programs delivered by the Faculty of Rehabilitation Medicine in Calgary and Camrose. Enrolment pressures are expected to continue to present a challenge for direct-entry programs, particularly in science, technology, engineering, and mathematics (STEM) programs, because of student demand. These enrolment pressures continue despite increasing admission averages in almost all of the university's undergraduate faculties.

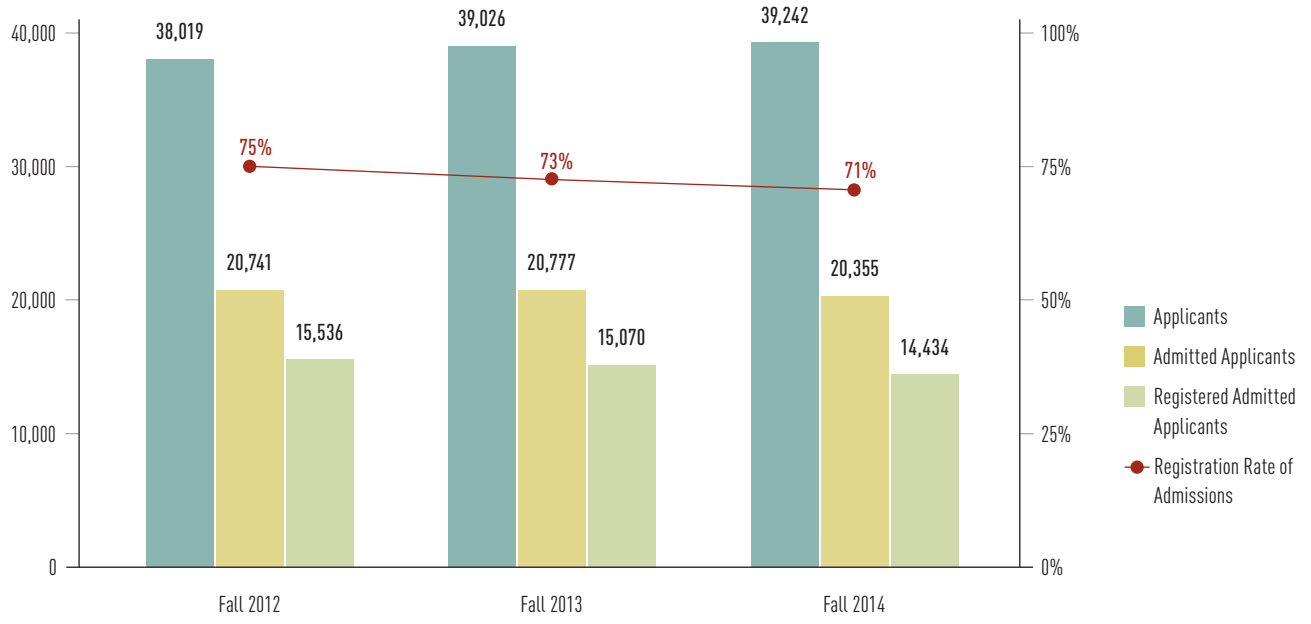
Due to these increasing application pressures and rising entrance averages, as well as to budgetary pressures, the university's direct-entry undergraduate faculties are adopting a new and more robust comprehensive approach to manage undergraduate enrolment and ensure access to top-quality academic programs for students from Alberta, across Canada, and around the world.

This new approach represents a wholesale change in perspective, consisting of equal parts policy change, process change, and technological change. Beginning in 2014–2015, the plan will deliver early, firm, and comprehensive admission offers to qualified students, and will provide faculties with better tools to track and manage undergraduate enrolment in changing demographic and fiscal environments.

Applications and admissions provide a measure of demand and applicant qualifications. This measure is also resource dependent as flat, or declining, resources will affect the availability of student seats.

The number of applicants admitted has been relatively stable over the reported period while the registration rate fell slightly in 2014-15.

FIGURE 1 APPLICATIONS AND ADMISSIONS



Notes: The numbers reported reflect unique individuals. Registration rate is the proportion of those admitted who registered. This data is based on information in effect on October 1 of the reported year. **Source:** Institutional Data Warehouse.

Access and Enrolment Projections and Plans

Since 2010, applicants to University of Alberta programs have increased by 4,939 or 18.3 per cent and headcount enrolment has grown from 38,243 in 2010–2011 to 38,669 in 2014–2015.

The U of A's institutional benchmark for access in 2014–2015 was 32,991 FLEs. It was composed of:

- the funding benchmark established with the Government of Alberta in June 2003 when a one-time adjustment to the base grant was made to ensure that all student spaces were funded from that point onward, plus
- funding to support additional enrolment with the merging of Augustana Campus in 2004, plus
- all ACCESS and EPE funded enrolment to 2008–2009, plus
- the modified rate of increase in incremental FLEs from 2009–2010 to 2013–2014 following cessation of the EPE program in 2009, plus
- annual variable adjustments since 2010–2011 to specific faculty and program enrolment FLEs to reflect new provincial access funding for targeted programs and conversion of undergraduate spaces to graduate spaces as part of approved access and program changes.

As of December 1, 2014, overall institutional undergraduate enrolment remained above target by approximately 805 FLEs (compared with 1,007 FLEs in 2013). Overall institutional graduate enrolment also remained above target by approximately 634 FLEs (compared with 1,163 FLEs over target in 2013).

See Appendix 1 for 2015–2016 enrolment targets by faculty.

The U of A remains committed to achieving key target ratios (see below), and will continue to differentially increase the number of graduate students to achieve these ratios. These ratios support an educational environment that exposes students to cross-disciplinary, cross-professional opportunities. Where possible, strategic reinvestment in professorial positions lost through budget cuts will ensure we retain and enhance our effectiveness in both core and cross-disciplinary research and training.

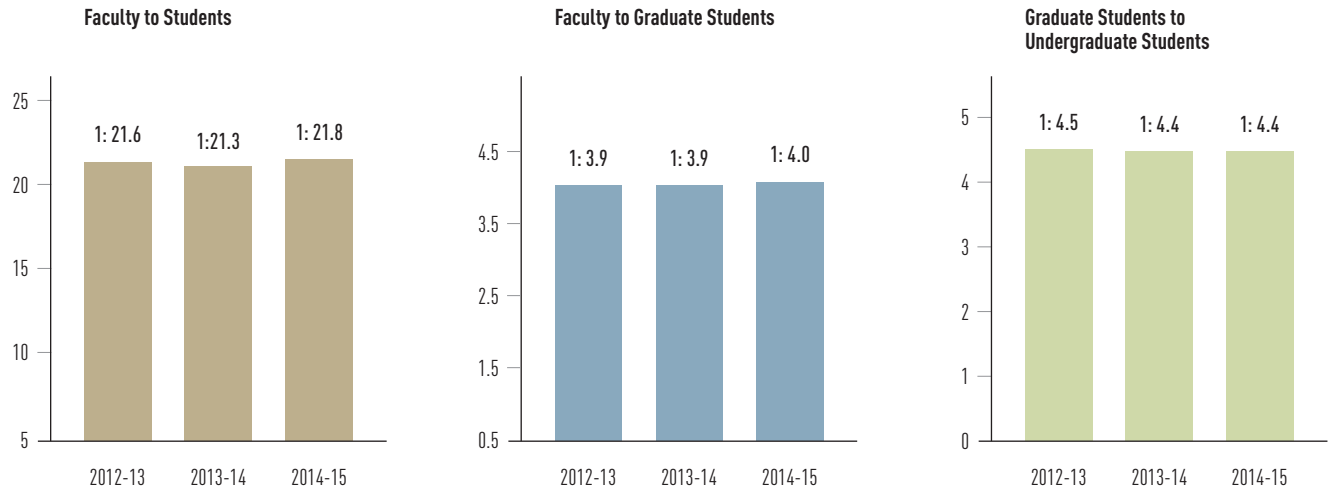
Key Target Ratios:

- 1:16 faculty members to overall students
- 1:4 faculty members to graduate students
- 1:3 graduate students to undergraduate students

A significant part of the student experience is predicated on access to faculty so student ratios at the institutional level provide a general indication of the available level of resources. Most top research intensive institutions have relatively low faculty-to-student and graduate student-to-undergraduate student ratios, indicative of a high-quality learning environment in which students have ample access to instructors and the learning opportunities they offer. We remain committed to the goal of 16 students to one faculty member, but in the current financial climate, we expect to see limited reduction in the student-faculty ratios in the immediate future.

Many leading public research universities have a 3 to 1 ratio of graduate students-to-undergraduate students in order to help foster a dynamic, discovery-based learning environment. The University of Alberta has a graduate-to-undergraduate ratio above that of top public four-year universities and must make a substantial investment in graduate students to reach its target. Given the downward trend in the ratio over the past years, progress is evident, but the global competition to attract the best and brightest graduate students is intensifying and often linked to available funding.

FIGURE 2 FULL-TIME EQUIVALENT (FTE) RATIOS



Notes: Student data is based on information in effect on December 1 of the reported year. Post-graduate medical education students are excluded. FTE (full-time equivalent) represents the number of full-time students plus one-third the number of part-time students based on the number of individual students within each reporting category. Staff data is based on information in effect on October 1 of the reported year.
Source: Institutional Data Warehouse.

In continuing to meet its access and enrolment priorities, and in support of the Government of Alberta's priorities, the U of A has set out to educate, in an exceptional environment, Albertans, Canadians, and international students for employers that require an ever-growing diverse, skilled, and highly qualified workforce. The U of A does this while ensuring the right balance between faculty and students.

Aboriginal Enrolment

The U of A hosts the only Faculty of Native Studies in Canada, established in 2006. In 2008, the U of A set an institutional objective to be Canada's leading institution for Aboriginal post-secondary engagement, education, and research. To reach this goal, the university invests in initiatives that advance both Aboriginal recruitment and the distinct elements that define social well-being within Aboriginal communities and regions. These initiatives are integrated into the full range of institutional activities, from education and training programs to collaborative research centres and institutional-level partnerships and agreements.

Aboriginal student enrolment across all faculties and campuses is approximately three per cent. Many resources, programs, and services at the university exist to support, recruit, and retain Aboriginal students. For example, both Augustana Campus and North Campus have Aboriginal student offices to support current students and to spark new enrolment growth. The Aboriginal Peoples Network and the Council on Aboriginal Initiatives are also charged with enhancing Aboriginal engagement, opportunities, and research. The Aboriginal Teacher Education Program is a community-based collaborative cohort program offered in partnership with provincial and tribal colleges. It is foundational to improving success for Aboriginal and rural students in K–12, and preparing them for post-secondary education. Medical training initiatives focused on Aboriginal learners are also well established. Beginning this academic year, the University of Alberta Libraries will offer a pilot project called *Personal Librarian for Aboriginal Students* (PLAS), in which first-year, self-identified Aboriginal students will be partnered with their own "Personal Librarian" who is available to them for all of their research support and as a first contact for other questions they might have related to the university. The university's well-known WISEST and DiscoverE programs engage actively with Aboriginal communities.

Rural Enrolment

Augustana Campus offers a rural residential campus experience for students seeking the best of both worlds: a liberal arts and sciences undergraduate education at a research-intensive university. Along with the Faculty of Education and the Faculty of Medicine & Dentistry, it offers practicum placements for students in rural Alberta. In partnership with the faculties of education, nursing, and rehabilitation medicine, it delivers select programs based on North Campus to rural students. Augustana Campus's relationship with the city of Camrose attracts students from the local community to the campus, while partnerships with local Aboriginal communities have also resulted in a steady growth in the Aboriginal student population at Augustana.

Francophone Enrolment

The intellectual and cultural heart of Alberta's francophone communities, Campus Saint-Jean (CSJ) offers liberal arts and science undergraduate education in French, a bilingual BSc in environmental and conservation sciences, and, in partnership with the U of A's professional faculties, bilingual undergraduate education in nursing, commerce, and engineering. A majority of teachers in Alberta's immersion and francophone schools have studied at CSJ.

In Fall 2014, the first cohort of students in the new business administration program offered out of CSJ's Centre Collegiale de l'Alberta (CCA) began their classes. This program is offered at CCA through a partnership with the Northern Alberta Institute of Technology (NAIT). CCA will be working to implement its tourism program, pending approval by the Minister, in fall 2015. CCA continues to engage actively with other institutions in Alberta to provide quality college-level programming in French.

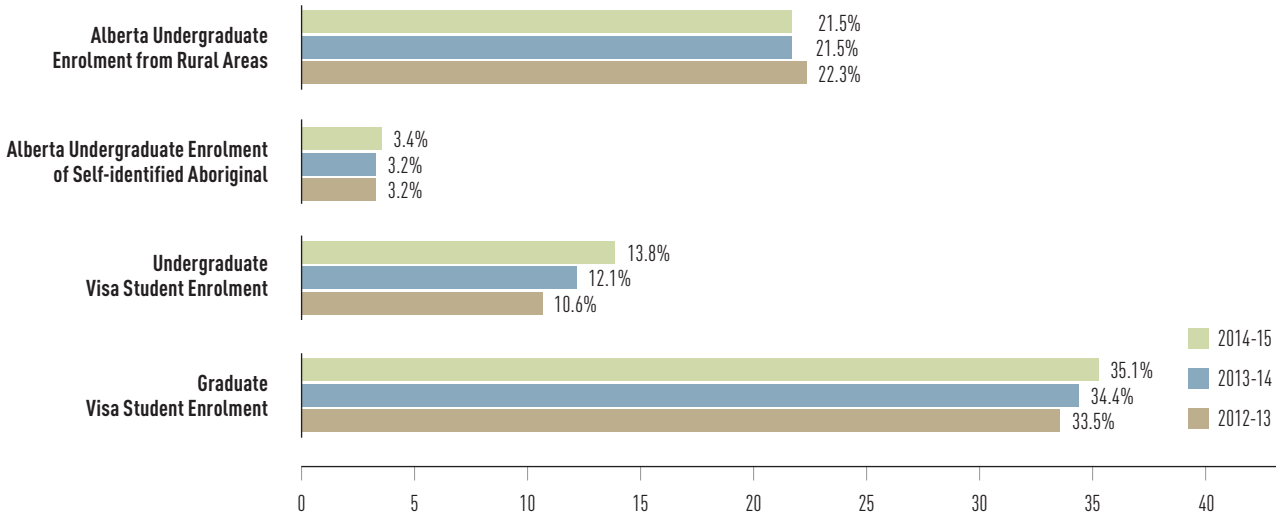
Under the terms of the Canada/Alberta Agreement on Minority-Language Education and Second-Language Instruction, the U of A received $3.2 million for 2013–2014 to 2017–2018 to support French-language programming. This is an important national collaboration among the university, the provincial government, and the federal government.

The university has set in motion strategies to pursue selected long-term enrolment objectives. These include representative proportions of undergraduates from rural and Aboriginal communities of Alberta, as well as higher proportions of international undergraduate and graduate enrolments.

In 2005, the University of Alberta set an institution-wide international undergraduate enrolment target of 15 per cent, and an international graduate student enrolment target of 30 per cent. The graduate target has now been exceeded and the University of Alberta is approaching the undergraduate target.

A balance of enrolment from Alberta, Canada, and the world will help to stimulate development of a knowledge-based economy. Many international students stay in Alberta and contribute to the province's economic growth.

FIGURE 3 ENROLMENT OF SELECTED STUDENT GROUPS



Notes: All data is based on information in effect on December 1 of the reported year. Rural and aboriginal figures are proportions of total Alberta undergraduate enrolment. Rural enrolment is based on the census division of the student's hometown being outside Edmonton or Calgary. Visa student enrolment reflects those students who are not Canadian citizens or permanent residents. Post-graduate medical education (PGME) students are excluded from the analysis.
Source: Institutional Data Warehouse.

Following extensive consultation, U of A bookstore services to CSJ and to francophone communities throughout Western Canada will be enhanced by transforming Librairie Le Carrefour into a sophisticated, Internet-based e-commerce service.

Refer to appendices 2, 3, and 4 for additional information on enrolment and programming initiatives for Aboriginal, rural, and francophone students, respectively, and to Appendix 8, Research Capacity: Investments and Details, for the U of A's capacity in Aboriginal, rural, and francophone scholarship and research.

Enrolment in the North

The U of A is actively involved in developing partnerships and programs in northern Alberta and Canada's northern territories. The university offers degree-completion opportunities including BScN and BEd at both Grande Prairie Regional College and Keyano College, and is prepared to broaden the scope of program, practicum, clinical, and research collaboration in those centres to serve northern Alberta students and communities. The university's BSc with Yukon College graduated its first cohort in May 2014, and can serve as a model for stronger, capacity-building relations with territorial post-secondary institutions.

In addition, plans are underway to organize an administrative unit that will integrate and build relationships to support the various aspects of the university's engagement with northern communities, including research, teaching, and community outreach.

International Enrolment

The presence of international students broadens the perspective, impact, and relevance of the U of A's teaching, research, creative activities, and community service activities. International students who are educated at the U of A and remain in Alberta provide the province with additional highly skilled, innovative, and entrepreneurial professionals. They also bring cultural diversity, along with global connections and insights, to the province that better positions the university, businesses, and the province to build global partnerships.

In 2005, the U of A set an institution-wide international undergraduate enrolment target of 15 per cent, and an international graduate student enrolment target of 30 per cent. In 2014–2015, based on headcount enrolments, approximately 14 per cent of our undergraduate population and 35 per cent of our graduate population are international students.

Programs in engineering, economics, and commerce have the largest international enrolment demand for undergraduate programs at the university. In graduate studies, the highest numbers of international student registrations are found in engineering and science. We anticipate continuing strong demand for these programs from international students.

Strategies to increase international student enrolment to our institutional target of 15 per cent include offering in-country early admission to outstanding applicants; identifying countries where interest in studying in Canada is growing and developing articulation program partnerships there; pursuing international student cohort opportunities; further developing bridging programs to assist students in a successful transition to university in Alberta; improving processes so as to convert a greater number of applicants to registrants; and maximizing retention and completion of international students through better processes, student services, and scholarship opportunities. Financial aid for international students, like domestic students, is a key factor. The U of A has one of Canada's largest cohorts (more than 500) of sponsored international students (with scholarships provided by their home countries). The university will continue to develop relationships with sponsoring agencies around the world.

Graduate Student Enrolment

At present, the U of A has 7,572 graduate students, 35 per cent of them international. The university's goal remains to increase the number of graduate students by recruiting high-quality domestic and international students.

Graduate program enrolment targets are reported in Appendix 1.

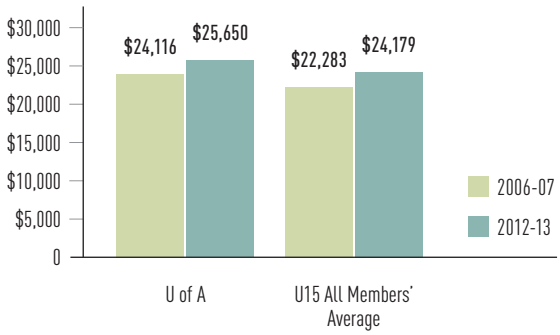
To achieve our graduate enrolment goals and increase the acceptance rate of our offers to top applicants, the U of A is exploring the inclusion of multi-year financial support packages with offers of admission to graduate programs, a practice that would ensure that we are in alignment and competitive with Canada's top five research-intensive universities.

Financial support is critical to graduate recruitment and retention, and securing increased funding for research-based graduate students remains a significant strategic priority for the U of A. The university's average financial support for graduate students is competitive with Canada's leading graduate schools. However, average financial support for doctoral students, which declined slightly to $25,721 in 2012–2013, has remained relatively unchanged compared with other U15 institutions since 2006–2007. Support for research master's students has increased seven per cent during this same time, placing it second relative to the U15 cohort.

The U of A remains focused, as always, on access to high-quality programs for the people of Alberta, including our Aboriginal, rural, francophone and northern communities. Our strong base of Alberta students are complemented by students from across Canada and across the world who enrich the intellectual and cultural environment at the university through the variety of perspectives, experiences, and contributions they bring.

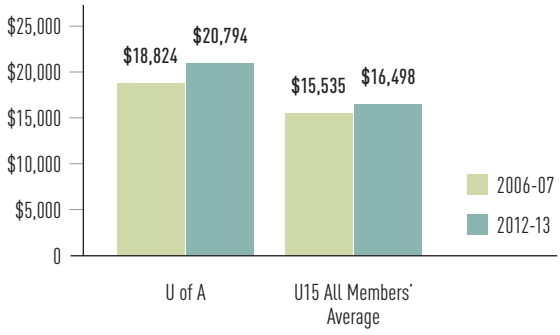
The University of Alberta provides competitive financial support at both the Doctoral and Research Masters levels. Our goal is to remain competitive when compared to our peers when considering tuition, financial support and cost of living.

FIGURE 4 AVERAGE FINANCIAL SUPPORT PER DOCTORAL STUDENT, UNIVERSITY OF ALBERTA AND U15 UNIVERSITIES



Note: Excludes Health Sciences. Includes agreggate provincial amounts for QC institutions. Data are the earliest and most recent available. Reporting universities vary across years. **Source:** U15 Data Exchange, Graduate Student Financial Support pivot as of Oct, 2014.

FIGURE 5 AVERAGE FINANCIAL SUPPORT PER RESEARCH MASTERS STUDENT, UNIVERSITY OF ALBERTA AND U15 UNIVERSITIES



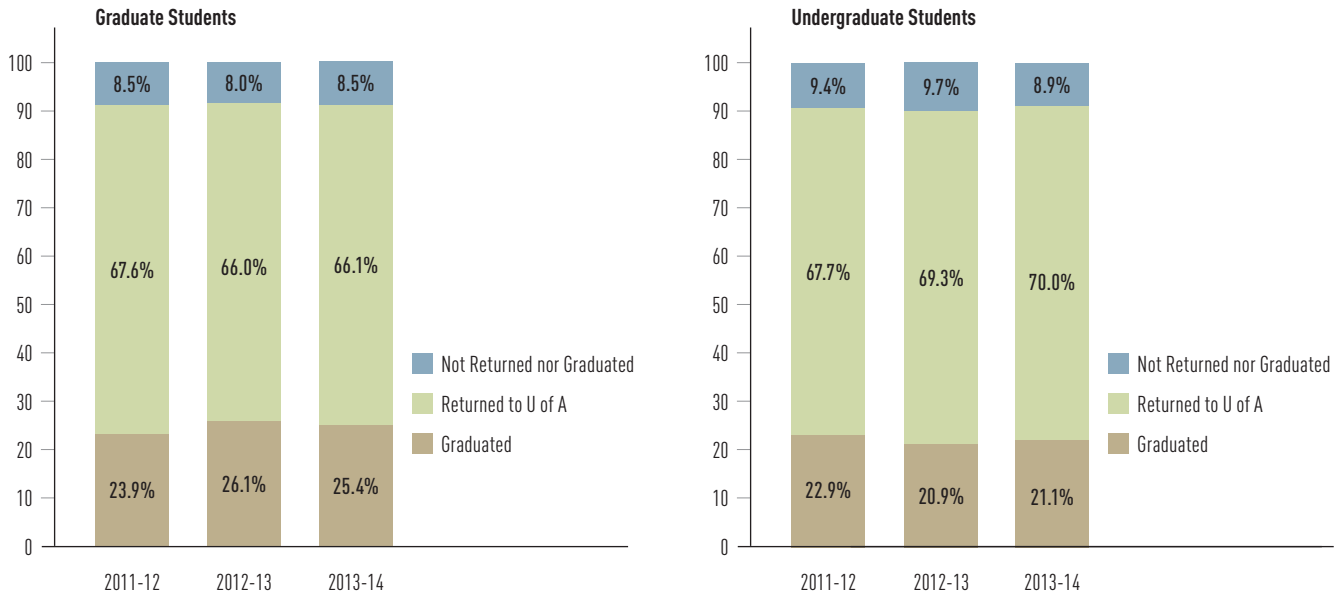
Note: Excludes Health Sciences. Includes agreggate provincial amounts for QC institutions. Data are the earliest and most recent available. Reporting universities vary across years. **Source:** U15 Data Exchange, Graduate Student Financial Support pivot as of October, 2014.

Retention and Completion

Though we recognize that there are a variety of reasons students leave their programs prior to completion, including their decision to transfer to another institution within Campus Alberta, assessing and improving retention rates are a focus for attention in the U of A's academic plan, *Dare to Deliver 2011–2015*. Retention rates for undergraduate and graduate students remain steady at approximately 91 per cent and 92 per cent respectively. These data include students who return to the same faculty, return to a different faculty, or graduate.

Strategies to improve completion rates, especially at the undergraduate level, include enhancing academic engagement inside the classroom, creating mentoring programs, investing in student health and wellness, effectively assessing English-language skills for admission and bridging programs, facilitating language improvement, and aiding career and life development. To complement these, the university's programs and partnerships create academic engagement opportunities outside the classroom, through internship and co-op programs and community service-learning.

FIGURE 6 RETENTION

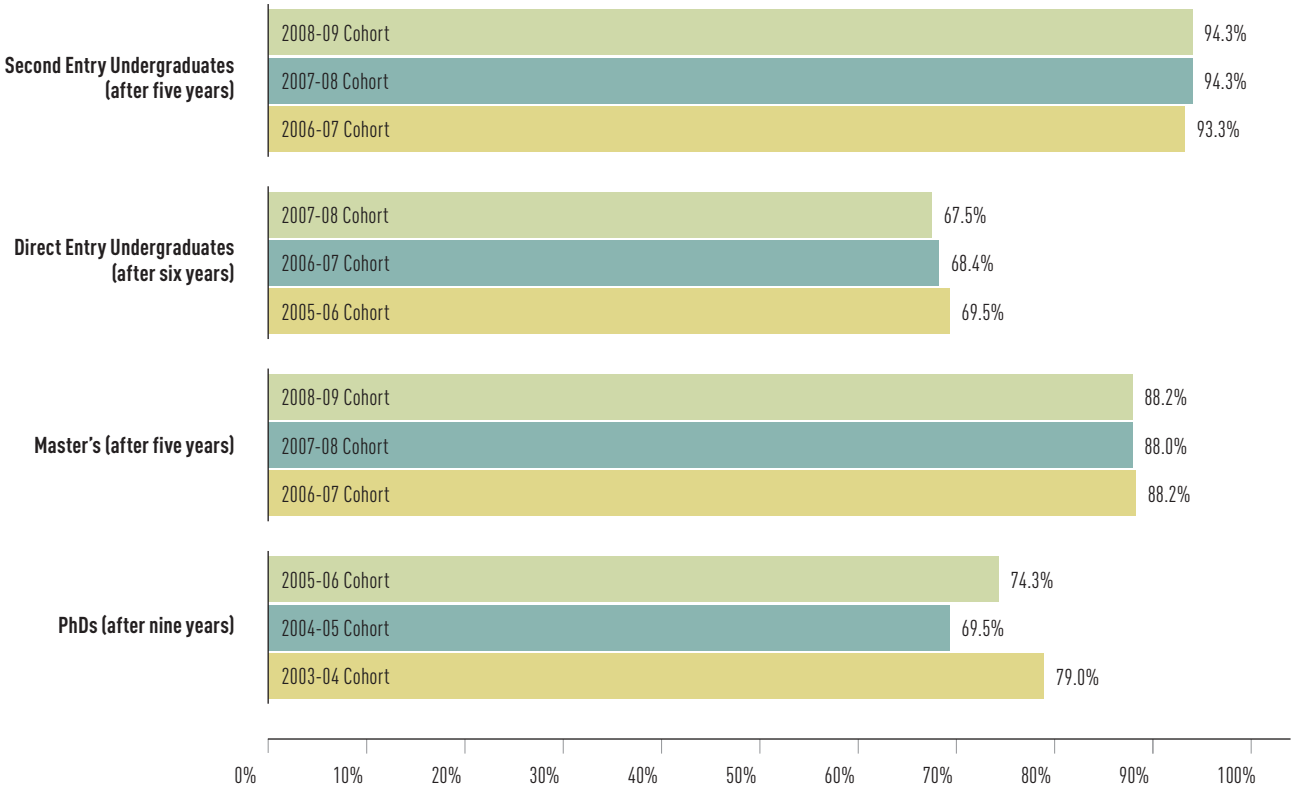


Notes: Data reflects students registered on December 1 of the reported year. The graduated percentage is as of November 1, 2013. Other student activity, as of December 1 of the year following the cohort year. Visiting, special and post-graduate medical education (PGME) students are excluded from the analysis. Categories of student activity (e.g. graduated; returned same faculty, etc.) are mutually exclusive. Historical data is updated annually so may differ slightly from previously published figures.
Source: Institutional Data Warehouse.

The following chart provides on-time completion rates for undergraduate, masters and PhD students.

Rates have remained relatively stable.

FIGURE 7 COMPLETION RATES, UNIVERSITY OF ALBERTA



Notes: Data is complied using the completion rate methodology defined and implemented by U15 but it has been modified to include course-based Master's students in the analysis. Only those who began their studies as a full time student are included in the cohorts. The Direct Entry Undergraduate Completion Rate represents students who entered the University directly from high school and graduated from the U of A in any undergraduate program. The Second Entry Undergraduate Completion Rate represents students admitted to a program that requires one year of university study prior to admission and graduated from the U of A in any undergraduate program. The Master's Completion Rate represents students who entered the University in a Master's program and who graduated with either a Master's or PhD. The PhD Completion Rate represents students who entered the University in a PhD program and graduated with either a Master's or PhD. **Source:** Institutional Data Warehouse.

The Student Experience

The quality of student experience continues to be a critical contributor to retention and completion, and a multitude of factors interact to define this experience. At the institutional level, the University of Alberta actively supports both academic and co-curricular experiences that develop the whole student. With the support of the Government of Alberta, the U of A also invests resources to deliver academic and personal counselling, health and wellness supports, career and placement services, services and supports for Aboriginal students, and support for more than 450 registered student groups. The university also provides extensive opportunities for students to participate in the collegial governance of the institution. Alumni strongly endorse these initiatives through philanthropic donations to the U of A Annual Fund, which supports study abroad, leadership and professional development, and undergraduate research opportunities.

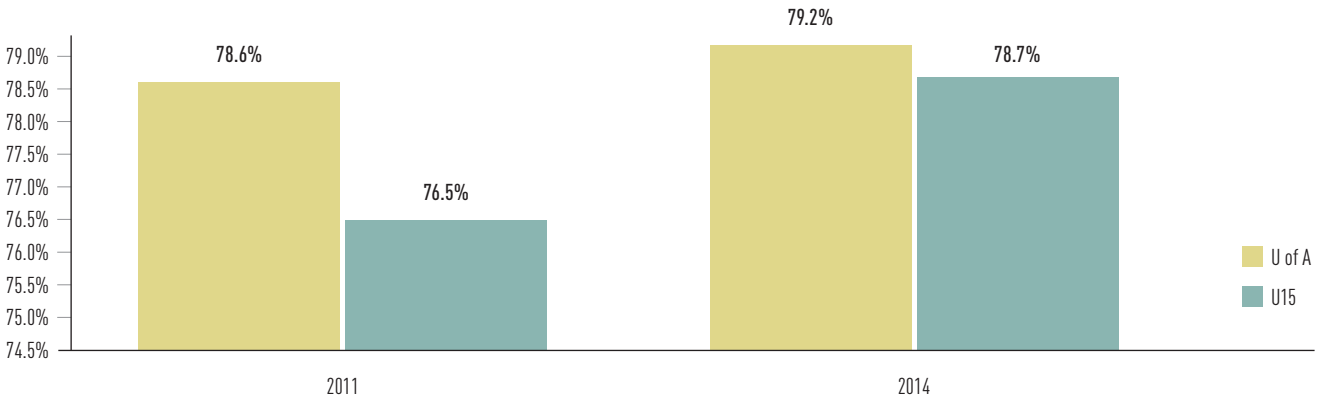
Each of the U of A's campuses strives to expand opportunities for both residential and commuter students to actively participate in campus life. For example, the Student Library Advisory Council (SLAC), launched in November 2014, aims to engage students in enhancing library services to better meet their needs and improve their experience with the library. In addition, beginning in Winter 2015, U of A Libraries is undertaking a pilot initiative to make all textbooks priced at $100 or more available on library course reserves for loan to students.

Student Mental Health and Wellness: The U of A continues to implement a student-centred and comprehensive approach to improving student mental health and wellness. With the Alberta government's three-year, $3-million investment in this area, the university has strategically expanded its outreach into the university community, extending the capacity of the mental health centre with satellite counsellor offices while offering diverse formal and informal services. As well, the community social work team is well established on campus and continues to deliver mental health and

Student satisfaction with their educational experience can lead to a productive lifelong relationship with their university. Our goal is to improve satisfaction as measured through the National Survey of Student Engagement.

Satisfaction with their educational experience has increased amongst senior undergraduate students over the measured period.

FIGURE 8 PERCENT OF SENIOR STUDENTS RATING THEIR EDUCATIONAL EXPERIENCE AS GOOD OR EXCELLENT



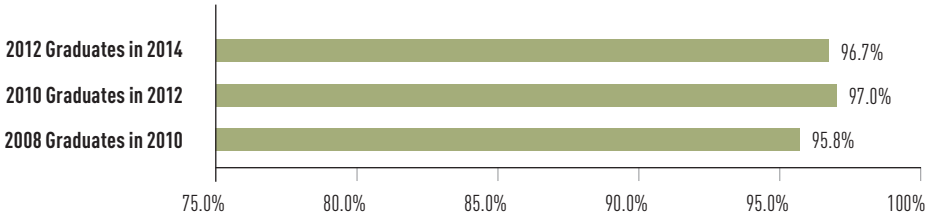
Note: Senior Student designation represents students in their fourth year, or in the year that they are normally expected to graduate. During the time period represented, U15 was referred to as G13 (Group of 13). **Source:** U of A Frequency Distribution Report, NSSE (National Survey of Student Engagement), 2011 and 2014.

suicide intervention training among its other duties. The university has requested that the government's investment continue beyond 2016 to build momentum in the key areas of raising awareness about student mental health and providing innovative mental health and wellness services.

Students with Disabilities: Post-secondary institutions have a legislated duty to accommodate students with disabilities. The number of students requiring specialized support at the U of A fluctuates from year to year, but has been increasing significantly since 2008; the complexity and diversity of accommodations required also continues to increase. Finding a sustainable funding model to meet these challenges and accommodate students with disabilities continues to be a high priority for the U of A in 2014–2015. We look forward to continued dialogue with our government partners on this issue.

Employment is an important university outcome measure. As illustrated in figure 12, University of Alberta graduates are consistently highly employed.

FIGURE 9 OVERALL GRADUATE EMPLOYMENT RATE TWO YEARS AFTER GRADUATION



Note: Data are the most recent available.
Source: Alberta Enterprise and Advanced Education: Alberta Graduate Outcomes Survey.

Programming Innovations and Initiatives

PRIORITY: That University of Alberta graduates be prepared, through an innovative learning environment, to think critically, to act entrepreneurially, to create cultural and technical innovation, to be successful in the global marketplace, and to assume positions of leadership in public and private sectors

The University of Alberta sustains a core foundation of baccalaureate and post-baccalaureate degrees that foster critical thinking, creativity, leadership, and flexibility. Our graduates are informed, talented, and empowered individuals ready for a variety of personal, professional, and societal challenges. Our degree programs are also constantly evolving to meet current student and market needs. To this end, the U of A undertakes regular review of each faculty, through mechanisms such as visiting committees of stakeholders, to assess program and teaching quality, research quality, student satisfaction, and student and employer demand.

Transformation of the academic enterprise of comprehensive academic and research institutions is gaining momentum around the world as leading universities, including the U of A, identify and respond to emerging advanced education needs and expectations.

Examples of our 2014–2015 successes include:

- increased use of e-learning to enhance the educational experience of on- and off-campus learners. Successes include blended and flipped delivery of courses, which allow in-class time to be used more effectively. Massive open online courses (MOOCs) such as Dino 101 and Understanding Video Games, which broaden the reach of the U of A, also form an integral part of online and blended variants offered for credit for U of A students.

- continued growth of the Community Service-Learning Program, which has grown nearly sevenfold since introduced 10 years ago, widening its scope into a greater variety of disciplines and degree programs on U of A campuses.

- meeting increased student demand for programming with flexible delivery options, such as online master's, PhD, and continuing professional development programs delivered off-campus in communities closer to students' home locations (e.g., programs available through the School of Library and Information Studies and the faculties of native studies and nursing)

- approval by ministry and university governance of a number of academic program proposals, including the sustainable agriculture major in the bachelor of science in environmental and conservation sciences program, the bachelor of kinesiology (name change from former bachelor of physical education and significant changes to majors), the master of arts in gender and social justice studies, the embedded certificate in research (biological sciences), the embedded certificate in data science, and others.

Quality Degree Programs

The University of Alberta delivers nationally and internationally accredited programs for professional designations in business, dentistry, education, engineering, law, library sciences, medicine, nursing, and pharmacy. The U of A also delivers courses, certificates, diplomas, degrees, educational experiences, and professional apprenticeship opportunities (e.g., via internships, international experiences, and teamwork on research and innovation initiatives) that are formal or informal requirements for other professional designations or types of professional employment, as well as self-employment.

In the coming year, we anticipate that the following program proposals, among others, will be submitted to the Ministry of Innovation and Advanced Education for approval:

- doctor of pharmacy (to replace existing bachelor of science in pharmacy program)
- master of science in audiology
- master of science in planning
- master of accounting

If approved, these new credentials will provide much-needed graduates in high-demand professions in the province.

We are conscious that our graduates should have valuable credentials, as well as overall skills and abilities that are indicative of a well-rounded citizen. The academy is engaged in a dialogue about how to identify and assess desired attributes and competencies of U of A graduates.

Innovative and high-quality academic programming remains at the core of the university's academic mandate. For a full list of programming initiatives, please see Appendix 7.

Diverse and Flexible Credentials

Many of the University of Alberta's programs allow students to obtain post-secondary university credentials with flexible entry and exit points. The university has well-established methods and programming that provide current and prospective students with opportunities to ladder from one level of post-secondary study to another, and to ladder from post-secondary study to additional professional development programs. These opportunities include transfer among programs at the U of A, transfer from and into programs in other Campus Alberta institutions, embedded and free-standing post-baccalaureate certificates, summer institutes, bridging programs, and, potentially, pre-baccalaureate French-language college-level programming that fills an identified need in the francophone community.

Collaborative and articulation programming (in which students complete one or two years of study in their home region or country before transferring to complete and receive their degree at the U of A) creates a flexible and diverse array of educational opportunities for undergraduate students. Collaborative programming options for both new and existing programs are part of program renewal. See Appendix 6 for a list of selected programs offered in partnership with Campus Alberta, Canadian, and international institutions.

The U of A educates graduates with the knowledge and skills foundational to driving and diversifying Alberta's workforce and economy. As a leading research-intensive university, the U of A has the ability and commitment to integrate a research-intensive educational experience with specialized training to enable students to pursue entrepreneurial careers, if they choose, and to become leaders in business, industry, non-profit, health, and public service sectors.

Entrepreneurship

The U of A has a long-standing suite of programs aimed at enhancing Alberta's entrepreneurial capacity for technological, business, and social innovation. These include a bachelor of commerce degree in entrepreneurship and family enterprise, an MBA in technology commercialization, an executive management program, a senior and executive managers' development program; and a citation in social entrepreneurship. In the coming year, an innovation and entrepreneurship certificate program—targeted at graduate students and post-doctoral fellows across the STEM disciplines—will undergo review and approval, with a goal of implementation in fall 2015.

The U of A invests in centres and activities that offer both students and external stakeholders ways to develop and enhance entrepreneurship skills, interest, and expertise. These include the Technology Commercialization Centre, which partners with TEC Edmonton, Alberta Innovates, and other external stakeholders; the University of Alberta Venture Catalyst Competition; and Entrepreneurship 101, a collaborative effort with the National Institute for Nanotechnology that is aimed at post-doctoral fellows. The U of A is also an institutional partner of Mitacs, which offers graduate students and post-doctoral fellows a wide variety of professional development programs to prepare them for non-academic careers. The Venture Mentoring Service, now in its second year, has BioWare co-founder Ray Muzyka as its founding chair. The program brings together students with alumni entrepreneurs and mentors, who provide objective guidance and support with the goal of developing individuals as entrepreneurial thinkers, as well as launching and growing ventures in the region.

A two-year pilot program, focused on developing entrepreneurship among post-doctoral fellows, has been funded by Alberta Innovates – Technology Futures. Ten post-doctoral fellows were selected early in 2014 to hold fellowships at the U of A. The second cohort of U of A AITF post-doctoral fellows, five in number, were selected early in 2015.

A new initiative, directed at connecting international students with entrepreneurship opportunities in Alberta, will connect students with community resources and outline the critical steps needed to develop their own enterprises in the province after graduation.

Leadership Initiatives

The U of A strives to foster leadership as an essential attribute of local and global citizenship, both in the institution as a whole and within each student. Leadership—as a concept, a skill, and an activity in itself—is offered as a field of study for credit and non-credit continuing education programming, professional

development activities, and scholarship support. Specific credentials include the municipal management and leadership certificate and the leadership development program (both by the Alberta School of Business), and the educational administration and leadership specialization degree designation from the Faculty of Education.

Peter Lougheed Leadership College: The Peter Lougheed Leadership Initiative is a collaborative venture of the U of A and The Banff Centre founded upon the principles of excellence and access in leadership education and research. The Peter Lougheed Leadership Initiative will build on the two institutions' historical records of leadership and existing strengths to create a pre-eminent leadership development program. The U of A's component of the initiative is the Peter Lougheed Leadership College, a broad, interdisciplinary undergraduate leadership development program that will forge leaders through formal and co-curricular learning, engagement, and mentorship. In 2014, the Rt. Hon. Kim Campbell, former prime minister of Canada, was appointed founding principal of the college. She is leading the creation of the leadership program with the goal of welcoming the first cohort to the college in September 2015.

Global Citizens

To meet employer expectations in Canada and abroad, graduates need the knowledge, skills, and understanding to function effectively in a global marketplace. As a result, students expect their university education to prepare them well for international opportunities. To answer this need, the U of A will continue to recruit faculty experts in the history, sociology, business, education, and economics of globalization, who are able to develop outstanding undergraduate and graduate programs in these areas. The U of A also offers credentials to enhance students' knowledge of these issues, including a certificate in globalization and governance, a certificate in international learning, a bachelor of commerce major in international business, an MBA in international business, and various language programs. In addition, we continue to expand and offer opportunities for our students to engage with multiple cultures and perspectives through education abroad opportunities, and academic and extracurricular interactions with international students at the university.

The Digital Environment

PRIORITY: That the University of Alberta has the current, secure, state-of-the-art information and communications technology infrastructure and systems that support research, creative activities, and digital learning technologies and pedagogies to enhance the on-campus, in-class experience and online learning environments

The infrastructure of information and computing technologies at the University of Alberta is complex. It includes networks that connect buildings and campuses, wireless services, and additional specialized local networks. This infrastructure is the foundation of the U of A's digital environment, supporting academic, research, and administrative requirements, and facilitating administrative efficiency and innovation. It is also essential to our ability to remain connected to our many diverse communities, who rely more than ever on digital communications and engagement.

Advances in information and communications technology, especially in the arena of mobile computing, continue to transform learning environments. The U of A has offered innovative and popular digitally facilitated programs off campus for some time, specifically physical therapy satellite programs in Calgary and Camrose. These programs were initiated to help deal with the demand for therapists in rural and southern Alberta. Individual units across campus have both developed and deployed advanced teaching and learning technologies for specific student audiences and outcomes, notably in medicine.

In 2012, the U of A began to engage more aggressively at the institutional level in developing and expanding the use of advanced learning technologies and their related pedagogies in undergraduate and graduate education. Although the focus of current media attention is online learning, opportunities for innovation go well beyond teaching to include research in education (pedagogy, instructional delivery techniques, learning outcomes assessment), computing science (adaptive learning experiences, automated assessment, collaboration tools, security), humanities (analysis of privacy, collaboration, ethics), business (case study analysis, market trends, analytics) and preservation (research data management, digital preservation). These are the areas in which the U of A is expanding its engagement in the digital environment.

See Appendix 10 for details on selected e-learning and digitally supported teaching and learning activities across U of A campuses.

Collaborations

PRIORITY: That the University of Alberta be a valued and innovative leader and partner of other post-secondary institutions in Campus Alberta and across Canada in achieving shared academic and organizational aspirations

Campus Alberta

One of the priorities of the Ministry of Innovation and Advanced Education is to ensure a dynamic and innovative post-secondary system that maximizes and leverages expertise and resources across institutions. The University of Alberta continues to lead or participate in cross-institutional initiatives, programs, and resource sharing for both academic and administrative enhancements and efficiencies. For example, with renewed funding from the Government of Alberta, the U of A will continue managing the Lois Hole Campus Alberta Digital Library on behalf of the libraries of 35 post-secondary institutions until at least April 2015. In addition, the province's three university presses—Alberta, Athabasca and Calgary—adopted a memorandum of understanding in fall 2014 that creates a new framework for each press to increase its reach and impact, achieve economies of scale not available to the presses individually, and reduce duplicative costs and activities across the three presses. Further, all three provincial research ethics harmonization agreements have now been signed by the various partners and the significant task of operationalizing the initiative has begun.

In the academic realm, the U of A continually develops and enhances programming partnerships with Campus Alberta institutions within the CARI sector as well as the other five post-secondary sectors. For example, programs and initiatives already described that engage or occur in rural or Aboriginal communities are developed and delivered in partnership with regional colleges. In August 2014, the U of A hosted a gathering of Campus Alberta and Government of Alberta partners to discuss how to build and maintain effective partnerships across the province to benefit students and to maintain and improve accessibility and mobility. This meeting was highly productive and has led to ongoing discussions with our partners. Appendix 6 presents the full suite of U of A academic programming collaborations.

Canada

The University of Alberta places a high priority on leading, supporting, and participating in national research and innovation initiatives, and where possible, working in partnership with the Government of Alberta to leverage resources. Accordingly, the university invests internal resources (e.g., base positions, space, and funding contributions) in the following national initiatives: The National Institute for Nanotechnology, the Pacific Institute for the Mathematical Sciences (PIMS), SNOLAB (neutrino physics, with expansion into studies within seismology and geophysics), TRIUMF (subatomic physics), WestGrid (supercomputing resources), Canadian Light Source (synchrotron research), and more recently, the IBM-Alberta Centre for Advanced Studies (health informatics). These investments bring federal and international research dollars into the province, further leveraging provincial resources, and expand the province's research capacity through access to highly specialized resources and expertise. Vitally important complementary investments by the province in such national initiatives raise the profile of the province, the U of A, and all Alberta CARIs nationally and globally.

International

PRIORITY: That the University of Alberta forms international collaborations that create exceptional learning, discovery, citizenship, and innovation opportunities, advancing our vision to be one of the world's top publicly funded institutions for the benefit of our students and the province

Internationalization is an institutional objective, an institutional strategy, and an institutional outcome. The University of Alberta reaches beyond Canada's borders to take its place among globally engaged institutions and connects Alberta capacity to international capacity. Internationalization is also a broad institutional strategy that advances nearly all elements of the U of A's academic enterprise and objectives: recruitment of exceptional undergraduate and graduate students from targeted highly ranked foreign institutions; education abroad activities and international internship placements for Albertan students; development and maintenance of international relationships, partnerships, and projects that enhance teaching and global community service; curriculum development in global citizenship; and creation of international research consortia and partnerships that leverage institutional strength and increase research capacity and support.

The U of A's strategies for internationalization are achieving results. International enrolment at both the undergraduate and graduate levels has been increasing steadily over the past three years. Research funding from foreign sources shows a large increase over last year. Shared credentials and degrees with top-tier international partners have been put in place, and international industry internship opportunities for Alberta students have emerged through the university's interaction with these partners. Between May 2013 and April 2014, 1,134 students participated in education abroad experiences in more than 60 countries.

Many of these outcomes emerge from the U of A's existing international research consortia, and continued efforts to establish new ones in strategic areas that advance its learning, teaching, and research objectives.

Partnerships

A great university extends its reach globally by partnering with outstanding institutions around the world. Strategically, the University of Alberta has placed priority on building partnerships with top-tier institutions in five countries: Germany, China, Brazil, India, and (regions within) the United States. At the same time, the U of A also sustains and develops other partnerships outside these priority areas when an emerging opportunity also meets strategic goals, especially in the area of global citizenship. The U of A's ongoing relationship with the Aga Khan University is one such example. Here, our activities include curriculum development for fine arts, arts administration, nursing, health sciences, medical training, and teacher education, as well as assistance in the development of an Aga Khan campus in Tanzania. Another example is the increasing collaboration with France, centred on the France-Alberta Science and Technology Initiative (FAST!). As well, early-stage discussions are underway with selected universities and institutes in Israel that are focused on potential collaborations in nanotechnology.

The need for provincial funding in relation to international collaborations is critical for maintaining Alberta's reputation and for enhancing opportunities for expanded economic activity in the province. These collaborations include China, Germany, and Brazil.

China

Since the 1990s, the U of A has endeavoured to build a relationship of respect and trust with China's top-tier educational and research institutions, specifically Fudan University, Tsinghua University, and the Ministry of Science and Technology (MOST). The U of A has 60 active memorandums of understanding with Chinese universities, research institutes, and government agencies. In 2014, the Sino-Canada Energy and Environment Research and Education Initiative (SCENEREI) continued to gain momentum with a visit to Beijing in February 2014 by several U of A representatives. Meetings were held with representatives from BGP, Huadian Heavy Industries, the China University of Mining and Technology, the National Institute of Clean-and-Low-Carbon Energy, and Tsinghua University.

Germany

The U of A's association with German institutes, universities, and government agencies has matured extensively over the last 10 years. The current foundation of this relationship consists of a major research partnership with the Helmholtz Association of German Research Centres, member institution status in the Technical University of Munich's science and engineering graduate programs, research mobility programs with Bavarian universities in the areas of computing science and Earth observation sciences, active exchange programs in the humanities and fine arts with Ludwig-Maximilians-Universität and Leipzig University, and the establishment of the sixth worldwide German-Canadian Centre for Innovation and Research at the U of A. LMU and the U of A offer a jointly delivered doctoral degree program. The Faculty of Medicine & Dentistry continues bilateral exchanges with the University of Munich. Discussions continue with German officials to expand formal relationships with the Fraunhofer Institute and Leibniz Association to the U of A.

Helmholtz-Alberta Initiative: HAI-E&E (Energy and Environment) is the largest and most advanced of the various research collaborations between Germany and the U of A. During the first four years of its existence (2010–2014), 198 researchers (including 92 graduate students and post-doctoral fellows) contributed to the success of its programs. Collectively, this group of researchers had 185 peer-reviewed publications, made 499 conference presentations, and published 26 MSc theses and 2 PhD dissertations.

HAI has continued to expand into new areas with a focus on infectious disease research, including the Li Ka Shing Institute of Virology, and neurodegenerative research involving the U of A's Alberta Centre for Prions and Protein Folding Diseases. The research consortium agreement for the HAI-Infectious Disease Research Initiative was signed in March 2014. A program in terrestrial and ecosystem resource informatics is also being explored through a pilot project, and discussions continued about collaboration in the area of diabetes research. This innovative initiative has been very successful, and there is an acute need for provincial funding to enable HAI to continue to develop and expand. If funding is not forthcoming, the province's reputation is at risk in relation to an important international partner.

Due in part to the connections and reputation that the U of A has established through HAI, discussions have begun with the German ministry (BMBF), Canadian ministry (DFATD), the Canadian Embassy and representatives from the Helmholtz, Fraunhofer and Leibniz organizations. A potential outcome of these discussions is increased collaborative research opportunities in the area of social sciences and humanities between the Leibniz Association and the U of A.

Brazil

In 2010, the U of A identified Brazil as a strategic area for partnership. In 2011, the university joined with Laval University, Dalhousie University, and the University of Ottawa to create the CALDO consortium. CALDO signed agreements with Brazil's two premier funding agencies, the Ministry of Science and Technology's National Council for Scientific and Technological Development (CNPq) and the Ministry of Education's Federal Agency for the Support and Evaluation of Graduate Education (CAPES). These agencies administer scholarships with Brazil's Science Without Borders program, which is sending 75,000 fully funded students to study abroad, contributing to the U of A's research output and global position, and creating valuable and lasting networks.

Building on successful workshops with Brazilian universities (UFMG in Belo Horizonte in December 2012, and UFRJ in Edmonton in August 2013), engagement continues through student recruitment, faculty exchanges, and joint workshops.

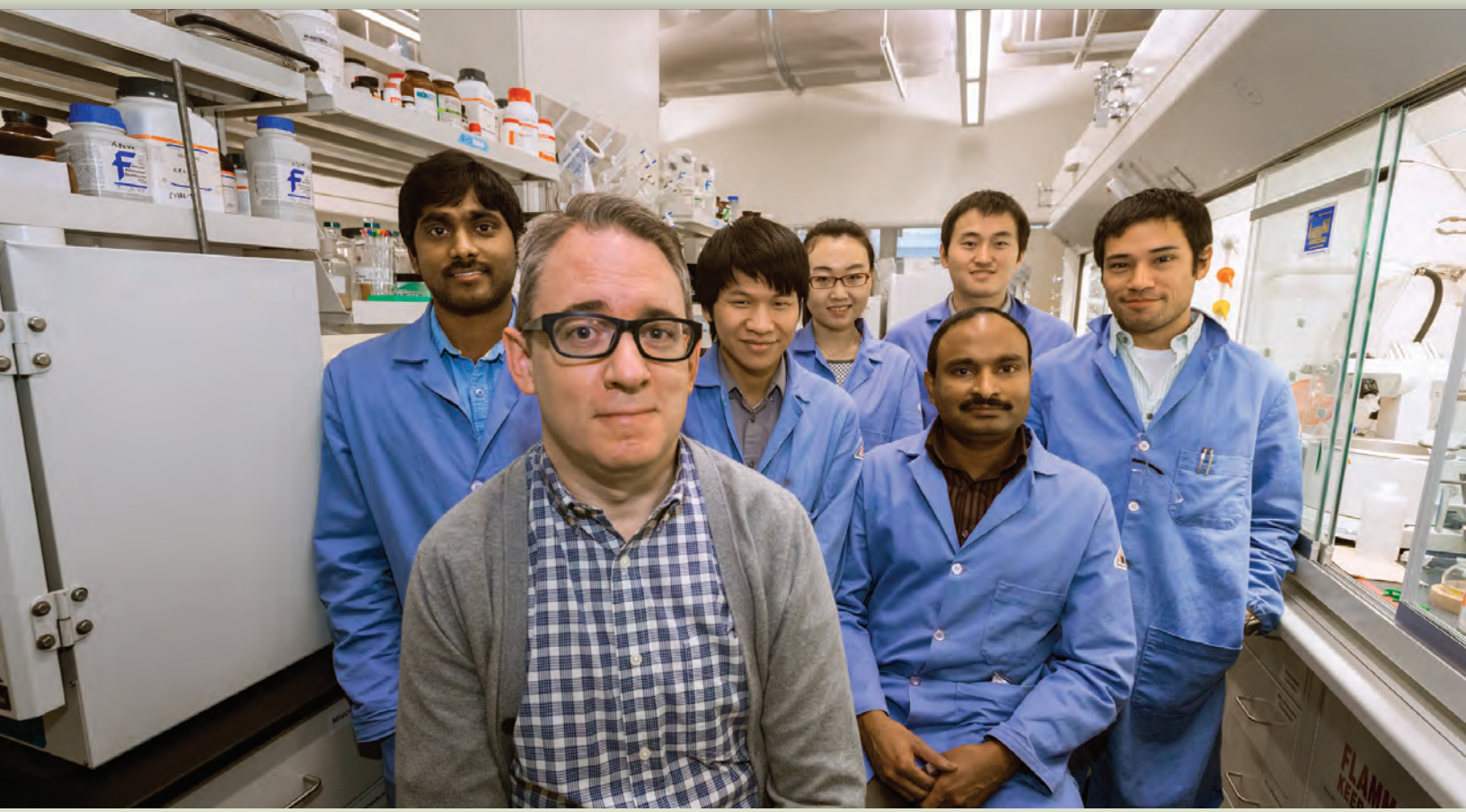
India

In 2009, President Samarasekera launched accelerated strategic outreach in India, pursuing partnerships with India's universities, research institutes, and industries. Active research MOUs and exchanges currently exist in the domains of oil, gas, agriculture, and nanoscience, with the Indian Institute of Technology, Mumbai, and the Indian Institute of Science, Bangalore, as well as with industry leaders Tata Consultancy Services, Petrotech, and Oil and Natural Gas Corporation Limited, among others.

A partnership among the universities of Alberta, Toronto, and British Columbia, IC-IMPACTS is a federally-funded, $30-million collaborative research centre of excellence focused on finding new technologies to ensure health, safety, and sustainability for remote and rural communities in both Canada and India. Six projects are led by the U of A under the partnership's water management theme. Successful workshops were conducted with Nagpur, a partner community, and with the Indian Ministry of Environment and Forestry. IC-IMPACTS continues to work with Canada's northern and First Nations communities through the U of A's Engage North Initiative.

United States

The U of A's U.S. strategy, which has been underway since 2010, focuses on regions that complement the university's research activities and advance recruitment and alumni objectives. Priorities for the future include increasing the number of visitors funded under the Fulbright Program, and defining roles for the U of A in influential U.S. university and policy associations. The U of A has recently become a member of the Association of Public and Land-grant and Universities (APLU), and a representative has been appointed to its executive and its subcommittee on research and graduate education.



Research Capacity and Impact

PRIORITY: That the University of Alberta always be among the top public institutions that are internationally recognized for areas of excellence and impact across the breadth of discovery, innovation, and creative activities

As a comprehensive academic and research institution, and one of Alberta's two medical/doctoral institutions, the University of Alberta conducts research and offers doctoral programs across seven thematic areas: humanities and fine arts, social structures and systems, science and technology, energy, environment, food and bioresources, and health and wellness. Doctoral programs and post-doctoral training occurs in both the core disciplines and emerging cross-disciplinary fields that drive discoveries, innovation, and impact in these domains. This full spectrum of inquiry positions the U of A's academy and its graduates to make the comprehensive contributions towards scientific, social, and cultural innovations needed to support the objectives Alberta has set for itself: effective resource and environmental management, a broadened economic base, and resilient and healthy individuals and communities.

The U of A's research capacity is measured by the quality of its people and the quality of the physical, financial, and human infrastructure that enables them to have a significant impact in their fields. The U of A develops and sustains research capacity for Alberta by recruiting and retaining faculty members, investigators, and specialized non-academic staff; attracting and supporting graduate students and post-doctoral fellows; providing equipment, resources, and infrastructure for individual faculty as well as multi-user and multi-team activities; supporting centres, institutes, and collaborative initiatives within the institution and in partnership with other provincial, national, and international institutions; operating core research resources, facilities, and platforms for the region; and undertaking capital infrastructure development to meet the evolving needs of research and to pursue new avenues.

The U of A remains committed, through its world-class research, innovation, and commercialization activities, to enabling Albertans to solve critical problems and achieve the positive outcomes of a broadened and diversified economic base. This includes effective resource and environmental management as well as healthy and resilient communities, which will enhance the economic, environmental, and social benefits for Albertans. We will achieve these outcomes through our research capacity and impact as outlined below.

Research Quality and Impact

Alberta's future growth and its contributions to national and international prosperity depend significantly on the knowledge ecosystem that defines the U of A. Our province's social and technical innovators and entrepreneurs emerge from the research-intensive environment that is built and sustained by the CARI sector. Knowledge translation and research commercialization are important contributors to this activity. Fourteen spinoff companies from the university have been created through TEC Edmonton in the past two years. Over the last year alone, TEC Edmonton's 125 clients grew revenue by 25 per cent, compared with 10 per cent growth in companies in the broader economy. The roots of successful commercialization efforts like these are grounded in the U of A's research platform that enables excellence in basic and applied research across a full range of disciplines.

The national and international awards and honours received by our faculty members constitute an important indicator of excellence and impact. Such awards and honours reflect both the quality of the professors recruited and retained, and the quality of the environment and opportunities that the U of A provides. The U of A benchmarks its progress in recruiting and supporting exceptional scholars, using faculty awards and honours as a proxy against a target peer group of Canadian and U.S. institutions. The U of A works to ensure that achievements of its professoriate are recognized by distinguished groups, and celebrates that recognition when it occurs. This demonstrates the impact of their work in academia, and also indicates the importance of knowledge translation to the wider community as carried out by public intellectuals in a research-intensive university.

U of A faculty received numerous national and international research awards over the past year.

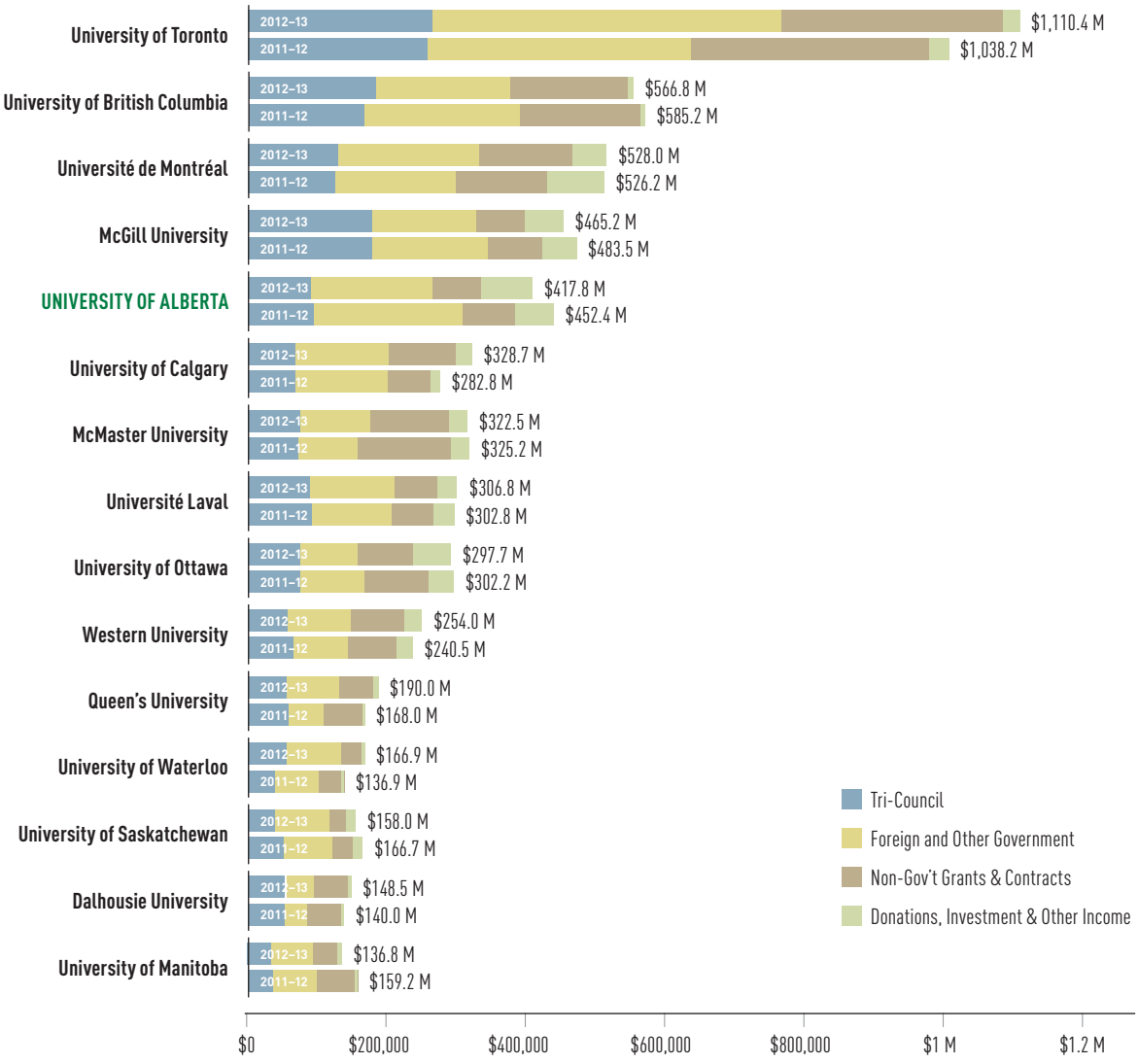
Examples from 2014–2015 include:

- American Academy of Nursing Fellow (Greta Cummings)
- APEGA Research Excellence Award (Biao Huang)
- Canadian Academy of Health Sciences Fellows (Barbara Ballermann, Alex Clark, Sandra Davidge, David Evans, Evangelos Michelakis, Doug Miller, Rick Rachubinski, Brian Rowe)
- Chemical Institute of Canada Fellowship (Xing-Fang Li)
- CIHR Betty Havens Prize for Knowledge Translation in Aging (Carole Estabrooks)
- Distinguished Service Award–Legal Scholarship, Law Society of Alberta & Canadian Bar Association (Shannon O'Byrne)
- Emerald Challenge Award: Water (Uldis Silins and Southern Alberta Watershed Project Team)
- CSCI-RCPSC Henry Friesen Award (Lorne Babiuk)
- Frederic Newton Gisborne Starr Award, Canadian Medical Association (Anne Fanning)
- Heart and Stroke Foundation Alberta Research Professorship (Georg Schmolzer)
- Honorary Fellowship, Metabolomics Society (David Wishart)
- Humboldt Research Award (Nikita Karpenko)
- Killam Prize for Health Science (Lorne Tyrrell)
- Killam Research Fellowship (Kevin Haggerty)
- Medal for Distinction in Engineering Education, Engineers Canada (Suzanne Kresta)
- Royal Society of Canada College of New Scholars, Artists and Scientists (Chris Andersen, Patrick MacDonald, Chloe Taylor)
- Royal Society of Canada Fellows (Mark Boyce, Warren Finlay, Marnie Giesbrecht, Bernie Linsky, Austin Mardon, Martin Sharp)
- Royal Society of Canada Innis-Gérin Medal (Janine Brodie)
- SSHRC Insight Award (Beverly Lemire–finalist)

Sponsored research revenue provides an indication of research performance.

The University of Alberta is 5th in our Canadian peer group in total sponsored research revenue. Our goal is to be within the top five funded institutions.

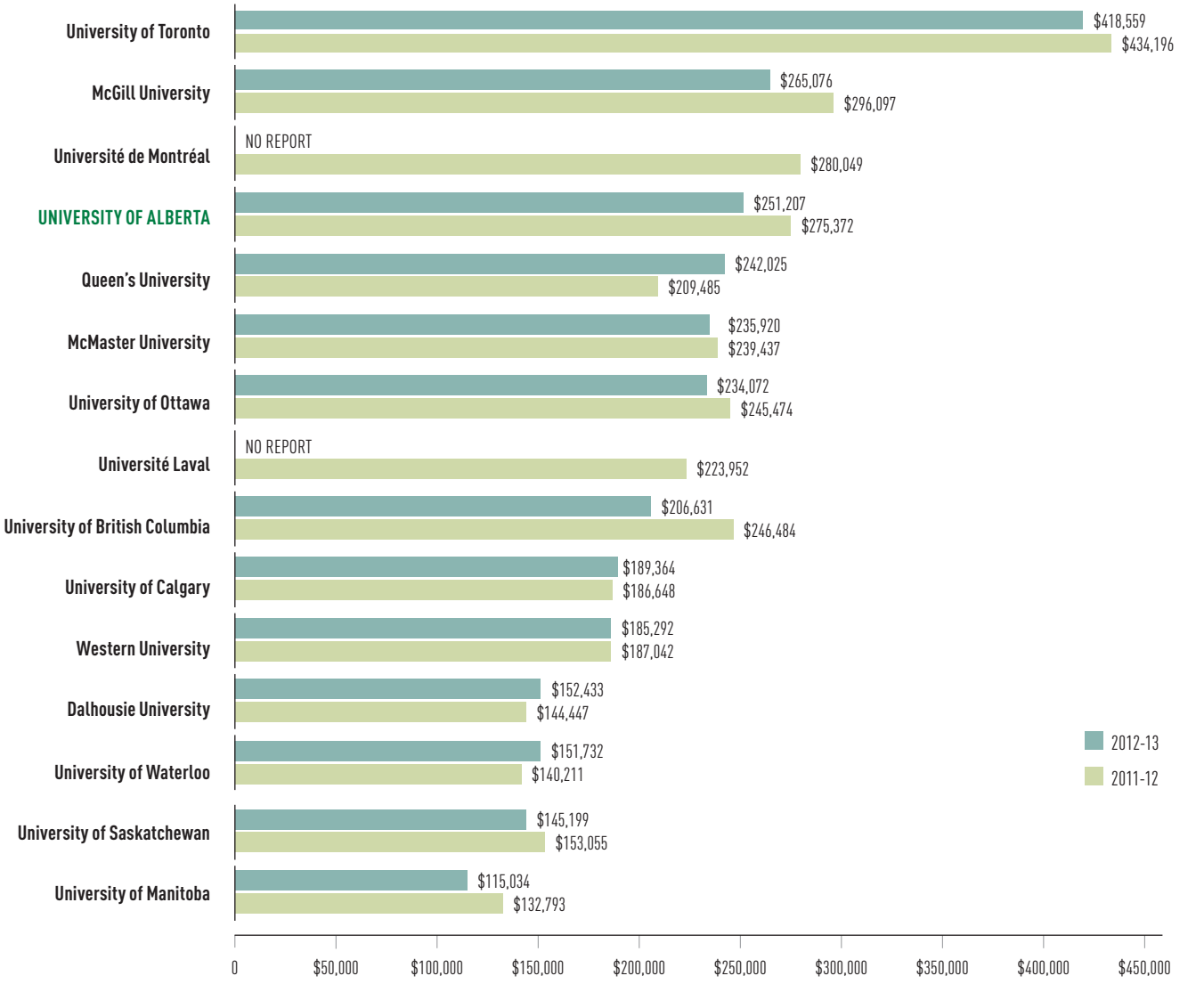
FIGURE 10 U15 SPONSORED RESEARCH INCOME BY TYPE



Notes: Income from Tri-Council includes: Social Sciences and Humanities Research Council (SSHRC); Natural Sciences and Engineering Research Council (NSERC); and Canadian Institutes of Health Research (CIHR). Other Government income reflects income from all government departments and agencies—grants and contracts, less Tri-Council and includes foreign government income. Donations, non-government grants and contracts, and investment and other incomes, are reported in each respective category on the CAUBO report. Université de Montréal includes École Polytechnique de Montréal and HEC Montréal. **Sources:** Canadian Association of University Business Officers (CAUBO): Financial Information of Universities and Colleges ending in 2012 and 2013, Report 3.1. Data are the most recent available.

When sponsored research revenue is scaled for faculty size, the University of Alberta is 4th in our Canadian peer group.

FIGURE 11 SPONSORED RESEARCH INCOME PER FULL-TIME TEACHING FACULTY FOR U15 UNIVERSITIES



Notes: Full-time teaching faculty (including Medical/Dental) are Professors, Associate Professors and Assistant Professors. Université de Montréal includes École Polytechnique de Montréal and HEC Montréal. Staff figures for 2012-13 are not available for Université de Montréal and Université Laval. Data are the most recent available.
Sources: CAUBO Financial Information of Universities and Colleges, 2011-12 and 2012-13 Report 3.1. U15 Data Exchange for Faculty Counts.

Sponsored research revenue is another important metric of research quality and impact. The U of A currently ranks fifth among U15 Canadian universities in total sponsored research income and third in sponsored research income per full-time teaching faculty member. As reported by CAUBO, the U of A's 2012–2013 total sponsored research funding was $417.8 million, a decrease of 15 per cent from the 2011–2012 level of $452 million. This is a continuation of a two-year decline following a seven-year trend of increasing research income. Figure 10 data show the 2011–2012 and 2012–2013 details: a $37-million decrease in government sponsored research (which includes capital research projects); a $17-million increase in donation, investment, and other income for research; a $2-million decrease in the level of Tri-Council funding; and a decrease of $5 million in non-government grants and contracts. It is worth noting that the U of A's financial statements for 2013–2014 show that the university received $462,783,000, which does represent an increase from 2012–2013.

The decrease in government sponsored research revenue is primarily due to a $40-million decline in sponsored research funding received from provincial ministries and the Alberta Innovates corporations. The U of A continues to make increased Tri-Council and international funding an institutional priority, and addressing this unprecedented decline is a key focus. To this end, the Grant Assist Program has been established to build capacity and further enhance the quality of institutional research proposals in key national competitions. It is imperative that we work closely with the provincial government because leveraging of provincial resources is essential in obtaining national and international funding. The recent announcement of a new national Network of Centres of Excellence (NCE) being hosted at the U of A—with a budget of nearly $30 million over the life of the grant—is an excellent example of sustained provincial investment that has enabled significant leveraging of federal funds, leading to the creation of GlycoNet

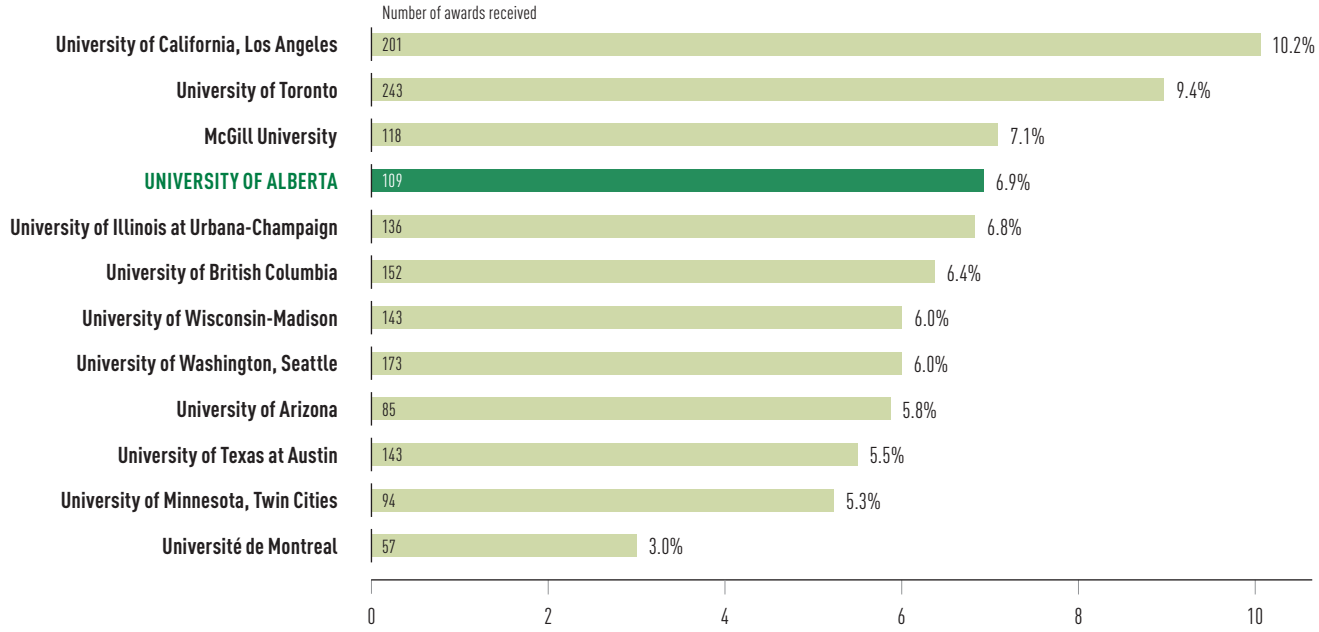
Recent examples of research quality and impact include:

- Delta Genomics, a U of A spinoff company commercializing the research and development of Livestock Gentec, spun out of the university's business incubator program. The company uses technology developed by Livestock Gentec to help identify desirable traits of cattle and other livestock with greater precision through DNA analysis. Results enable breeders to make more informed breeding decisions as they strive to produce healthier and more efficient livestock that produce higher-quality milk and meat products.

- Janice Cooke leads TRIA-Net, a national research network that received $3 million from NSERC to further its work on stemming the devastating spread of the mountain pine beetle. Cooke, a researcher in the Department of Biological Sciences, received a Strategic Network Grant to invest in her Turning Risk Into Action Network, an interdisciplinary team of scientists and forest practitioners from government, not-for-profit, and industry organizations addressing the spread of the forest insect. More than 19 million hectares of forest land in Western Canada have been affected by the outbreak, translating into losses of more than a billion cubic metres of mature pine trees, with losses to the forest industry, recreational opportunities, plant and wildlife habitats, watersheds, and a range of ecosystem services.

- U of A Libraries launched the university's first annual Research Data Management Week in May 2014, promoting the value of its recognized leadership in research data management. In July 2014, it also launched the Digital Management Plan Builder, a web-based application that will assist U of A faculty and all Canadian researchers in preparing clearly stated plans supporting the data in their projects. In December, U of A Libraries and the Countway Medical Library (Harvard) were awarded a Council on Library and Information Resources grant in the amount of $367,602 to support a joint project on research data.

FIGURE 12 PERCENTAGE OF FULL-TIME FACULTY RECEIVING SELECTED AWARDS AND HONOURS, UNIVERSITY OF ALBERTA AND SELECTED PEERS, 2003 TO 2012

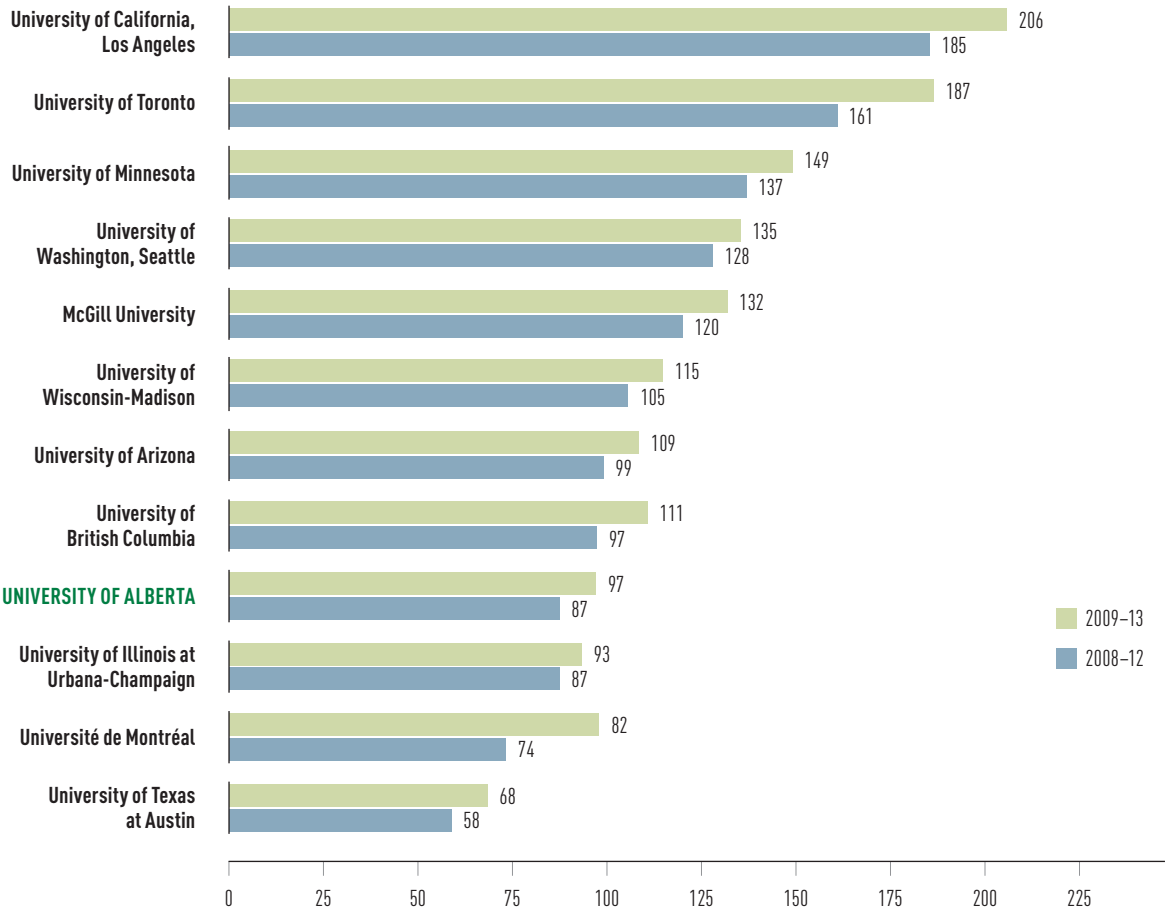


Note: Awards include 3M Teaching Awards, American Academy of Arts and Sciences, CIS Coach of the Year Award, Federal Tri-Council Highest Awards, Fulbright Scholars, Guggenheim Fellowship Awards, Killam Research Fellows, Molson Prize, National Academy of Engineering, National Academy of Sciences, Nobel Prize, Royal Society of Canada Fellows, Royal Society of London, Sloan Research Fellowships and Steacie Fellows. Data may differ from historical information due to source refinement. Data are the most recent available.

Sources: Award data from individual awarding organizations. Faculty counts from respective U.S. Common Data Sets and Statistics Canada: Salaries and Salary Scales of Full-Time Teaching Staff at Canadian Universities, 2003-04 through 2010-11 Final Reports. U15 Data Exchange for 2011-12 and 2012-13 as the Statistics Canada report has been discontinued.

The number of times a faculty member's work is cited by peers is a strong validation of excellence. Therefore, universities tend to use citations as an indicator of productivity, relevance and quality.

FIGURE 13 CITATIONS IN ALL FIELDS PER AVERAGE FULL-TIME FACULTY, UNIVERSITY OF ALBERTA AND SELECTED PEERS



Notes: Staff figures represent averages for the reported years. University of Montreal 2012-13 staff figures are not available. Canadian 2013-14 staff figures are not available. Historical citation data has been updated from previous versions. Data are accurate as of July 22, 2014.

Sources: InCites TM, Thomson Reuters, (2014). Global Comparisons, 5-year trends. Canadian university faculty counts based on Statistics Canada: Salaries and Salary Scale of full-time staff at Canadian Universities Reports and U15 data exchange. U.S. university faculty counts based on their respective Common Data Sets for each respective year.

Graduate Students and Post-doctoral Fellows

Graduate students and post-doctoral fellows (post-docs) often form the core of research teams working on complex research projects, creating strong links with private and public sector partners. Because of the level of knowledge and skill graduate students and post-doctoral fellows possess, professors can pursue large-scale, visionary, and sometimes risky research agendas—ones that may have the greatest potential for producing major discovery and innovation. Thus, top faculty members seek to join institutions with a reputation for attracting strong graduate students and post-doctoral fellows, who in turn are a key mechanism for knowledge transfer, thereby greatly increasing the U of A's capacity to pursue projects with government, local communities, and Alberta's private sector. The contribution of these research teams' energy and intellectual capacity to the U of A's learning, teaching, and discovery mandate—and to the region as a whole—cannot be overstated.

Training post-doctoral fellows is a core mandate of a medical/doctoral research university, and post-docs are essential team members in the university's discovery and innovation activities. The percentage of post-doctoral fellows to full-time continuing faculty continues on an upward trajectory at the U of A, increasing from 23.8 per cent in 2010–2011 to 28.3 per cent in 2013–2014. Direct and indirect costs associated with post-docs are not included in the university's Campus Alberta Grant, because these individuals are not counted as either staff FLEs or student FLEs. The majority of support for post-doctoral fellows comes from external sources. The U of A continues to build partnerships and opportunities that will deliver direct support to increase the post-doctoral fellow cohort from nearly 600 to 1,000. However, the fact that indirect costs of post-doctoral training are not reflected in the U of A's operating budget creates a challenge for achieving these targets.

The new two-year Alberta Innovates – Technology Futures post-doc program was unveiled across the province in 2013–2014. Ten post-docs received awards of $70,000 per annum at the U of A. They are focusing on entrepreneurship and interactions with industry. Another five awards were made in 2014–2015. This is the first post-doc program at the U of A to focus on translational research in the areas of information and communication technology, nanotechnology, or omics (e.g., genomics, proteomics, metabolomics, transcriptomics, and regulomics) to develop leadership and entrepreneurship skills. The goal is to support the successful transition of university post-docs into industrial settings.

Graduate students are also an essential component of the university's research enterprise, and are among the most highly trained members of the workforce on graduation. In light of their importance to the Alberta economy, an internal review and assessment of institutional strategies and operations for graduate education structures, systems, and programming was completed in 2014. From the recommendations, a number of changes have been implemented, including the establishment of a framework for graduate program quality, and more efficient oversight procedures for various graduate student matters were provided to the relevant departments or faculties. The university has also developed a comprehensive graduate professional development strategic plan to ensure that all graduate students and post-doctoral fellows are equipped with the soft skills they need to succeed as employees or entrepreneurs in all sectors of the economy.

Universities, employers, and policy-makers each have a role in clarifying and strengthening career pathways for post-docs, PhD candidates, and graduate students. A collaborative effort from stakeholders to develop expertise in transforming knowledge, skills, and interests into gainful employment (i.e., graduating highly qualified people) will significantly improve the prospects for

advanced degree holders in Alberta and Canada. It is anticipated that graduates and post-doctoral fellows from the U of A will have the skill sets and competencies to move comfortably between academic and non-academic spheres including industry. A working group has been struck to develop solutions to these issues, and a professional development and innovation and entrepreneurial strategic plan has been developed.

Competitive and Well-Managed Research Resources

The University of Alberta acquires, sustains, and operates highly specialized and diverse research resources, facilities, and services that support discovery, translational, and pre-commercialization research activities. The U of A also provides the platform for regional development and the attraction of external private sector interests in biomedical, medical, livestock, and health sectors. These core research resources, facilities, and services support research undertaken with and on behalf of private and public sector stakeholders to advance the research priorities of the province.

There are other institutional core facilities (e.g., libraries, animal care facilities, research stations, specialized instrumentation units) that evolve as a natural requirement of the university's research and training enterprise. The quality of these facilities also contributes to and determines the quality and functionality of Alberta's overall research and innovation capacity. The ongoing operation of these broadly used facilities is a substantial operating expense for the university, one that is not covered by indirect costs of research or external research funding. The effective and competitive oversight of these resources ranges from the need for upgraded research computing infrastructure to the need for sophisticated biosafety hazard facilities to full-time staff to support advanced biomedical and translational health research.

Canada, like other nations, has established federal programs—such as the Canada Foundation for Innovation—to ensure that it has globally competitive research and innovation infrastructure. Much of this infrastructure resides within Canada's research-intensive universities, where exceptionally skilled graduates are trained and advance discovery and innovation, often in partnership with external partners. The U of A's ability to acquire these resources depends solely on the excellence of its researchers, and to date we have been very successful in securing federal funding to obtain globally competitive research infrastructure. Federal funding agencies follow a strategy of partial, short-term operating funding, with the expectation that the receivers of infrastructure (i.e., the universities and their respective provinces) will assume responsibility for direct operating costs beyond this period. With success in acquiring such infrastructure, the university indirectly accepts and assumes responsibility for its long-term operation through highly specialized staff and other sustainability requirements.

Strategies

The U of A will work with the Ministry of Innovation and Advanced Education to develop a transformed funding and financial model that directly accommodates the direct operating costs of the institution's research enterprise and the platforms it offers for Alberta's advanced research, innovation, and technical service needs.

To maximize effectiveness of constrained internal resources, the U of A will continue to pursue strategies that lead to the consolidation of infrastructure capacity and human skills around core facilities, in cases when it makes sense to do so.

Faculties and departments will re-evaluate their business models and fee structures for external client use of facilities and services that fall outside of collaborative research agreements to ensure costs are recovered.

Advancing Alberta's Innovation Ecosystem

The quality and diversity of the University of Alberta's research capacity—consisting of globally competitive people and a globally competitive environment for discovery and creative activities—is one contributor to Alberta's innovation ecosystem. Knowledge transfer and commercialization initiatives remain institutional priorities. The U of A will continue to seek and develop long-term collaborations with municipal, provincial, national, and international partners; develop entrepreneurship and internship programs for students and professional development programs for Alberta's private sector; and aggressively pursue national and international funds to ensure that Alberta has the advanced infrastructure platforms required for innovation. The U of A will also support and champion opportunities that leverage its existing research capacity in ways that will support new economic engines for the province.

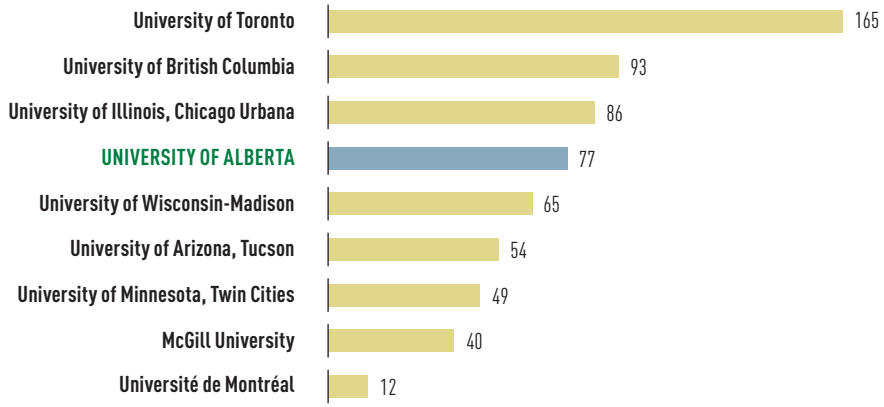
Key updates and outcomes since the 2014 CIP include the following.

- ***TEC Edmonton:*** In 2014, TEC Edmonton was named the 10th best university business incubator in the world—and the top Canadian incubator—by the Scandinavian University Business Incubator Index, a global index assessing and benchmarking the performance and best practices of university business incubators. This assessment is based on 10 benchmark indicators and 50 performance indicators, including value delivered to the local economy, value to startup company clients, and post-incubator performance of startup companies. On June 12, 2014, TEC Edmonton was named the top incubator in the country at the 2014 Startup Canada Awards in Toronto, which recognize excellence in entrepreneurship.

Start-up companies enable the university to share new knowledge with the community and attract top-calibre researchers and inventors interested in collaborating on leading-edge discoveries. These technology transfer activities contribute millions of dollars to the municipal, provincial and national economies.

The following measure reflects not only the creation of spinoffs, but their persistence: an area where the University of Alberta excels.

FIGURE 14 CONTINUING SPINOFFS 2004-2013



Notes: Startups still in operation started at any time during the report period that are still in operation as of the most recent AUTM Licensing Survey. University of California, Los Angeles and University of Texas, Austin are not represented as they are reported as part of the University of California and University of Texas Systems, respectively. The University of Washington does not appear because no startups were reported during the report period. Data are the most recent available. **Source:** AUTM STATT Database.

- ***Medical Isotope and Cyclotron Facility:*** In 2013, the U of A opened the Medical Isotope and Cyclotron Facility at South Campus. This facility houses a $28-million cyclotron research and production facility that will produce clinical-quality technetium-99m, an important isotope used for 80 per cent of nuclear medicine diagnostic procedures for patients across Alberta and Canada with cancer, cardiac, neurological, and other diseases. The facility continues to move toward full production, a development that will help ensure that the country has a reliable supply of medical isotopes to fill the void resulting from the 2016 closure of the Chalk River reactor.

Areas of Capacity and Alberta's Priorities

The University of Alberta takes a lead role in supplying Alberta with the research capacity it requires to achieve the continued and improved social well-being of its citizens, especially within a global context. Three of these objectives, as identified in the 2012 Alberta Research Innovation Plan, are as follows.

- Effective Resource and Environmental Management: Manage the cumulative economic, social, cultural, and environmental effects of past, present, and foreseeable land-use activity associated with developing all of Alberta's natural resources through advances in identifying and understanding the complex environmental and social considerations for informed land use; defining appropriate analytic methods and data collection protocols to be developed with economic, social, and environmental risk assessment as a central component; developing and deploying advanced technologies to measure and mitigate cumulative effects; and understanding the complex interplay of social, cultural, economic, and environmental factors that determine the consequences of environmental and resource management decisions.

- A Broadened Economic Base: Develop a bio-economy that transforms the province's biological resources into new sources of energy, new industrial sectors and value-added products, and new economic opportunities for rural communities and producers. In addition, the province's economic base is broadened through energy diversification, food and agriculture innovation, and health industry innovation.

- Resilient, Healthy Communities: Provide individual Albertans and communities with effective, inclusive, and accessible structures and systems for health services, education, and cultural engagement so that they can embrace regional and global changes and opportunities.

The sections below present brief descriptions of the U of A's activities in its seven thematic areas, and their alignment with Alberta's priorities. Appendix 8 presents details on areas of research capacity, including the federally, provincially, and privately funded research chairs; strategies for enhanced capacity and outcomes; intended areas for infrastructure capacity investment; and research capacity funding challenges.

HUMANITIES AND FINE ARTS

Humanities and fine arts scholarship and creative activities advance clarity, insight, and understanding about cultural development and interactions, historical influences and contexts, awareness and construction of meaning, and the multiple media and creative activities that individuals, societies, and cultures use to express themselves and their ideas.

Impact on Alberta: Alberta's vision for healthy and resilient individuals and communities has identified culture, community engagement, and "inclusion" as central areas of concern. U of A research capacity enables these topics to be framed and understood within the 21st-century context of increasing globalization, expanding digital information technologies, and shifting social and cultural values. Strong capacity exists in the history and culture of key international regions, including China, Japan, Ukraine, Africa, and central Europe, as well as of Canada's First Nations. Excellence in humanities computing spans the study and dissemination of philosophy, literature, women's

and gender studies, gaming, and fine arts. Humanities research capacity also anchors some of the institution's new international activities. With the awarding of a Centre of Excellence in European Union Studies by the European Commission, the U of A is well positioned to advance social, cultural, and economic opportunities that emerge through new relationships between Canada and the EU. Humanities scholars also collaborate with Alberta ministries on a number of cross-disciplinary projects exploring the intersection of arts and culture, community engagement, health, environment, and education.

Fine arts scholarship and creative activity at the U of A enriches the cultural environment of Alberta's capital region, and drives the cultural and artistic economic sectors. The university's investment in this area includes the Timms Centre for the Arts, the Jeanne and Peter Lougheed Performing Arts Centre in Camrose (officially opened in 2014), FAB Gallery, and Convocation Hall. The U of A also contributes through ongoing interactions with symphonies, theatre companies, the Edmonton Fringe Festival, the Works, and the Art Gallery of Alberta. There will be continued investment in partnerships with the City of Edmonton and the Edmonton Arts Council, and in activities undertaken within centres and institutes focused on francophone heritage, central and eastern European cultures, China, and Japan. Securing enhanced facilities for music performance remains an institutional priority. The downtown Galleria project would make an important contribution to these disciplines.

Social Structures and Systems

Social sciences advance understanding of how social structures, institutions, and systems evolve, act, and interact to influence the behaviour, effectiveness, and well-being of individuals, groups, regions, and nations. Society's changing educational, political, economic, and legal objectives are realized through advances and innovations in its social structures and systems. The U of A has a strategic priority to foster collaborations with all of Alberta's ministries, the public sector, and non-governmental organizations to enhance the quality of life in our society.

Impact on Alberta: Alberta's research agendas for managing cumulative effects of resource development and for developing a bioeconomy identify notions of "social licence," corporate responsibility, community resiliency, and engagement as central challenges. The U of A provides broad socio-economic research capacity for addressing these complex challenges. This capacity can inform policy and programs through the development and testing of market-based instrument tools that can enhance analysis about the provision of natural resources such as water, as well as about land use, community responses to climate and population change pressures, and collaborative community management and use of natural resources. The U of A appointed international scholar Emilson Silva to hold the CAIP Chair in Innovation Policy and Technology Translation, with special focus on water and energy. Research capacity in professional learning, communities of practice, and lifelong learning also directly addresses the labour and workplace needs of both urban and rural communities. Establishing new facilities to support research and teaching in finance and accounting, organizational behaviour, corporate structures, and other areas of business is an institutional priority.

The U of A remains the lead institution for the multidisciplinary CIHR Alberta Network Environments for Aboriginal Health Research, which assembles professionals in Aboriginal health care, education, public health, sociology, nursing, and nutrition. As well, the U of A's Aboriginal Health and Education initiative investigates culturally appropriate health care and services, and indigenous approaches to health service and delivery issues.

Research capacity in social theory and socio-legal studies has been enhanced through the appointment of George Pavlich as a Tier 1 Canada Research Chair. Health law and science policy continues as an institutional strength and contribution to federal initiatives on personalized medicine technologies.

SCIENCE AND TECHNOLOGY

The U of A nurtures and sustains expertise and impact in the natural and physical sciences, engineering, human behavioural sciences and neurosciences, mathematics and statistical sciences, computing sciences, nanoscience, and nanotechnology. The U of A aims to lead and to participate in national and global efforts aimed at advancing fundamental discoveries, particularly in domains such as space sciences and physics, which require the intellectual and financial resources of multiple nations and institutions.

Impact on Alberta: The U of A's ability to lead and participate in multinational "big science" efforts in areas such as space sciences, climate change, and physics contributes to Alberta's intellectual reputation and global impact, and creates scientific and engineering training opportunities for Alberta students at the most elite science installations across Canada and the world (e.g., CERN). The U of A's capacity is also well established in provincial priority areas of nano, ICT, and "omics," which serve as platform sciences for innovations in education, health, the bioeconomy, and sustainable energy and environment.

The U of A will continue to partner on initiatives in data analytics, identified as a strategic priority for Alberta Innovates – Technology Futures. The IBM-Alberta Centre for Advanced Studies connects U of A researchers and industrial partners to advanced data analytics research for health analytics, Earth observation sciences, resource geosciences, and drug design. Theoretical and applied mathematics and statistics serve as additional "platform" disciplines that enable advances in these areas as well as in economic and social modelling, business and finance, and industrial analytics. The university's capacity in next-generation modelling methods, sciences, and technologies for environmental and natural resource applications (e.g., exploration, prediction, and monitoring) supports collaborative research projects with several Alberta ministries and with international partners in Germany and Brazil. Work in human cognition and behaviour contributes to evidence-based policies and practices for enhancing child and family development, developing innovative educational technologies, and diagnosing and treating neurological disabilities, diseases, and disorders, especially related to aging. The work done by the Women's and Children's Health Research Institute (WCHRI) and Translating Research in Elder Care (TREC), which is co-led by investigators at the University of Calgary and the U of A, are examples of two units carrying out this research and knowledge translation. These broad topics and related ones are signalled as priority concerns by different ministries in their respective strategic plans, and U of A researchers, graduate students, and post-doctoral fellows continue to work with those ministries on a number of initiatives.

ENERGY

The U of A's cross-disciplinary and cross-sector energy research addresses all aspects of conventional and non-conventional energy development and distribution, environmental sustainability, and economic analysis, market instruments, and policy.

Impact on Alberta: Much of the U of A's sustained and continued growth in energy research advances the broad objective of sustainable energy and environment, especially in areas of water usage, treatment, quality, and supply. The integration of disciplines to advance discovery and innovation for sustainable energy is a key strength at the U of A. This is reflected in deep and broad capacity in chemical engineering; materials sciences; chemistry, nanoscience, and molecular biology; legal and economic policy analysis; land use impact; and advanced ICT. This collective capacity supports the Government of Alberta's resource stewardship objectives, and specific challenges identified by Alberta Innovates – Energy and Environment Solutions, such as reducing or eliminating the use of water and tailings ponds in oilsands processing; effectively treating existing waste water and tailings ponds; developing science and technology for improved waste water quality in the future; addressing socio-economic issues arising from the cumulative effects of resource development; and analyzing policy for

market-based approaches to land use, for environmental regulations, and for water use. The U of A's strength in energy research is the foundation for its international partnerships in Germany, China, India, and increasingly Brazil, which furthers Alberta's goals for global interactions and connections with international industries. The U of A's Water Initiative focuses on water use and reuse in natural resource exploration and processing as one of its thematic areas of focus in the broader context of water quality, supply, and usage. The U of A is currently recruiting a prestigious Canada Excellence Research Chair (CERC) in SmartGrids (a modernized electrical grid that uses advanced ICT to inform decisions that increase the efficiency, sustainability, and reliability of the production and distribution of electricity), who will join the university's other three CERCs in 2015.

ENVIRONMENT

Environmental research advances scientific understanding, advanced analytic techniques and technologies, and best practices that are collectively required to sustain healthy ecosystems of water, air, plant, and animal life. It also examines the interaction of ecosystems with the physical health of individuals and the socio-economic health of communities, especially in response to both natural and human-induced pressures.

Water quality in non-urban communities is one of the three theme areas of the university's Water Initiative. Water quality outside of urban centres affects the economic and social sustainability of Alberta's small communities, and has an impact on recreation and tourism. This focus is driving both local and global projects that integrate the U of A's capacity in public health and environmental chemistry, engineering, and cultural and social systems. The U of A has increased its capacity, and recruited a leading scientist from outside of Canada, through its 2013 nomination of an Alberta Innovates – Health Solutions Translational Health Research Chair in water and public health. Nicholas Ashbolt took up his appointment late in 2013. Another 2013 international recruit, Daniel Alessi, is filling an industry-sponsored chair in water resources.

Two CAIP Chairs were recruited in 2014 who work on environmental topics: Aquatic Ecosystem Health (Suzanne Tank, Department of Biological Sciences), and Watershed Management and Wetland Restoration (David Olefeldt, Department of Renewable Resources). This capacity supports Alberta's priorities and objectives for healthy and resilient communities, and for informed environmental stewardship policies.

FOOD AND BIO-RESOURCES

Research in food and bio-resources is directed at discovering and applying the knowledge necessary for developing sustainable bio-economies; enhancing the health qualities of food and the resilience of crops, plants, and forests in response to human and climate-induced pressures; and addressing agribusiness sector challenges in food safety and animal health.

Impact on Alberta: The U of A's capacity in food science, food production, and the bio-economy—bioproducts, biomaterials, and bioenergy—creates the knowledge base for achieving provincial economic diversification. This capacity is built on depth in disciplines that include genetics, food and soil sciences, molecular biology, nanotechnology, and resource economics. Integrated research in petrochemicals, nanoscience, biochemistry, proteomics, and systems biology is leading to the development of value-added products from the waste produced by wood, plants, and crops. New public and private sector research funding is accelerating the work to convert animal fats and crop seed oil into hydrocarbons, solvents, and high-value chemicals. The development of a nano-enabled biomaterials program, leveraging the facilities and capacity at the National Institute for Nanotechnology, represents a significant new trajectory for Alberta's bio-economy.

Nutrigenomics and plant genetics research are advancing the food value of crops and their resistance to drought and disease. Much of the U of A's food and bio-resource research is done in collaboration with industrial partners from the agribusiness sectors and ministries, and includes

a strong commercialization component. The future of Alberta's water supply is one of the three thematic areas of focus within the university's Water Initiative. Southern Alberta's agricultural and food production regions are currently affected by climate- and human-induced (e.g., population growth) stresses on water supply, and these stresses are predicted to increase over the coming decades. U of A cross-disciplinary capacity in sustainable agriculture, socio-economic analysis, and climate change supports Alberta's decision-makers in developing effective policies that will help sustain these regions and communities. Researchers in the Department of Resource Economics and Environmental Sociology are doing work related to rural sociology and environmental/resource economics that informs decisions made in Alberta related to crop resilience. The recently concluded IDRC-DFATD Canadian International Food Security Research Fund (CIFSRF) study in India and Africa, led by faculty members in the Department of Agricultural, Food and Nutritional Science, has informed decision-making about sustainable agriculture.

Additional capacity was added in 2014 through the recruitment of two CAIP Chairs whose focus is on food: Nutrition Microbes and Gut Health (Jens Walter in the Department of Agricultural, Food and Nutritional Science), and Nutrition, Food and Health (Carla Prado in the Department of Agricultural, Food and Nutritional Science).

HEALTH AND WELLNESS

The U of A undertakes a fully integrated approach to human health and wellness research and training, one that addresses the full spectrum of human health determinants, including clinical factors and predispositions, socio-political and economic environments, and individual characteristics and behaviour. Activities advance and integrate discovery research, translational research, and clinical research across medical and life sciences, health professions, computing sciences, economics and law, nanoscience, engineering, and technology assessment.

Impact on Alberta: The U of A has developed health research expertise and reputation primarily around a small set of health and wellness concerns (e.g., chronic diseases, cardiology, oncology, infectious diseases, mental health, and special populations), with significant capital and operating investment in facilities for medical research, clinical research, and advanced clinical treatments. Translational research and knowledge transfer is supported by key partnerships with Alberta Health Services; a large complement of clinical research staff; expertise in social, cultural, environmental, and population health influences on individual and community health; biomedical engineering; and patient management and care. The Edmonton Clinic Health Academy supports institutional and provincial objectives for inter- and intra-professional health and wellness research and training.

U of A researchers and facilities advance initiatives and objectives set by Alberta Innovates – Health Solutions and Alberta Health Services, from improved health delivery systems to personalized medicine to strategic clinical networks (SCNs). U of A faculty members are serving as medical directors or scientific directors of several of the SCNs within Alberta Health Services. In 2013, research chairs established in conjunction with Capital Health and AIHS increased capacity in the following areas of provincial priority and institutional strength: transplantation, psychiatry, cardiac sciences, primary care research, family medicine, oncology, and women's health research. The U of A's five-year contract to serve as one of 11 evidence-based practice centres with the U.S. Agency for Healthcare Research and Quality will connect external expertise and capacity with Alberta stakeholders and issues.

The recruitment of cancer researcher Lynne Postovit, AIHS Translational Health Chair in Epigenetics, has added research capacity in the province. Recruitment is currently underway for two AIHS Translational Health Chairs in Personalized Cardiovascular Medicine (one senior and one junior), as well as a junior Chair in Health Outcomes.

Access and Programming Measures

QUALITY

- admissions averages
- application to registration yield
- ratios of undergraduate to graduate students, professors to all students, professors to graduate students
- student satisfaction

THE LEARNING ENVIRONMENT

- participation rate in Centre for Teaching and Learning programming and number of Teaching and Learning Enhancement Fund applications
- number of national teaching award recipients
- student satisfaction
- number of rural and francophone students
- number of Aboriginal students, faculty, and staff
- number and diversity of international students
- retention and completion rates for undergraduate and graduate students

STUDENT EXPERIENCE AND ENGAGEMENT

- application, admission, and registration yields
- retention and completion rates
- student satisfaction
- average financial support for students
- number of funded internship and undergraduate research opportunities
- number of study abroad and international internship opportunities

INNOVATIVE PROGRAMMING

- number of new programs approved or implemented
- application, admission, and registration yield rates

CONNECTIONS AND COLLABORATIONS

- number of new collaborative partnerships each year
- participation rates in internship and study abroad programming

Access and Programming Strategies

QUALITY

Strategies

- Attract and retain outstanding students.
- Provide foundational support structures for students to create positive student experiences and engagement.
- Recognize and celebrate student accomplishments.
- Maintain a system of quality assurance processes and mechanisms to ensure the programs offered by the University of Alberta are of the highest quality.

THE LEARNING ENVIRONMENT

Strategies

- Ensure a high level of teaching quality.
- Ensure a diversity of students and faculty.
- Ensure the development and maintenance of quality formal and informal learning spaces.
- Enhance the digital environment and online presence of the institution.

STUDENT EXPERIENCE AND ENGAGEMENT

Strategies

- Improve admissions and registration processes for all students.
- Support programs and initiatives to help increase retention and completion rates.
- Provide enhanced experiential learning opportunities.
- Enhance extracurricular and co-curricular learning opportunities (i.e., supporting services, activities, and campus facilities that encourage and help facilitate student success).
- Continue to create international opportunities for students.
- Provide foundational support structures for students in order to create a nurturing environment that allows for positive student experience and engagement.
- Provide foundational support structures for Aboriginal students to create an environment that allows for positive student experience and engagement.
- Create a safe and secure environment on U of A campuses that is supportive of a positive student experience.

PROGRAMMING

Strategies

- Continue development of innovative programming to meet the needs of students and the community.
- Increase access to current high-demand programs.
- Ensure appropriateness and relevancy through course and program reform.
- Provide valuable laddering opportunities from high school to post-secondary study, undergraduate to graduate study, and post-secondary study to professional experience.
- Continue to offer a range of lifelong learning opportunities through continuing and professional education programs.

CAMPUS ALBERTA AND CANADIAN CONNECTIONS AND COLLABORATIONS

Strategies

- Increase interdisciplinary, collaborative program and initiative development in order to offer students innovative and relevant educational opportunities.
- Maximize program innovation at the Campus Alberta level in order to create exciting learning opportunities and program efficiencies.
- Maximize program innovation in collaboration with national partners in order to create exciting learning opportunities.

INTERNATIONALIZATION

Strategies

- Selectively expand existing consortia and develop new ones that advance institutional objectives for innovative learning opportunities and for diversified excellence and impact across disciplines.
- Develop initiatives that create opportunities for joint projects, student mobility, undergraduate and graduate student recruitment, and international funding.
- Pursue global impact opportunities through CIDA and similar funding competitions.
- Invest resources to ensure conversion of international applicants to international registrations, and the subsequent academic success of international students at the U of A.
- Develop new credentials and programs that provide U of A students with the understanding and skills related to success in a globalized society.

Research Capacity and Impact Measures

Talented People

- Assessment of the University of Alberta relative to a selected peer group in total research funding and Tri-Council funding*
- Total sponsored research dollars from Alberta companies, Alberta government, and NGOs*
- Total international research investment from foreign national agencies and funding bodies*
- Prestigious national and international awards for faculty, post-doctoral fellows, and graduate students*
- Engagement of faculty in federal and international advisory roles*
- National and international research and creative activity initiatives that the U of A leads or participates in*
- Numbers of fully or partially funded graduate students, international graduate students, and post-doctoral fellows*
- Research consortia and partnerships formed with top-tier international partners
- Success in targeted federal competitions for innovative research, innovation, and creative activities programs
- Success on institutional review visits by Tri-Council, CFI, and other agencies

Diversity in Areas of Excellence and Impact

- Diversity of external private, public, and NGO partners that fund or collaborate on research and creative activities
- Research initiatives with city and rural stakeholders
- Engagement of faculty in federal and international advisory roles on policy*

*Outcomes on these metrics are presented in the main text and figures.

Competitive and Well-Managed Resources for Research, Innovation, and Creative Activities

- Reinstatement of specialized support staff
- Upgraded shared research resources through deployment of special funding
- Success in federal infrastructure competitions*

Impact on Alberta

- Number of private and public sector users of U of A centres, institutes, and specialized infrastructure
- Number of graduate student internships occurring in Alberta
- Number of formal undergraduate interns and co-op students undertaken in Alberta
- Number of sponsored or contract research initiatives undertaken with Government of Alberta ministries
- Number of continuing spinoff companies associated with U of A activities*
- Number of patents, inventions, and licences stemming from U of A research through TEC Edmonton*
- Direct contribution to the regional economy from TEC Edmonton activities (see TEC Edmonton Annual Report)

*Outcomes on these metrics are presented in the main text and figures.

Research Capacity and Impact: Strategies and Outcomes

Strategies

- Invest in competitive recruitment offers to recruit exceptional faculty.
- Invest in mechanisms to ensure recognition of faculty accomplishments.
- Invest in external and internal research chair opportunities and infrastructure programs to build, retain, or enhance capacity in emerging areas of priority or impact across disciplines.
- Invest in centres, institutes, and initiatives that represent significant research capacity to address global challenges, and integrate these efforts with international strategies and opportunities.
- Establish internal mechanisms to assess, prioritize, and monitor current and proposed strategic investments.
- Invest in organizational units that lead to increased success within national and international funding competitions, especially on large cross-disciplinary team grants.
- Invest in graduate student recruitment strategies and partnership programs to recruit exceptional graduate students from Canada and internationally.
- Identify ways to fund the full costs of an increased post-doctoral fellow cohort that will complement existing programs.
- Foster collaborations with Alberta's ministries, health sector organization, the public sector, and non-governmental organizations to enhance the quality of life in society.
- Expand advancement activities to secure philanthropic and private-sector endowment funds for priority initiatives leading to excellence and impact.
- Invest in building research consortia with other Alberta and Canadian universities, and with select international partners to create new and broader avenues of impact.
- Partner with other Canadian universities to create national, leading-edge facilities.
- Invest in new academic programs and external collaborations that advance knowledge mobilization and technology transfer.
- Invest in research administration services and systems to ensure effective and responsive management of agreements and contracts with internal and external stakeholders.
- Invest resources as institutional funding contributions on multi-user and multi-team infrastructure proposals.
- Use eligible funding sources to temporarily bridge critical research operating shortfalls in multi-user core facilities.
- Develop structures, mechanisms, and resourcing frameworks to consolidate shareable facilities for research and creative activities, where possible.
- Invest resources in opportunities to establish national, leading-edge facilities that open up new research and innovation avenues.
- Increase formal and active mobility programs for researchers and students.

Selected Outcomes

- In collaboration with the universities of Calgary and Lethbridge, the University of Alberta led a Campus Alberta initiative with the Canadian Institutes of Health Research, Alberta Innovates – Health Solutions, Alberta Health Services and Alberta Health to develop the Alberta Strategy for Patient Orientated Research (SPOR) Support Unit (funded in June 2013 for $48 million over five years).
- Three new NSERC Industrial Research Chairs were approved and three were renewed.
- Thirteen new Canada Research Chairs were awarded to the institution and there were three successful CRC renewals and two CRC advancements from Tier II to Tier I.
- Five faculty members (and one adjunct professor) were elected Fellows of the Royal Society of Canada (RSC); three faculty members at the early stages of their careers were elected to the RSC's new College of New Scholars, Artists and Scientists; and seven faculty members were elected Fellows of the Canadian Academy of Health Sciences in 2014.
- Canada Foundation for Innovation 2013–2014 awards yielded $3.6 million in federal contributions towards $9.7 million in infrastructure investments.
- The U of A led on more than $7 million in research grants from the Canadian International Development Agency (CIDA).
- U of A International expanded its international research internships, placing 107 international research interns in 2014–2015, up from 83 in 2013–2014.
- On behalf of Campus Alberta, the U of A successfully secured three years of funding for Phase II of the Alberta-Saxony Intercultural Internship Alliance (ASiiA). There have been 52 participants (22 in 2013 and 30 in 2014), consisting of 36 Alberta students and 16 Saxony students.
- The U of A boasts one of the largest sponsored student enrolments in North America, with 547 students (336 graduate, 211 undergraduate) in Fall 2014 who are sponsored by 64 organizations in 38 countries.
- In 2014, TEC Edmonton was named the 10th best university business incubator in the world—and the top Canadian incubator—by the Scandinavian University Business Incubator Index, a global index assessing and benchmarking the performance and best practices of university business incubators. TEC Edmonton was also named the top incubator in the country at the 2014 Canada Startup Awards in June.
- In 2013, the U of A opened the Medical Isotope and Cyclotron Facility at the South Campus. This facility houses a $28-million cyclotron research and production facility that will produce clinical-quality technetium-99m, an important isotope used for 80 per cent of nuclear medicine diagnostic procedures for patients across Alberta and Canada with cancer, cardiac, neurological, and other diseases.
- Construction of the shell and core for the Innovation Centre for Engineering was completed.
- The U of A appointed 10 AITF Post-doctoral Fellows, as part of a two-year pilot program, whose training will focus on entrepreneurship, innovation, and knowledge translation.


Health Systems
1-240
Learning Resource Centre
5-470
Office of Education
Faculty of Medicine & Dentistry
3-476
Continuous Professional Learning
2-590
FoMD Simulation Program
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Physician Learning Program (PLP)
2-590
3-470

THE ACADEMY: APPENDICES

Appendix 1: Enrolment Targets Measured in FLEs (Does not include PGME/DE)

	2013-14 Target				2013-14 Actuals				2014-15 Target				2014-15 Estimated Actuals				2015-16 Target				2016-17 Target			
	UNDER-GRAD	GRADU-ATE MASTERS	GRADU-ATE DOCTORAL	TOTAL	UNDER-GRAD	GRADU-ATE MASTERS	GRADU-ATE DOCTORAL	TOTAL	UNDER-GRAD	GRADU-ATE MASTERS	GRADU-ATE DOCTORAL	TOTAL	UNDER-GRAD	GRADU-ATE MASTERS	GRADU-ATE DOCTORAL	TOTAL	UNDER-GRAD	GRADU-ATE MASTERS	GRADU-ATE DOCTORAL	TOTAL	UNDER-GRAD	GRADU-ATE MASTERS	GRADU-ATE DOCTORAL	TOTAL
ALES	1,227	225	215	**1,667**	1,312	391	287	**1,990**	1,227	225	215	**1,667**	1,270	368	272	**1,910**	1,227	225	215	**1,667**	1,227	225	215	**1,667**
Arts	5,121	393	366	**5,880**	5,011	474	554	**6,039**	4,871	393	449	**5,713**	4,836	417	503	**5,756**	4,871	393	449	**5,713**	4,871	393	449	**5,713**
Augustana	899	-	-	**899**	895	-	-	**895**	899	-	-	**899**	952	-	-	**952**	899	-	-	**899**	899	-	-	**899**
Business	1,786	234	60	**2,080**	1,813	416	70	**2,299**	1,786	234	60	**2,080**	1,788	434	55	**2,277**	1,786	234	60	**2,080**	1,786	234	60	**2,080**
Education	2,797	409	267	**3,473**	2,817	431	334	**3,582**	2,551	450	308	**3,309**	2,476	458	322	**3,256**	2,551	409	349	**3,309**	2,551	409	349	**3,309**
Engineering *	3,560	708	612	**4,880**	4,006	859	874	**5,739**	4,020	708	612	**5,340**	4,208	713	839	**5,760**	4,340	708	612	**5,660**	4,500	708	612	**5,820**
Extension	-	30	-	**30**		32	-	**32**		30	-	**30**	-	32	-	**32**	-	30	-	**30**		30	-	**30**
Law	525	4	8	**537**	527	10	10	**547**	525	4	8	**537**	526	3	9	**538**	525	4	8	**537**	525	4	8	**537**
Medicine & Dentistry	1,055	259	279	**1,593**	1,068	341	370	**1,779**	1,050	259	279	**1,588**	1,078	344	383	**1,805**	1,045	259	279	**1,583**	1,040	259	279	**1,578**
Native Studies	130	8	-	**138**	97	12	-	**109**	130	8	-	**138**	123	8	-	**131**	*130*	8	-	**138**	*130*	8	-	**138**
Nursing	1,439	84	84	**1,607**	1,565	70	76	**1,711**	1,401	84	84	**1,569**	1,561	61	76	**1,698**	1,384	84	84	**1,552**	1,354	84	84	**1,522**
Pharmacy **	467	15	31	**513**	470	23	39	**531**	467	15	31	**513**	478	20	36	**534**	467	15	31	**513**	467	15	31	**513**
Phys Ed & Recreation	800	55	56	**911**	849	88	70	**1,007**	800	55	56	**911**	849	77	61	**987**	800	55	56	**911**	800	55	56	**911**
Rehab Medicine †	-	806	32	**838**	2	851	52	**905**		835	32	**867**	-	861	48	**909**	-	835	32	**867**		835	32	**867**
Saint-Jean	514	28	-	**542**	497	22	-	**520**	514	28	-	**542**	526	16	-	**542**	514	28	-	**542**	514	28	-	**542**
Public Health	-	147	30	**177**		199	48	**248**		147	30	**177**	-	191	49	**240**		147	30	**177**		147	30	**177**
Science	5,488	517	680	**6,685**	5,715	708	777	**7,201**	5,488	517	563	**6,568**	5,589	630	713	**6,932**	5,488	517	563	**6,568**	5,488	517	563	**6,568**
Open Studies	543		-	**543**	582	5	-	**586**	543		-	**543**	570	13	-	**583**	543	-	-	**543**	543		-	**543**
				-				-				-				-				-				-
Total FLEs	**26,351**	**3,922**	**2,720**	**32,993**	**27,228**	**4,932**	**3,560**	**35,720**	**26,272**	**3,992**	**2,727**	**32,991**	**26,830**	**4,646**	**3,366**	**34,842**	**26,570**	**3,951**	**2,768**	**33,289**	**26,695**	**3,951**	**2,768**	**33,414**

* The targets for Engineering UG and Rehabilitation Medicine were changed effective 2014-15 to include newly funded enhanced enrolment FLEs.
** The undergraduate target in the Faculty of Pharmacy and Pharmaceutical Sciences was changed for 2013-14 as a result of a re-calculation of the full-load equivalent, in consultation with IAE.
† Medicine and Nursing UG targets include FLEs funded by one-time Health Funding that will expire in 2015-16, therefore their targets decrease in 2016-17 (as does Rehab for 2013-14)

International Enrolment	*3,953*		*1,993*	*5,945*	*3,351*		*3,371*	*6,722*	*3,941*		*2,688*	*6,628*	*3,488*		*3,205*	*6,693*	*3,986*		*2,688*	*6,673*	*4,004*		**2,688**	*6,692*
	15%		*30%*	*18%*	*12%*		*40%*	*19%*	*15%*		*40%*	*20%*	*13%*		*40%*	*19%*	*15%*		*40%*	*20%*	*15%*		*40%*	*20%*

Note: The International enrolment numbers provided here are also included in the overall enrolment numbers provided above.

Appendix 2: Aboriginal Access, Enrolment, and Programming Initiatives

INITIATIVE	FACULTY	NEW TO CIP 2015
Bachelor of Science in Environmental and Conservation Sciences, Northern Studies Major, in collaboration with Yukon College	Agricultural, Life and Environmental Sciences/ Native Studies	NO
Development of Aboriginal Initiative in the Faculty of Arts, including: Aboriginal Student Advisor, targeted aboriginal hires in Art and Design and History and Classics, planned Tier II CRC in Indigenous Governance, and "Decolonizing the Curriculum" Working Group	Arts	YES
The Centre for Indigenous Language Literacy Development Institute is delivering the Enbridge Community Linguist Certificate in Maskwacis, AB and obtained a SSHRC Partnership Grant to develop machine language technologies for indigenous languages.	Arts	YES
New Transition Year Program (TYP) entry requirements will promote flexibility and improve access for Aboriginal students.	Arts	YES
Tapwe Indigenous Writers Gathering 2014, Department of English and Film Studies	Arts	YES
Aboriginal Recruitment and Retention Officer to attract and support Aboriginal students	Arts	NO
Canadian Indigenous Languages and Literacy Development Institute offers summer courses to Aboriginal community members with a goal to preserve indigenous languages	Arts/Education	NO
Aboriginal Student Commons	Augustana	YES
Collaboration with other liberal arts campuses through Teagle Foundation grant to share Native/Indigenous Studies courses	Augustana	YES
Partnership with Maskwacis Cultural College to improve flow of Aboriginal students to Augustana	Augustana	NO
Membership in Alberta Aboriginal Recruitment Network	Augustana	NO
Staff member appointed to serve as Aboriginal recruitment specialist	Augustana	NO
Development of a minor in Native Studies to be offered at Augustana	Augustana, Native Studies	NO
Alberta Business Family Institute: The Alberta Family Institute aboriginal programming is provided through the *Change It Up—Aboriginal Entrepreneurship Program and MentorNation Aboriginal Entrepreneur Mentorship Program and the Aboriginal Financial Literacy Program.*	Business	YES
Indigenous Partnership Development Program through Executive Education begins in January 2015	Business	YES
Development of an Aboriginal Governance and Industry Partnership program in the Executive Education program	Business, Native Studies	NO
Innovative Graduate Cohort in Indigenous Peoples Education in the Department of Educational Policy Studies funded by the Department and the Faculty	Education	YES
Faculty goal to reach 10% Indigenous faculty members (currently 8 Aboriginal scholars of 116 total)	Education	YES
New Post-doctoral fellow in Aboriginal teacher education	Education	YES
Teacher education model with new compulsory Aboriginal component for all programs	Education	NO
Master of Education in Indigenous People's Education cohort	Education	NO
Aboriginal Teacher Education Program: Two new ATEP cohorts in collaboration with Portage College and Northern Lakes College; new Northern Teacher Education cohort in collaboration with Keyano College	Education	NO

INITIATIVE	FACULTY	NEW TO CIP 2015
DiscoverE outreach program reaches 4,000 Aboriginal students from grades 1 to 12 with exciting engineering and science activities	Engineering	NO
Through the programming of events (including film screenings, lectures and panel discussions), and through over 100 keynote lectures, plenary speeches and workshops per year (delivered by Dr. Cindy Blackstock), FNCARES educates about the effects of structural inequities for First Nations children to engage people in becoming part of the solution.	Extension	YES
Proposed Master of Arts in Community Engagement	Extension	NO
The Board of Directors of the Circle for Aboriginal Relations contributes $50,000 to partner with the U of A in the development of curriculum for Industry Relations Training.	Extension	NO
The Metis Settlements Life Skills Journey research project offers youth summer camps for children aged 7-14 in Buffalo Lake and Kikino Settlements. Programs are evaluated for individual and community impact as well as engagement strategies and outcomes.	Extension	NO
Low Income Individuals and the Law (new clinical course): students work with marginalized clients including urban Aboriginal youth and adults	Law	YES
Development of Gladue Sentencing principles and reports training program	Law	YES
Kawaskimhon National Aboriginal Moot	Law	YES
Restructured staff complement to strengthen cultural support for Aboriginal students	Law	NO
Doctor of Medicine admission guidelines for admission of up to five students from Aboriginal backgrounds	Medicine and Dentistry	NO
Development of Diversity Policy as per requirements of accreditation process	Medicine and Dentistry	NO
New theme of social justice in undergraduate curriculum, beginning with sessions on Aboriginal Health in Year 1	Medicine and Dentistry	NO
Pipeline program for Aboriginal students with undergraduate degrees who do not meet the minimum GPA standard for admission to the MD program	Medicine and Dentistry	NO
Cree instruction offered online in the Bachelor of Arts in Native Studies program	Native Studies	NO
Master of Arts in Native Studies online offering, developed for working professional and leaders in Aboriginal, Northern, and rural communities	Native Studies	NO
Development of a Doctor of Philosophy in Native Studies program	Native Studies	NO
MOU with Dechinta Bush University servicing Northern students	Native Studies	NO
Community service learning component added to the existing Master of Arts in Native Studies program	Native Studies	NO
Freestanding certificate in Aboriginal Governance and Partnership online offering	Native Studies	NO
Partnerships with Aboriginal groups and programs on campus on initiatives to improve recruitment, retention and completion rates	Native Studies	NO
Review of the existing certificate in Aboriginal Sport and Governance to ensure that program is meeting objectives	Native Studies, Physical Education and Recreation	NO

INITIATIVE	FACULTY	NEW TO CIP 2015
Aboriginal Nursing Initiative focus on attracting Aboriginal students to nursing education	Nursing	NO
Designation of six Nursing seats to Aboriginal students	Nursing	NO
Dedicated Aboriginal coordinator and faculty assignments that support Aboriginal student initiatives	Nursing	NO
Participation by two faculty members with the Canadian Association of Student Nurses Task Force on Cultural Competency and Cultural Safety on a document to increase the integration of Indigenous knowledge aligned with the cultural safety framework for faculty and students	Nursing	NO
Centre for Injury Prevention involved in injury surveillance in Aboriginal communities	Public Health	YES
Many research projects in partnership with Aboriginal communities in Alberta and Northwest Territories	Public Health	YES
International and Aboriginal Advisor	Science	YES

Appendix 3: Rural Access, Enrolment, and Programming Initiatives

INITIATIVE	FACULTY	NEW TO CIP 2015
Alberta Centre for Sustainable Rural Communities fosters collaboration in research, undergraduate teaching and policy development	Agricultural, Life and Environmental Sciences	NO
Arts Work Experience is developing rural placements to enable students to do co-op terms in home communities.	Arts	YES
MOOC "Understanding Video Games" is offered as online course STS 351 for credit.	Arts	YES
Live-streaming of Faculty of Arts courses to Augustana campus (e.g. SCAND 342: Vikings and Sagas)	Arts	YES
Annual conference involving campus and community on themes related to Responsibility to the Land	Augustana	YES
Completion of Jean and Peter Lougheed Performing Arts Centre, a collaboration with the City of Camrose and Camrose County	Augustana	YES
Science fair/Olympics for Battle River School Division	Augustana	YES
MOU with Grande Prairie Regional College resulting in two new 2+2 agreements: Bachelor of Science with major in Biology and Bachelor of Science/Bachelor of Arts with major in Psychology; third new 2+2 agreement has been initiated in the Bachelor of Arts in Drama program	Augustana	NO
Rural Capacity Interns placed in projects in rural communities to assist in addressing capacity issues and to create meaningful rural-based undergraduate student experiences	Augustana	NO
Alberta Business Family Institute offers rural family business training programs for entrepreneurs and family businesses through its Roadmap program series, Rural Facilitator Training Program and consultation programming.	Business	YES
Two new MEd cohorts in Educational Administration and Leadership delivered in Bonneville and Grande Prairie (to include all northern school districts, summer residency will be offered in person at GPRC)	Education	YES
Career and Technology Bridging Program in collaboration with communities, school districts, Alberta Schools, and Alberta Education with heavy emphasis on core trades and industries in Alberta	Education	NO
Collaborative BEd Programs with Alberta Colleges including: • Aboriginal Teacher Education Program delivered through Northern Lakes College, Portage College, and Blue Quills First Nations College via blended delivery • Teacher Education North Program delivered through Grand Prairie Regional College • Rural Teacher Education delivered through Keyano College • Middle Years Program through Red Deer College (demand each year exceeds spaces available)	Education	NO
Online Master of Library and Information Studies program with online delivery to attract rural Alberta students	Education	NO
Master of Education in Education Policy Studies (Educational Administration and Leadership Specialization) in collaboration with Red Deer College, Central Alberta Public and Separate School jurisdictions, and Zone 4 College of Alberta School Superintendents, extended off-campus to meet demand for qualified school leaders in central rural Alberta.	Education	NO
DiscoverE outreach program reaches 12,000 rural students from grades 1 to 12 with exciting engineering and science activities	Engineering	NO
Occupational Health and Safety Certificate program has been offered through affiliated Campus Alberta institutions, since the early 1990s. As a result, in addition to Edmonton and Calgary, the program is offered in Fort McMurray, Red Deer, Grande Prairie, and Medicine Hat. As of Fall 2015, it will be possible to complete the full program online.	Extension	YES

INITIATIVE	FACULTY	NEW TO CIP 2015
Online and blended programs, providing enhanced rural access to continuing and professional education certificate and degree programs: • Applied Land Use Planning Certificate • Information Access and Protection of Privacy Certificate • Master of Arts in Communication and Technology • National Advanced Certificate in Local Authority Administration • Occupational Health and Safety Certificate	Extension	YES
Northern Opportunities: collaboration with Northwest Territories and Nunavut lawyers respecting careers in the North	Law	YES
Small firm Career Day: Involves exposure to career opportunities outside of major urban centres	Law	YES
Doctor of Medicine admission guidelines for admission of up to ten students from rural and regional backgrounds	Medicine and Dentistry	NO
Office of Rural and Regional Health now using a closed Wiki to connect with rural (distributed) preceptors	Medicine and Dentistry	NO
New theme of social justice in undergraduate curriculum including future development on rural health subthemes	Medicine and Dentistry	NO
Increased rural services including Diabetic Nephropathy Clinic and Rural Nephrology Clinics to address growth in end stage renal disease in Northern Alberta	Medicine and Dentistry	NO
Development of Diversity Policy as per requirements of accreditation process, including target of rural students	Medicine and Dentistry	NO
Expansion of rural/regional Family Medicine Residency Program into Fort McMurray; further expansion into regional centres planned	Medicine and Dentistry	NO
MD Ambassadors Program to introduce students from northern Alberta high schools to careers in sciences and health professions	Medicine and Dentistry	NO
Integrated Rural and Regional Health Community Clerkship offers selected medical students the opportunity to live and learn in a rural setting for their third year	Medicine and Dentistry	NO
Rural placement collaboration to bring together learners on rural placements	Medicine and Dentistry, Pharmacy	NO
MOU with Dechinta Bush University servicing Northern students	Native Studies	NO
Master of Arts in Native Studies online offering, developed for working professional and leaders in Aboriginal, Northern, and rural communities	Native Studies	NO
Travel bursary for student Pharmacists accepting experiential rotations in rural sites.	Pharmacy	NO
Agreement with Institute for Circumpolar Health Research in Yellowknife to support public health research in the North	Public Health	YES
Agreement with Alberta Health to perform community health needs assessments in northern communities	Public Health	NO
Alberta Centre for Injury Control and Research priority to reduce the incidence and severity of injuries to vulnerable populations including farming communities	Public Health	NO
Clinical placement requirements for Physical Therapy and Occupational Therapy students in rural Alberta	Rehabilitation Medicine	YES
Freestanding certificate programs offered via online delivery, designed to provide continuing education opportunities to individuals living in rural settings	Rehabilitation Medicine	NO

INITIATIVE	FACULTY	NEW TO CIP 2015
Ongoing satellite physical therapy program in Camrose to meet supply and demand issues related to physical therapists in rural Alberta	Rehabilitation Medicine	NO
Bachelor of Arts degree revision and restructuring	Campus Saint-Jean	NO
Maintenance of a Student Life Coordinator position to ensure a quality social and cultural life in French for students	Campus Saint-Jean	YES
Centre collegiale de l'Alberta programs to enhance access to college level programming for francophone students, including: • Practical Nursing • Business Administration • Tourism Management	Campus Saint-Jean	NO
Proposal for enrolment expansion of Engineering program includes an additional proposed 20 students in the program that provides first year engineering courses in French at Campus Saint-Jean	Campus Saint-Jean, Engineering	NO
Development of pre-pharmacy program for francophone students	Campus Saint-Jean, Pharmacy	NO
Dino 101 MOOC, online delivery to attract rural students (over 2,000 have taken the course so far)	Science	YES
Science summer camps had 10% attendance from rural students (grades 3-9)	Science	YES

Appendix 4: Francophone Access, Enrolment, and Programming Initiatives

INITIATIVE	FACULTY	NEW TO CIP 2015
Modern Language and Cultural Studies faculty members are creating Francophone content for the U-School program to improve access for French-speaking students	Arts	YES
Erasmus Mundi initiative	Arts/Campus Saint-Jean	YES
Bachelor of Arts degree revision and restructuring	Campus Saint-Jean	NO
Maintenance of a Student Life Coordinator position to ensure a quality social and cultural life in French for students	Campus Saint-Jean	NO
Centre collegiale de l'Alberta programs to enhance access to college level programming for francophone students, including: • Practical Nursing • Business Administration • Tourism Management	Campus Saint-Jean	NO
Proposal for enrolment expansion of Engineering program includes an additional proposed 20 students in the program that provides first year engineering courses in French at Campus Saint-Jean	Campus Saint-Jean, Engineering	NO
Development of pre-pharmacy program for francophone students	Campus Saint-Jean, Pharmacy	NO
Access to courses in French online in the Information Access and Protection of Privacy Certificate program	Extension	YES
Postgraduate certificate in Francophone Practice for Speech Language Pathologists	Rehabilitation Medicine	YES

Appendix 5: Graduates in Selected Fields

	2013	2014
Healthcare		
1 Physicians	181	170
2 Nurses	513	513
3 Pharmacists	117	134
4 Physical and Occupational Therapists	177	214
5 Speech Pathologists	59	51
6 Public Health Professionals	64	73
7 Dentists	35	38
8 Kinesiologists	72	68
9 Psychologists	14	15
Education and Knowledge Access		
1 Teachers	1303	1224
2 Librarians	52	40
Business, Government, and Legal		
1 Commerce/Business	625	616
2 MBAs	187	156
3 Lawyers	166	173
4 Economists	203	243
5 Translators	32	29

	2013	2014
Culture, Arts, and Tourism		
1 Theatre Professionals	38	41
2 Musicians	45	40
3 Industrial, Graphic and Theatre designers	34	38
4 Visual Artists	52	45
5 Tourism Professionals	29	33
Resource and Agricultural Economy		
1 Engineers	755	736
2 Geologists	122	138
3 Foresters	12	12
4 Agricultural, Food and Environmental Professionals	415	430
Other		
BA (Residual numbers)	806	844
MA (Residual numbers)	144	121
MSc (Residual numbers)	398	441

Appendix 6: Campus Alberta, Canadian, and International Program Partnerships

Selected Programs Offered in Partnership with Campus Alberta Institutions

PROGRAM	FACULTY	PARTNER INSTITUTION	NEW TO CIP 2015
Bachelor of Science in Environmental and Conservation Sciences, and Bachelor of Science in Agriculture programs – block transfer agreements	Agricultural, Life, and Environmental Sciences	Campus Alberta partners	NO
Bachelor of Arts in Science and Technology (in development)	Arts	Keyano College	YES
Bachelor of Music (in development)	Arts	Grant MacEwan University	NO
Bachelor of Music, Bachelor of Science Biology major, Bachelor of Science and Bachelor of Arts Psychology major, Bachelor of Arts Drama major (in development)	Augustana	Grande Prairie Regional College	NO
The Alberta Business Family Institute - "Unleashing Local Capital Rural Project."	Business	Athabasca University	YES
Executive Education provides customized leadership education programs to government agencies and private/public corporations	Business	University of Calgary, Athabasca University	YES
Campus Alberta – successful completion of first cohort of Internationally Educated Teachers Bridging Program to Alberta Teacher Certification	Education	Campus Alberta	YES
Campus Alberta collaborative undergraduate and graduate programs	Education	Grande Prairie Regional College, Keyano College, Blue Quills First Nations College, Portage College, Northern Lakes College, and Red Deer College	NO
First-year Engineering partnerships	Engineering	Grant MacEwan University, Red Deer College, Grande Prairie Regional College, Keyano College, Medicine Hat College	NO
Occupational Health and Safety Certificate	Extension	Keyano College, Grande Prairie Regional College, Red Deer College, Medicine Hat College	YES
Master of Science in Laboratory Medicine and Pathology, specialization for Pathologist Assistants	Medicine and Dentistry	University of Calgary	NO
Bachelor of Science in Radiation Therapy	Medicine and Dentistry	University of Calgary, Alberta Health Services, the Cross Cancer Institute and the Tom Baker Cancer Centre	NO
Collaborative Bachelor of Science in Nursing	Nursing	Grande Prairie Regional College, Keyano College, Red Deer College	NO
Campus Alberta Health Outcomes and Public Health annual provincial forum	Public Health	University of Calgary, University of Lethbridge	YES
Campus Alberta Student Conference on Health organized by public health student associations	Public Health	University of Calgary, University of Lethbridge	YES
Collaboration agreement to promote physical activity	Public Health	Alberta Recreation and Parks Association	YES
Offering MOOCs to Alberta institutions to use as credit courses	Science	None to date	YES

Selected Programs Offered in Partnership with Canadian Institutions

PROGRAM	FACULTY	PARTNER INSTITUTION	NEW TO CIP 2015
Bachelor of Science in Environmental and Conservation Sciences, Northern Systems major	Agricultural, Life, and Environmental Sciences	Yukon College	NO
Master of Elementary Education online collaborative program	Education	Onion Lake First Nation, Saskatchewan	NO
Writing Studies for Western Canada (in development)	Arts	Major universities in Western Canada	NO
Executive Education provides custom educational leadership programming	Business	University of Toronto	YES
Occupational Health and Safety Certificate	Extension	Simon Fraser University	YES
Occupational Therapy satellite program (proposed)	Rehabilitation Medicine	University of Regina	NO
Course delivery agreement	Native Studies	Dechinta Bush University, NWT	NO
Collaboration agreement on training and credentialing	Public Health	Canadian College of Health Leadership	YES
Master of Science in Physical Therapy and Master of Science in Occupational Therapy satellite programs	Rehabilitation Medicine	University of Calgary	YES
Alberta Internationally Education Physiotherapist Bridging satellite program	Rehabilitation Medicine	University of Calgary	YES
e3 in France summer program	University of Alberta International	University of Ottawa	YES

Selected Programs Offered in Partnership with International Institutions

PROGRAM	FACULTY	PARTNER INSTITUTION	NEW TO CIP 2015
Bilateral agreements and 2+2 undergraduate program agreements	Agricultural, Life, and Environmental Sciences	Institutions in Asia, Africa, Europe and South America	NO
International Dietetics internship program	Agricultural, Life, and Environmental Sciences	University of Ghana	NO
Dual Bachelor of Arts Degree	Arts	Ritsumeiken University, Japan	NO
e3 Berlin (three-part programming: language instruction, internships, and a humanities course)	Arts, University of Alberta International	Germany	NO
e3 Brazil (language instruction, internship, and humanities/fine arts course)	Arts, University of Alberta International	Brazil	YES
e3 in Washington, DC (internships and humanities/fine arts course)	Arts, University of Alberta International	United States	YES
Semester abroad in Taiwan	Arts	National Taiwan Normal University	YES
Summer Chinese Language Study Program	Arts	Harbin Institute of Technology	YES
Dual Bachelor of Arts in Political Science	Arts	China Foreign Affairs University	YES
Exchange program for Design students	Arts	Fachhochschule Munster University of Applied Sciences, Germany	YES
Project to develop a new university – the Canadian University of Kuwait	Augustana	Canadian University of Kuwait	YES
Study abroad in Telemark program	Augustana	Telemark University College	NO
Augustana-in-Cuba program	Augustana	Universidad de Oriente, Cuba	NO
Executive Education provides custom educational leadership programming	Business	University of Texas at Austin	YES
Master of Financial Management	Business	Xi'an Jiaotong University, China	NO
French language program (two week)	Campus Saint-Jean	Université catholique de Lilles, France	NO
Signed Memorandum of Understanding, including graduate student exchange	Education	University of Petoria	YES
Two new teacher certification recognized field experiences	Education	Alberta International School (Bermuda) and Canadian International School (Abu Dhabi)	YES
PhD and MEd dual degrees	Education	Seoul National University	YES
Master of Education cohort with summer residencies	Education	University of Dodoma, Tanzania	NO

PROGRAM	FACULTY	PARTNER INSTITUTION	NEW TO CIP 2015
Teaching in English in Higher Education (TIE-HE) Citation Program: Professional training for faculty members	Extension	Several institutions and partners including: Southwest Jiatong University (China); China Scholarship Council; and the Shanghai Institute of Technology.	Yes
English language training & professional training for nursing students	Extension & Nursing	Yasuda Women's University (Japan)	Yes
English language training for high school students from Japan	Extension	Chiba Keiai High School (Japan)	Yes
English language training for pharmacy practitioners	Extension & Pharmacy	Asuka Pharmaceutical Company, Toho University, and Meiji Pharmaceutical University (Japan)	Yes
English language and TESL professional development	Extension	Government of Alberta – International Education Branch (Germany)	Yes
Dual Master of Laws program (in development)	Law	University of Bergen	YES
Juris Doctor/Bachelor of Laws program (in development)	Law	University of Adelaide	NO
Dual Juris Doctor program	Law	University of Colorado	NO
Joint Doctor of Philosophy	Medicine and Dentistry	Shantou University Medical College, China	NO
Native Studies BA 2+2 agreement	Native Studies	Minzu University, China	YES
Cooperative agreement to accept two transfer students into Year 2 of the undergraduate Pharmacy program, beginning in 2015	Pharmacy and Pharmaceutical Sciences	China Pharmaceutical University	YES
Global Health course	Pharmacy and Pharmaceutical Sciences/Medicine and Dentistry	Fudan University, China	NO
Undergraduate and graduate student exchange agreement	Physical Education and Recreation	Palacky University, Czech Republic	NO
Health Sciences Visiting International Program – summer school for medical students from Saudi Arabia	Public Health/ Rehabilitation Medicine	Saudi Arabia	YES
MScPT and MScOT satellite programs	Rehabilitation Medicine	Universidad Del Rosario, Columbia	YES
Certificate in Pain Management/Diagnostic Imaging	Rehabilitation Medicine	Hong Kong Physiotherapy Association	YES
Health Sciences Visiting International Program	Rehabilitation Medicine	Al-Jouf University, Saudi Arabia	YES
Clinical/Research student placement partnerships	Rehabilitation Medicine	Universidad Del Rosario, Columbia Surakarta Health Polytechnic, Indonesia Fawzia Sulta Rehab Hospital, Kuwait	YES

PROGRAM	FACULTY	PARTNER INSTITUTION	NEW TO CIP 2015
Co-tutelle agreement	Science	Universiti Putra, Malaysia	YES
Joint Doctor of Philosophy agreement (in development)	Science	Technical University of Munich, Germany	YES
Bilateral agreements and 2+2 undergraduate program agreements	Science	Institutions in Asia	YES
Joint Doctor of Philosophy agreement	Science	Ludwig Maximillian University, Germany	NO
Research Internship Network (in development)	University of Alberta International	TBC	YES
PKU-UAlberta Summer Program	University of Alberta International	Peking University	YES
University Management Program	University of Alberta International	Select universities in China	NO

Appendix 7: Program Development

Recently Approved Programs

PROGRAM	FACULTY	FIRST INTAKE DATE
Bachelor of Science in Environmental and Conservation Sciences, Sustainable Agriculture Major	Agricultural, Life, and Environmental Sciences	September 2015
Master of Arts in Gender and Social Justice Studies	Arts	September 2016
Embedded certificate in Civil Military Leadership	Arts	September 2015
Advanced Certificate in Leadership (non-credit)	Extension	2014
Professional Certificate in Public Health (non-credit)	Public Health	January 2015
Combined MSc in Speech Language Pathology and PhD in Rehabilitation Sciences program	Rehabilitation Medicine	September 2015
Embedded certificate in Research (Biological Sciences)	Science	2014
Embedded graduate certificate in Data Science	Science	2015

Current Program Submissions

PROGRAM	FACULTY	APPROVAL STAGE
Master of Accounting	Business	System Coordination
Post-Master's Certificate in Business Fundamentals	Business	System Coordination
Post-Master's Certificate in Innovation and Entrepreneurship	Business	System Coordination
Master of Arts in Community Engagement	Extension	CAQC

Proposed Program Suspensions

PROGRAM	FACULTY	APPROVAL STAGE
Bachelor of Science in Environmental and Conservation Sciences – Bilingual	Agriculture, Life, and Environmental Sciences/Campus Saint-Jean	Proposal in development
Bachelor of Arts, Majors in: Combined Classics/Greek/Latin Combined French and Italian Combined Italian and Spanish Italian Studies Middle Eastern and African Studies Russian Language and Literature Combined Russian and Ukrainian Ukrainian Folklore Ukrainian Language and Literature	Arts	Approved in 2014
Bachelor of Design Computing Science Route Printmaking Route	Arts	Approved in 2014
Bachelor of Music Music History Concentration School Music Concentration Composition and Theory Concentration World Music Concentration	Arts	Approved in 2014
Bachelor of Arts, Majors/Honors Chinese Studies Japanese Studies Combined Chinese and Japanese	Arts	Approved in 2015
Bachelor of Science, Bioinformatics Major	Science	Proposal in Development

Emerging Program Initiatives

PROGRAM	FACULTY	FUNDING SOURCE	NEW TO 2015 CIP
Embedded Certificate in International Nutrition and Food Security	Agricultural, Life and Environmental Sciences	Existing	NO
Master of Science in Land Reclamation	Agricultural, Life and Environmental Sciences	Funding proposal submitted	NO
Fashion Business Management Program	Agricultural, Life and Environmental Sciences; Business	Existing	NO
Embedded Certificate in International Agriculture	Agricultural, Life, and Environmental Sciences	Existing	NO
Embedded Certificates related to the fields of Conservation Biology, Land Reclamation, and Human Dimensions of Environmental Management	Agricultural, Life, and Environmental Sciences	Existing	NO
Watershed Management	Agricultural, Life, and Environmental Sciences	Existing	NO
Master of Science in Food Safety	Agricultural, Life, and Environmental Sciences	Cost-Recovery	YES
Bachelor of Arts in East Asian Studies (will replace majors in Chinese and Japanese studies)	Arts	Existing	YES
Bachelor of Arts in New Media Studies	Arts	Existing	YES
Master of Fine Arts in Acting	Arts	Existing	YES
Embedded Certificate in Canadian Studies	Arts	Existing	YES
Embedded Certificate in Design Health	Arts	Existing	YES
Embedded Certificate in Sexuality Studies	Arts	Existing	YES
Embedded Peter Lougheed Leadership Certificate	Arts	Existing	YES
Embedded Certificate in Cultural Resource Management	Arts	Existing	YES
Canadian Perspectives Certificate in International Students	Arts	Cost-Recovery	YES
Bachelor of Economics	Arts	To be determined	NO
Doctor of Philosophy in Interactive Media	Arts	Existing	NO
Doctor of Philosophy in Writing Studies for Western Canada (in collaboration with major universities in western Canada)	Arts	Existing	NO
Embedded Certificates in Humanitarianism and NGO Governance	Arts	Existing	NO
Master of Arts in Public Policy	Arts	Cost-Recovery	NO
Post-baccalaureate Certificate in Translation	Arts	Existing	NO

PROGRAM	FACULTY	FUNDING SOURCE	NEW TO 2015 CIP
Reciprocal Minor Offerings	Arts, Business	Existing	NO
Bachelor of Arts and Bachelor of Science in Gaming	Arts, Science	Existing	NO
Embedded Certificate in Undergraduate Research	Augustana	Existing	YES
Minor in Native Studies at Augustana	Augustana, Native Studies	Internal	NO
Leadership Certificate	Business	Existing	NO
Bachelor of Arts restructuring	Campus Saint-Jean	Existing	NO
Embedded Certificates in the Bachelor of Arts Canadian Studies Globalization Leadership Public and NGO Administration	Campus Saint-Jean (Centre collegiale de l'Alberta)	Existing	NO
Pre-Pharmacy foundation program	Campus Saint-Jean	Existing	NO
Centre collegiale de l'Alberta programming: Practical Nursing Tourism	Campus Saint-Jean (Centre collegiale de l'Alberta)	IAE	NO
Freestanding Certificate in Teaching and Learning in Higher Education (previously offered by Faculty of Extension)	Education	Cost-Recovery	YES
Freestanding Certificate in Early Childhood Learning	Education	Cost-Recovery	YES
Freestanding Certificate in Adolescent Literacy	Education	Cost-Recovery	YES
New site for Elementary Education Post-Graduate Diploma in International Teaching and Learning at the International School in Beijing	Education	Existing	YES
Partnership with the Canadian Bureau for International Education and 4 other Canadian universities (York, McGill, Calgary, Ottawa) with a bid to the Saudi Arabian Ministry of Education to provide professional development programs to Saudi teacher, principals, guidance counselors and supervisors. The bid is for a 5 year project that would see more than 2500 Saudi participants come to Canada annually	Education		YES
Freestanding Certificate in Special Education	Education	Cost-Recovery	NO
Master of Education in the International Baccalaureate Program	Education	Cost-Recovery	NO
Post-Bachelor of Education Diploma in International Teaching and Learning (in partnership with Lertlah Schools in Thailand)	Education	Existing	NO
Master of Education in Teacher-Librarianship and Curriculum Studies	Education	Existing	NO

PROGRAM	FACULTY	FUNDING SOURCE	NEW TO 2015 CIP
Minor in Sexuality (interdisciplinary)	Education (via Institute for Sexual Minority Studies and Services)	Internal	NO
Alberta teacher certification for internationally education teachers	Education (with Alberta Education, Innovation and Advanced Education, Edmonton Public Schools and Edmonton Catholic Schools)	To Be Determined	NO
Master of Engineering (new customized models)	Engineering	Cost-Recovery	NO
Partnerships for Aboriginal Relations and Engagement Certificate	Extension	Existing	YES
Canadian Practice Qualification for foreign-educated law graduates (the "NCA Program")	Law	Cost-Recovery	NO
Master of Science in Biomedical Research	Medicine and Dentistry	Cost-Recovery	NO
Bachelor of Sciences in Ophthalmic Sciences	Medicine and Dentistry	Existing	NO
Doctor of Philosophy in Native Studies	Native Studies	Existing	NO
Master of Arts in Native Studies (online version)	Native Studies	Existing	NO
Executive Education, Aboriginal Governance and Industry Partnership Program	Native Studies (in collaboration with Business)	Cost-Recovery	NO
Bachelor of Science in Nursing Collaborative Program curriculum redesign	Nursing	Existing	NO
Master of Nursing, stream designed for individuals who hold degrees in fields other than Nursing	Nursing	Existing	NO
Doctor of Pharmacy (Entry Level) (to replace existing BSc in Pharmacy for 2017)	Pharmacy and Pharmaceutical Sciences	Existing	NO
Master of Public Health/Pharmacy Combined Degrees Program	Pharmacy and Pharmaceutical Sciences, Public Health	Existing	NO
Bachelor of Physical Education: program evolution, including name change to Bachelor of Kinesiology and majors in Physical Activity and Health, Adapted Physical Activity, Sport Performance, and Sport Coaching	Physical Education ad Recreation	Existing	NO
Mountain Studies programming	Physical Education and Recreation; Agricultural, Life, and Environmental Studies; Science	To Be Determined	NO
Therapeutic Recreation program	Physical Education and Recreation; Rehabilitation Medicine (with the Alberta Therapeutic Recreation Association)	To Be Determined	NO
Master of Science in Audiology	Rehabilitation Medicine	TBD	YES
Establishment of southern Alberta rural satellite for the Alberta Internationally Educated Physical Therapist Bridging Program	Rehabilitation Medicine	Grant funded	YES
Certificate in Disability Ethics	Rehabilitation Medicine	Cost-Recovery	NO

PROGRAM	FACULTY	FUNDING SOURCE	NEW TO 2015 CIP
Bachelor of Science (General) Restructuring	Science	Existing	NO
Certificate in Environmental Monitoring	Science	Existing	NO
Master of Science in Mathematical Finance	Science	Existing	NO
Embedded Leadership Certificate	Science/Arts	Existing	YES
Embedded Certificate in Interdisciplinary Science Studies	Science	Existing	YES
Bioinformatics minor in selected Computing Science and Biological Sciences Specialization programs, and in the general Science program	Science	Existing	YES
Southern African Field School	Science	Existing	YES
Professional Master of Science in Urban and Regional Planning	Science/Arts/Extension	Cost-Recovery	YES
Professional Master of Science in Environmental Innovation	Science	Cost-Recovery	YES

Appendix 8: Research Capacity Investments and Details

The University of Alberta builds capacity in research and creative activities through several means, including investments in research chairs, infrastructure, and the creation of special centres, institutes, and initiatives. Some mechanisms are targeted by federal and provincial funding programs, and cannot be used to sustain and develop capacity in other areas of institutional strategic importance and impact.

Research Chairs – 1 (as of December 2014)

	CANADA RESEARCH CHAIRS			EXTERNALLY SUPPORTED RESEARCH CHAIRS*
AREA	CURRENT	EXTERNALLY SUPPORTED	UNDER RECRUITMENT	CURRENT
Humanities and Fine Arts	6	3	0	9
Science and Technology	36	7	4	12
Social Structures and Systems	7	1	1	21
Energy	3	0	0	7
Environment	5	1	0	4
Health and Wellness	30	2	3	43
Foods and Bioresources	2	0	0	3

* Chairs that are solely or partly funded by private sector or philanthropic sources; excludes honorific named chairs

Research Chairs - continued

	CHAIR PROGRAM					
AREA	CERC*	NSERC INDUSTRIAL	CAMPUS ALBERTA INNOVATES PROGRAM	ALBERTA INNOVATES HEALTH SOLUTIONS	UOFA TORY	UOFA KILLAM
Humanities and Fine Arts	0	0	0	0	4	0
Science and Technology	1	9	1	0	0	2
Social Structures and Systems	0	0	1	0	0	0
Energy	1	10	1	0	0	0
Environment	0	3	2	0	0	0
Health and Wellness	1	0	1	6	0	0
Foods and Bioresources	0	0	2	0	0	0

*Total held, December 2012; excludes proposals under review

* *Allocated or held, December 2012

CERC= Canada Excellence Research Chair

UofA Tory and UofA Killam = internal university research chairs

Infrastructure Investments: Canada Foundation for Innovation Awards

	2011-2012 AWARDS: $20.5M	2012-2013 AWARDS: $54.2M	2013-2014 AWARDS: $9.7M	2014-2015 AWARDS: TO BE DETERMINED IN 2015
Federal: CFI	$8.1M	$20.0M	$3.8M	$5.2M
Provincial: Research Capacity Program	$7.0M	$20M	$3.5M	TBD in 2015
University: Internal Cash	$1.7M	$1.4M	$0.3M	$0.3M
In-kind and other cash	$3.7M *	$13.8M *	$1.7M	$9.5M

* University and/or external sources

Innovation and Commercialization Partnerships

	2013-2014	2014-2015	2015-2016
TEC Edmonton*	$1.5M	$1.5M	$1.5M
National Institute for Nanotechnology**	$20.6M	$21.4M	$22.3M

* The U of A commits $1.5M annually to TEC Edmonton, and in some years, may contribute more from royalty distributions.

** Source: NINT Business Plan 2013-2017, forecasted partner contributions. U of A contributions reported here are for salaries for U of A faculty cross-appointed as NRC Senior Program Officers, indirect costs of research, research grants to U of A cross-appointees, which support approximately 180 graduate students and PDFs for NINT programs; internal and federal funding for U of A core nano facilities; facilities and operations support; capital support; and flow through to NRC of utilities and operations grant.

Enhancing Capacity through Centres, Institutes, and Initiatives

The following areas of research capacity have been developed through university investment in centres, institutes, and initiatives. Descriptions provide further detail to clarify contribution to and alignment with the research priorities of the Government of Alberta and its ministries.

HUMANITIES AND FINE ARTS

Canada's Francophone Heritage: Francophonie, minority-language rights and legislation, and intercultural research that distinguishes the U of A nationally and supports provincial and federal mandates to recognize and preserve Canada's francophone heritage
Canadian Studies Centre; Institut pour le patrimoine de la francophonie de l'Ouest Canadien

Cross-Cultural Studies:
Central and Eastern Europe: emphasis on Ukrainian and Austrian history and society
Wirth Institute for Austrian and Central European Studies; Canadian Institute for Ukrainian Studies; Peter and Doris Kule Centre for Ukrainian and Canadian Folklore; Kule Institute for Advanced Study

China: emphasis on contemporary China, Chinese energy policy, politics, economy, social issues, culture and Canada-China relations
China Institute at the University of Alberta

Japan: Japanese language and culture from cross-disciplinary perspectives
Prince Takamado Japan Centre for Teaching and Research; Japan Canada Academic Consortium (member institution)

Indigenous Peoples: language and linguistic history; cultural, social, and legal frameworks
Canadian Indigenous Languages and Literacy Development Institute; Rupertsland Centre for Métis Research; Aboriginal Teacher Education Program

Information Sciences and Humanities: deployment of advanced computing technologies for historical, economic, health, social, and cultural research
Canadian Institute for Research Computing in the Arts

Ideas and Institutions: past and current systems of ethics, truth, social and cultural development, and political theory; interdisciplinary anthropology archeology; current cultural thought and social innovation
Baikal Archaeology Project; Cortona Italy School; Festival of Ideas

Written and Performed Word: study and high-caliber production of literature and theatre
Canadian Writing Research Collaborator; Canadian Literature Centre; Timms Centre for the Arts

Music Performance and Theory: innovative music research, performance, and leadership for international-calibre concerts and choral experiences; cross-disciplinary work in acoustic engineering, sound, and performance for advances in sound quality and improving vocal health of music teachers
Canadian Centre for Ethnomusicology

Visual Expression: all aspects of art from its history to methods of production, with particular investment in printmaking, industrial design, and visual information communication
Enterprise Square Campus Gallery; FAB Gallery

SOCIAL STRUCTURES & SYSTEMS

Resilient Communities: frameworks, policies, and mechanisms that enable community innovation and vibrancy in urban and rural settings
Community-University Partnership, City-Region Studies Centre, Alberta Centre for Sustainable Rural Communities

Science and Society: legal, policy, and economic consequences associated with scientific and technological advances, especially in health
Health Law Institute; John Dossetor Health Ethics Centre; Institute of Health Economics (partner institution)

Corporate and Public Citizenship: the role of businesses, corporations, and public groups in defining the social good of communities and their enhanced quality of life, locally and internationally
Canadian Centre for Corporate Social Responsibility; Centre for Public Involvement

Entrepreneurship and Innovation: political, social, and economic aspects of innovation ecosystems, technology and knowledge transfer, and commercialization, especially at the science-business interface.
Technology Commercialization Centre; Centre for Entrepreneurship and Family Enterprise

Globalization: citizenship education, human rights education, and education for social justice and social development; cultural musical expression
Centre for Global Citizenship Education and Research; Canadian Centre for Ethnomusicology

Law, Justice, and Legal Frameworks: law, administration justice, social justice, and the interpretation and evolution of legal frameworks; interdisciplinary studies of constitutional issues
Alberta Law Reform Institute; Centre for Constitutional Studies; Health Law Institute

Educational Frameworks: scientific, mathematical, and technological literacy for citizens; curriculum and pedagogy; teacher education
Centre for Mathematics, Science and Technological Education; Centre for Research for Teacher Education and Development; Centre for Research in Applied Measurement and Evaluation

Political and Economic Systems: economic, social, political, and international influences on the economy and society, from both regional and national perspectives; design, execution, and analysis of public opinion sampling and surveys
Institute for Public Economics; Population Research Laboratory

SCIENCE AND TECHNOLOGY

Information Communication Technologies: computational intelligence, especially machine learning and data mining; wireless and broadband communications, applied electromagnetics, information security and sensor networks; data analytics for geophysics, energy exploration, space sciences and drug design; advanced ground and satellite observation systems
Alberta Innovates Centre for Machine Learning; Centre for Earth Observation Sciences

Biochemisty, Chemistry, and "omics": protein structure and function; lipids and membrane structure; glycomics; analytical chemistry and computational advances; metagenomics and metabolomics for infectious diseases, chronic diseases, and antiviral therapies; translational clinical biomarker discovery for personalized medicine; biochemistry and molecular biology of plant, animal, and human development and disease
Alberta Glycomics Centre; Metabolomics Innovation Centre; Li Ka Shing Institute of Virology; GlycoNet

Nanoscience and Nanotechnology: integrated research in condensed matter physics, surface science engineering, inorganic and organic chemistry, and chemical engineering to advance metabolic sensor systems; hybrid nanoscale electronics; new materials and processes for energy generation and storage; nanotoxicology
National Institute for Nanotechnology; Integrated Nanosystems Research Facility; Nanofab, Ultrafast-Nanotools Facility

Mathematics and Analytical Methods: geological and geophysical imaging analytics; organic and inorganic analytic chemistry; biostatistics, psychometrics, sampling and surveys; qualitative methodologies; mathematical biology
Pacific Institute of Mathematical Sciences (member institution); International Institute for Qualitative Methodology; Centre for Research in Applied Measurement and Evaluation; Alberta Glycomics Centre

Materials and Interfacial Science and Engineering: condensed matter physics and high temperature superconductivity, physical chemistry, and nanoscience research for new catalysts, materials, and biomaterials; synthesis of new molecules for improved plastics, alloys, electronic components, and fuel cells
National Institute for Nanotechnology

Human Development: mechanisms of neurological and cognitive development and behaviour, especially aging and neurological disease
Neuroscience and Mental Health Institute (NMHI); Alberta Centre for Prions and Protein Folding Diseases

Foundations and Behaviour of Matter: theoretical and experimental high energy physics; astrophysics; solar physics and near-Earth space phenomena
Sudbury Neutrino Observatory Lab - SNOLAB (member institution); Institute for Space Science, Exploration and Technology

Earth Sciences: mineralogy, petrology, geochemistry, and geochronology; gas and hydrocarbon chemistry; petroleum hydrogeology
Canadian Centre for Isotopic Microanalysis; Helmholtz-Alberta Initiative

Engineered Structures and Processes: geotechnical and geo-environmental engineering for large earth structures, cold regions and permafrost engineering; pipelines and transport systems; risk management for environmental engineering and natural hazards
Markin/CNRL Natural Resources Engineering Facility; Canadian Rail Research Laboratory

ENERGY

Economics and Policy: applied economic analysis on risk and regulation in energy and electricity markets, within Canada and internationally; social and cultural impacts of resource extraction and land use policies; environmental deregulation and marker-based approaches to meet land use and environmental quality objectives
Centre for Applied Business Research in Energy and the Environment; Oil Sands Research and Information Network; Alberta Land Institute

Conventional and Unconventional Fossil Fuels: all aspects of bitumen upgrading; new non-aqueous and advanced extraction technologies; carbon sequestration; reduced environmental impact of fossil fuel production and exploration
Institute for Oil Sands Innovation; Helmholtz-Alberta Initiative; Oils Sands Tailing Research Facility; Centre for Intelligent Mining Systems

Resource Geosciences: petroleum exploration, exploitation management, and monitoring; theoretical and applied seismology, geodynamics, and geomagnetism; 4-D rock physics and geophysical logging and data processing
Helmholtz-Alberta Initiative

Tailings and Water Management: integrated research in chemical engineering, ecology, metagenomics, and molecular biology for environmentally sustainable treatment of tailings, and water from resource extraction
Oil Sands Tailings Research Facility; Institute for Oil Sands Innovation; Helmholtz-Alberta Initiative

Clean Coal and Mining: coal cleaning and upgrading, pollution control strategies, greenhouse gas emission reduction, value-added products, and underground coal gasification; advanced ICT for mining; surface mining equipment design and operations
Canadian Centre for Clean Coal/Carbon and Mineral Processing Technologies; Helmholtz-Alberta Initiative; Centre for Intelligent Mining Systems

Alternative Energies: Geothermal energy; biofuels; solar cells; power quality and advanced power distribution systems; nanoscale advances in advanced materials for solar cells; photovoltaics
National Institute for Nanotechnology; Biorefining Conversions Network

ENVIRONMENT

Biosystems and Ecosystems: plants, forest, and soil interactions; plant physiology, structure, genetics, growth, and adaptation processes; biological and genetic processes of plants and animals in response to environmental stresses; boreal, alpine, and Arctic ecology and wildlife; wildlife biology and management; paleontology and evolutionary systemics
Alberta Biodiversity Monitoring Institute (partner institution); Centre for Earth Observation Sciences

Aquatic Ecosystems: wetlands, hydrogeology, rivers systems, glaciers, polar ice; plant/animal interactions and effects; assessing, modelling, and mitigating climate and human-induced influences on water and air quality

Socio-Economics of Environmental Resource Development: political, social, economic, and cultural requirements and consequences; land use policy and practices; policies and frameworks for sustainable rural communities; social responses to ecological change
Centre for Applied Business Research on Energy and the Environment; Alberta Land Institute; Canadian Circumpolar Institute; Alberta Centre for Sustainable Rural Communities

Animal and Human Health: Public health challenges related to water quality and waterborne diseases, animal-to-human pathogen spread, and soil and air contaminants; disease spread through wildlife; neurodegenerative

disorders and chronic wasting diseases in wildlife and livestock
Centre for Prions and Protein Folding Diseases; Centre for Earth Observation Sciences

Climate Change: Assessing and forecasting the impact of climate change on ecology, ecosystems, with emphasis on Alberta's boreal forests, water supply, and agricultural sectors; land and ecosystem changes in northern Canada and the Arctic; biodiversity throughout the Western Hemisphere
Canadian Circumpolar Institute; Centre for Earth Observation Sciences

Land Reclamation and Soil Remediation: ecosystem protocols and hydrological sciences for land reclamation; genetics and molecular biology for biodegradation of petroleum hydrocarbons in contaminated groundwater
Helmholtz-Alberta Initiative

FOOD AND BIO-RESOURCES

Biofuels, Bioenergy and Biomass Conversion: understanding and design of enzymes, catalysts, and other processes for biomass conversion and the development of higher value products from feedstock; nano-enabled biomaterials
National Institute for Nanotechnology; Biorefining Conversions Network

Swine, Livestock, and Poultry Sciences: optimizing production and quality of traditional and new species, and of novel traits through genomics, breeding, protection systems; food safety, food quality, production efficiency and sustainability, and environmental health
Dairy Research and Technology Centre; Poultry Research Centre; Swine Research and Technology Centre; Livestock Gentec Alberta Innovates Centre; Agri-Food Discovery Place

Sustainable Forestry: science, technology, and best practices to reduce soil erosion, water and fertilizer use and supply; plant genetics; environmentally sustainable forestry practices and enhanced wood production

Agricultural Resource Economics: market-based instruments for the regulation of resource allocation; interaction of energy-based stresses, climate-induced stresses, and human population increases on water for agricultural sectors; regulation issues related to food and consumers; agribusiness financing and business analysis

Crop and Plant Sciences: genomics, biotechnology, breeding, crop protection systems, and agricultural practices and management to enhance production and to identify mechanisms and traits for stress- and disease-resistant species

Healthy Foods: Development of agricultural biotechnologies for healthy food production, utilization of crop components and functional food production; development of probiotics, nutraceuticals, and specialized seed oils
Agri-Food Discovery Place; Alberta Innovates Phytola Centre

HEALTH AND WELLNESS

Advanced Interventions and Treatments: translational, clinical, and cross-disciplinary focus on chronic diseases, cancer, obesity, and improved organ and tissue transplantation; regenerative medicine; biomarker-based technologies for personalized treatment and diagnostics; advanced materials for implant devices and rehabilitation treatments; population health, health services, and health systems
Alberta Transplant Institute; Institute for Reconstructive Sciences in Medicine; Alberta Diabetes Institute; Muttart Diabetes Research and Training Centre; Alberta Cardiovascular and Stroke Research Centre; Mazankowski Alberta Heart

Institute; Cancer Research Institute of Northern Alberta; Cardiovascular Translational Science Institute

Cross-Cultural Health: indigenous people's health and health training; complementary and alternative medicine; global health
Indigenous Health Initiative; Complementary and Alternative Research and Education Program – Integrated Health and Healing, Integrative Health Institute

Health Equity: social determinants of health equity; ethical, legal, and policy consequences of rapid advances in health innovations; disparities in health
John Dossetor Health Ethics Centre; Health Law Institute

Healthy Lifespans: cross-disciplinary research and training on individual, social, organizational, and community determinants of healthy living and healthy aging; nutrition; exercise, health promotion, and safe workplaces and behaviours; maternal and child health
Alberta Centre on Aging; Alberta Institute for Human Nutrition; Alberta Centre for Active Living; Women's and Children's Health Research Institute

Health Services and Outcomes: research on improved health service design and delivery; assessment of health service policy and technologies; primary care and rural health care
Interdisciplinary Health Research Academy; Institute of Health Economics; Alberta Research Centre for Health Evidence; Women's and Children's Health Research Institute

Interprofessional Training: Cross cultural, primary care and rural health care; evidence-based best practices in health sciences team education, health professional collaborative practice; and the use of technology to support and enhance teaching and learning
Edmonton Clinic Health Academy; Health Sciences Education and Research Commons

Medical Imaging Sciences: in vivo imaging of human diseases for improved diagnosis and treatments, especially chronic and neurological diseases, cancer, and drug development
National High Field Nuclear Magnetic Resonance Centre (NANUC); Edmonton PET Centre; Centre for Biological Imaging and Adaptive Radiotherapy; Peter S. Allen Magnetic Resonance Research Centre

Virology, Immunology, and Infectious Diseases: virus discovery, metagenomic and microbial genomic analysis, viral disease prevention and treatment; infectious causes of inflammatory disease; translation of research technology into clinical and commercial practice; pathogen and biomarker discovery; bioinformatics; molecular and comparative immunology
Li Ka Shing Institute of Virology; Alberta Transplant Applied Genomics Centre; Advanced Microscopy Facility; Centre of Excellence for Gastrointestinal Inflammation and Immunity Research; Alberta Glycomics Centre

Appendix 9: Research Capacity Priorities

Enhanced Specialized Infrastructure

The University of Alberta has identified the following areas as strategic priorities for increased research capacity, and will submit proposals in support of these areas to the 2014-2015 Canada Foundation for Innovation's Innovation Fund Competition and to its 2014 John R. Evans Leaders Fund competition: digital social sciences; synthetic biology; glycomics and carbohydrate sciences; biomedical device engineering and fabrication; lipidomics; women and children's clinical and translational health; food safety; advanced radiotherapy cancer treatments; mining equipment innovation; construction automation.

The U of A will also join national initiatives for infrastructure in areas of institutional priority and strength, including neutrinos and dark matter (SNOLAB consortium member), computational infrastructure (Compute Canada and WestGrid), online arts and culture, and agricultural innovation.

The Canada Foundation for Innovation awards 40 per cent of the total capital cost for proposals, which are adjudicated on standards focused on excellence, institutional priority, impact on Canada, and uniqueness at a national or regional level. Following standard processes, the U of A will submit requests to the Ministry of Innovation and Advanced Education's Research Capacity Program for provincial funds, in order to accept any successful federal awards.

Direct Costs of the Research and Innovation Enterprise

The U of A develops, acquires, and works to sustain core infrastructure and services for Alberta's research and innovation enterprise. Examples of this infrastructure include animal care facilities, which enable innovation and discovery related to human and livestock health; research stations that support sustainable agriculture and environment; and highly specialized equipment for advanced imaging. This infrastructure provides a competitive innovation arena for Alberta's current industries and sectors, and demonstrates to those industries not yet invested in the province that their work can be executed here, in partnership with the U of A. Pre-commercialization development and testing for medical, health, and drug innovations could not be done without the provision of the facilities at the U of A.

One-time capital, infrastructure, and renovation costs to establish these facilities are often cost-shared by provincial and federal contributions. Ongoing direct operating costs greatly exceed revenue streams provided by service fees and researcher grants, and they are ineligible to be covered by any indirect cost of research funding. Indirect costs of research funding itself is insufficient to cover the corporatecosts of the research administration within a large medical/doctoral research university, which include staff and systems to satisfy financial, legal, contract development, reporting, and regulatory compliance requirements (e.g., biohazard safety, animal care, experimental procedures, clinical trials).

These direct and indirect corporate costs of a research enterprise are predictable and steady. The U of A will work with provincial funding partners to specify a transformative funding and financial model that includes them.

Research Capacity Gaps — Graduate Student and Post-doctoral Fellow Funding

As one of Alberta's two medical/doctoral research universities, the U of A delivers master's and doctoral programs, and trains post-doctoral fellows. The nature of facilities and space the U of A must provide for these members of its academy is qualitatively different from that required for undergraduate learning and teaching.

Direct post-doctoral fellow support is primarily provided through external funds secured by faculty members. Graduate student support comes mainly from internal sources. Two objectives hinge directly on the U of A's ability to provide competitive graduate student support: the recruitment of the best domestic and international graduate students, particularly in competition with other Canadian institutions, and the ability to sustain graduate training in areas of institutional strength across the academy.

The U of A will work with provincial funding partners to create a transformative funding and financial model that includes the costs necessary to achieve these objectives.

Research Capacity Gaps — Faculty and Staff

New faculty appointments continue be made to ensure that the U of A has the necessary academic, research, and leadership expertise to move the academy forward. For example, a new Killam Memorial Chair was appointed in 2014 - Dr Yingfei Yi, internationally renowned scientist in dynamical systems, joined the Department of Mathematical and Statistical Sciences on 1 July.

Appendix 10: e-Learning

INITIATIVE	FACULTY	NEW TO CIP 2015
Bachelor of Science in ENCS, Northern Studies in collaboration with Yukon College: more development of distance delivery and video conferencing	Agricultural, Life, and Environmental Sciences	YES
Exploration of course offering via video conferencing for partners in China	Agricultural, Life, and Environmental Sciences	YES
Arts Pedagogy and Research Initiative Laboratory with a focus on two areas of research: Arts Pedagogy and the value of an Arts degree	Arts	YES
E-textbooks: three year pilot project on developing best practices in the use of mobile devices and electronic textbooks	Arts	YES
Multimedia group provides support for conversion of old media formats to digital formats and supports creation of podcasts, video production and lecture capture	Arts	YES
Development of an iTunesU site for media, podcasts, video segments, public performances of Arts-related teaching and research projects	Arts	NO
STS 350: A History of Video Games: a new MOOC for online distribution in 2014	Arts, Science	YES
E-Portfolio pilot project	Augustana	YES
Exploration of integration of internet, social media and course management software with face-to-face teaching	Augustana	YES
Provision of lab and TA resources to facilitate the implementation of the Bloomberg Aptitude Test	Business	YES
Development of new innovative, state-of-the-art learning tools	Campus Saint-Jean	YES
Master of Arts in Canadian Studies: now entirely accessible online	Campus Saint-Jean	YES
Testing of a pedagogical structure involving e-portfolio Magara, including integration with Moodle	Campus Saint-Jean	YES
New version of the Language Lab, including a video component useful for learning sign language	Campus Saint-Jean	NO
Speech Coach, a linguistic diagnostic tool	Campus Saint-Jean	NO
Text-to-speech tool now allowing for "on-the-fly" rendering	Campus Saint-Jean	NO
Bachelor of Education: conversion of courses to blended delivery	Education	YES
Creation of a mobile app to allow K-12 students in Alberta to use mobile devices to contribute authentic data to research projects	Education	YES
Development and evaluation of U of A computer-based testing system in support of strategy for blended-delivery courses and MOOCs	Education	YES
Master of Library and Information Studies: implementation of online cohort	Education	NO
SMART User Certifications: training sessions for integration of digital technology in the classroom	Education	NO

INITIATIVE	FACULTY	NEW TO CIP 2015
Reformatting of "Inclusive Education: Adapting Instruction for Students with Special Needs" for blended delivery	Education	NO
Mobile citizen Science project	Education, Science	YES
Bachelor of Science in Engineering: development of e-learning materials in support of large first and second-year courses	Engineering	NO
Alternate Delivery Programs: Master of Arts in Communications and Technology Applied Land Use Planning Certificate Information Access and Protection of Privacy Certificate Occupational Health and Safety Certificate National Advanced Certificate in Local Authority Administration Citation in Social Media Strategic Marketing Citation in Social Media Communications Advanced Citation in Global Leadership	Extension	YES
English Language Program: integrated online tools and resources	Extension	YES
Expansion of blended learning offerings	Extension	YES
Learning Engagement Office: instructional designers and e-learning specialists to enable development of new and innovative programs while supporting the use of digital learning technologies	Extension	YES
Online Medical English Course, allowing offshore delivery of course content	Extension, Medicine and Dentistry	YES
Interdisciplinary 410 Health Teach Education course incorporates online elements to accommodate distance delivery	Health Sciences Council	NO
Juris Doctor: exploration of use of video capsules as replacement to lectures to explain key concepts, class time to be spent on problem solving	Law	YES
Development of an interactive mobile app to enable faculty and students to record interactions on digital field notes	Medicine and Dentistry	YES
Doctor of Medicine, Doctor of Dental Surgery: various blended delivery course offerings using a variety of different technologies	Medicine and Dentistry	YES
Office of Rural and Regional Health: use of Wiki to connect with rural preceptors	Medicine and Dentistry	YES
Program administration sites developed to facilitate single-point schedule management and co-management of shared documents through integration of Moodle and Google calendars	Medicine and Dentistry	YES
Rural Family Medicine Program: video conferencing used to share academic programming across sites	Medicine and Dentistry	YES
Development and commercialization of Brainspan, an interactive gaming application for medical education	Medicine and Dentistry	NO
Freestanding Certificate in Aboriginal Governance and Partnership: online offering	Native Studies	YES
Master of Arts in Native Studies: online offering	Native Studies	YES
NS 200 Aboriginal Canada: offered via video conferencing for the second time in three years	Native Studies	NO
Clinical Teaching Program: online professional development resource designed to support the professional development of clinical teaching staff, full implementation anticipated for early 2014	Nursing	YES

INITIATIVE	FACULTY	NEW TO CIP 2015
Doctor of Philosophy in Nursing: creation of a cost-recovery online cohort using blended delivery	Nursing	YES
Master of Nursing: new online resource site for disseminating program information and access to instructional materials	Nursing	YES
Bachelor of Science in Nursing After-Degree and Bilingual programs: all examinations have been moved online	Nursing	NO
Laboratory Video Project: new courses have been added in the 2013 academic year	Nursing	NO
Open access webinars offered via the International Institute of Qualitative Methodology: courses will continue in 2014	Nursing	NO
Online preceptorship program	Nursing	NO
Doctor of Pharmacy: course content includes e-learning elements	Pharmacy and Pharmaceutical Sciences	NO
Distance learning technologies employed for professional development courses for practicing pharmacists	Pharmacy and Pharmaceutical Sciences	NO
Skill practice (courses, practice labs, experiential education) supported by eLearning technologies	Pharmacy and Pharmaceutical Sciences	NO
Bachelor of Science in Pharmacy: foundational knowledge in physiology and anatomy being developed and delivered in blended learning format with emphasis on e-Learning components	Pharmacy and Pharmaceutical Sciences	
Master of Public Health: offered via e-learning	Public Health	YES
Blended learning course in diagnostic imaging for physical therapists	Rehabilitation Medicine	YES
Development of an e-clinic using standardized patients so that students are able to work with clients over the course of an academic year.	Rehabilitation Medicine	NO
Expert-delivered webinars offered in a web-based synchronous environment	Rehabilitation Medicine	NO
Voice-over PowerPoint presentations so that students are able to review course content at any time	Rehabilitation Medicine	NO
Satellite programs in Calgary and Camrose are offered using real-time web/videocast technology	Rehabilitation Medicine	NO
Development of interactive applets and modules for use across the undergraduate curriculum	Science	YES
DINO 101: Successful launch in September 2013	Science	YES
New MOOC being developed in linear algebra for September 2014	Science	YES
Special topics course, Introduction to the Space Environment and Space Weather, offered by videoconferencing	Science (with the University of Calgary)	NO

Photo: Zoltan Kenwell

CAPITAL PLAN

In the competitive world of 21st-century post-secondary education, the vitality, vibrancy, and sustainability of the U of A's multi-campus educational and research ecosystem can only be maintained through well-supported, well-planned strategic construction of new and repurposing and renewal of its existing facilities. As the university changes, space must transform to meet new needs and requirements.

Though the U of A has recently completed and opened several new and renewed formal learning and research spaces, increased enrolment and demand continue to strain existing academic support space such as fitness facilities, formal and informal collaboration/social space, libraries, collections and storage, housing, and daycares. These spaces help attract and retain students, faculty, and staff because together they form and support an environment conducive to a successful academic outcome and experience. Purpose-built student housing is a key driver leading to successful learner outcomes and strong alumni relations.

The university's ability to meets its own and the province's objectives depends on continued investment for new facilities and for renewal and repurposing of older facilities. With the completion of several large-scale capital projects over the last decade, the university now has the opportunity to sustainably maintain and, where appropriate, repurpose aging assets and infrastructure as new funding is made available. As areas and buildings are vacated by programs relocating to newly constructed buildings, smart, forward-thinking planning is required that looks beyond simple renewal and explore repurposing opportunities. By coupling renewal and backfill projects, the U of A provides a best-value model for creating projects that look toward our future operational and academic needs at a reduced capital cost. However, strategic investment in new infrastructure and buildings remains vital in maintaining the delivery of first-in-class academic programs. To that end, wherever possible, the university will seek opportunities to leverage existing funding, utilize the equity in our current physical assets, and explore various partnerships and project delivery models.

Long-Range Planning

BACKGROUND

As in previous years, the following Capital Plan endeavours to take a balanced approach in identifying planning, engineering, and construction needs. As we look forward, long-term (25-year outlook) strategic planning will guide five-year capital plans and will be based on key requirements of a research-intensive university with five separate and distinct campuses considering the age of infrastructure asset inventory and the provincial economy.

OBJECTIVES

- Identify risks over time to prime infrastructure required to support research, teaching, and learning.
- Ensure required modernization and expansion priorities are identified in support of the university's mandate.
- Identify opportunities for the development of supportive student and workforce housing that offer programs aligned with key university areas of focus.
- Assemble required resources including government funding, monetization of assets, leverage, P3s, borrowing, etc.
- Communicate to all university stakeholders the physical infrastructure requirements of a top-tier university.

INITIATIVES

- Update Long Range Development Plans as required.
- Develop business cases that, among other things, articulate strategic alignment of capital projects.
- Ensure planning for utility capacity is updated and current for all campuses.
- Produce and routinely update preservation and deferred maintenance plans.
- Develop a comprehensive 25-year strategic plan that articulates the development, maintenance, renewal, and expansion of supported and unsupported (ancillary) infrastructure.
- Communicate to the community the physical infrastructure requirements of a comprehensive academic and research university.

KEY ISSUES

- The University of Alberta is required to maintain some of the oldest publicly funded infrastructure in the post-secondary system and in the province.
- he U of A is a research-intensive institution and requires facilities that support current and anticipated research activities.
- Without long-range planning, publicly funded post-secondary institutions will continue to struggle as the governments that fund them find their budgets stretched.

The following focus areas guide our capital planning efforts:

- **Functional renewal and reduction in deferred maintenance liability:** Address deferred maintenance and functional renewal of existing physical assets. This will play a critical role in the university meeting space utilization requirements, attracting staff and students, and supporting the pedagogical needs of tomorrow's learners.
- **Envelope funding for pre-design services:** Target planning dollars for priority projects thereby ensuring well defined scope and budget accuracy.
- **Student and workforce housing:** Provide purpose-built, supportive student housing for up to 25 per cent of full-time enrolment to keep pace with U15 peers, enhance completion rates, and ensure accessibility for rural and under-represented Albertan students as well as international students.
- **New space:** Strategically plan and construct critical new facilities, respecting the varied needs of the university's five distinct campuses as they each serve unique and separate constituencies within Alberta.

Highlights of 2014–2015

INITIATIVES

- **Energy Management Program:** Given the success of the University of Alberta's energy management program (EMP), the university initiated a new round of energy projects for campus facilities. As in previous years, the next generation of the EMP is financed through borrowing and paid back through resulting energy savings. The accumulated impact of our ongoing and significant investment in energy initiatives has aided in reducing greenhouse gas emissions and lowering operating costs, and contributes significantly in a partnership approach to the reduction of deferred maintenance liability.

- **Sustainability:** Under the leadership of the Office of Sustainability, the U of A's commitment to sustainability is articulated in the *Sustainability Commitment and Guiding Principles*[16] and institutional *Sustainability Plan.*[17] This plan will be reviewed and updated in 2015. The university measures, tracks, and reports on performance using the Sustainability Tracking, Assessment & Rating System (STARS™). The university achieved a gold rating in 2014 (up from a silver rating in 2012) by increasing efforts across three categories: education and research; operations; and planning, administration, and engagement.

- **Utilities:** The U of A's District Energy Plan has two primary foci going forward. The first is replacing aging (50-plus years) electrical infrastructure in the heating plant while simultaneously providing a reliable supply of steam and power to the greater campus area. This was begun in 2014 and will be a seven- to 10-year project. This project is entirely funded through utilities reserves, which reflect our market activities. The second focus is on ensuring reliability of steam supply (50 per cent of our capacity is older than 45 years). In an innovative and financially viable approach, the university is proposing to produce power (for more reliability and at lower prices) and steam (to replace aging boiler capacity) by installing a gas turbine. We are seeking approximately 50 per cent of the project funding ($40 million) from government, with the balance funded from reserves.

- **Student Housing:** The university continues to develop plans and business cases to house up to 25 per cent of its full-time enrolment in purpose-built, supportive housing. New construction is ongoing within East Campus Village. Other activities are also taking place, such as articulating student housing need within the General Space Program for Augustana, exploring housing partnerships, and conducting various modernization studies. Collectively, these activities guide us in the creation of a comprehensive housing and residence program.

[16] Sustainability Commitment and Guiding Principles—endorsed by the Board of Governors, 2008

[17] Sustainability Plan 2016–2020

- **Long Range Development Plans (LRDP):** The university's LRDP identifies a set of strategic planning principles that form the basis for achieving the goals, objectives, and strategies expressed in the institution's collective academic, research, and business plans. The LRDP identifies how the university's lands and facilities should be developed in response to these plans, and outlines the operational planning initiatives and guidelines that will direct development. Over the past several years, and through extensive consultation with both external and internal stakeholders, the LRDPs have advanced through significant phases of refinement; as a result, these documents are now in place to advance the development objectives for both the North and South Campus.

- **Formation of the University of Alberta Property Trust Inc.:** The property trust provides an outstanding opportunity for the university to advance its entrepreneurial opportunities and enhance future sustainability while working closely with the City of Edmonton. The foundational principles that will guide this project include the following:
  - Make optimal use of the university's resources.
  - Support the university's mandate and goal of becoming one of the world's top public educational institutions.
  - Enhance and build upon the existing sustainability and resource stewardship philosophy of the U of A.
  - Promote opportunities for future urban design innovations.

GOVERNMENT OF ALBERTA FUNDING

Dentistry/Pharmacy Repurposing: Dentistry/Pharmacy is a landmark building on our North Campus, and the university is committed to developing a plan that will see this building remain a critical centre of campus. Government has provided much-needed pre-design funding to determine how this landmark can be recast to serve the university. Work has concluded at the design development core and shell phase.

Infrastructure Maintenance Program: Current funding levels of the Infrastructure Maintenance Program (IMP) grant, together with recent one-time project transfers, has until now allowed the university to maintain its trend in reducing its deferred maintenance liability. However, reductions to the base IMP grant will cause a setback over the longer term. Restoration of IMP funding to 2011–2012 levels is critical for preventing increases in our deferred maintenance liability and reducing the risk of catastrophic failure of some building systems. Increases to base funding and additional one-time grants for large renewal projects such as the Clinical Sciences (CSB) and Medical Sciences (MSB) buildings are required to limit liability.

Preservation Projects: Projects funded and undertaken in recent years have resulted in reductions in the Facility Condition Index (FCI) of some facilities.

Renewal and Backfill Projects: Prudent project management of capital projects has resulted in positive project variances as renewal and backfill has been completed. A number of repurposing and renewal projects have been identified in close collaboration with government and are being completed.

ONGOING PARTNERSHIPS WITH COMMUNITIES, POST-SECONDARY INSTITUTIONS, AND PRIVATE ORGANIZATIONS

- **Canada Foundation for Innovation (CFI) Contributions:** Over the last 10 years, the university has received approximately $150 million from CFI for major infrastructure purchases, including equipment, renovation, and new construction. This funding has directly leveraged approximately $225 million from other sources, including the province of Alberta, corporate partners, and other funding agencies.

- **TEC Edmonton:** TEC Edmonton has provided tremendous growth and program opportunities for all partners. TEC Edmonton has indicated a desire and need to expand within Enterprise Square and is currently seeking funding for this work.

- **Islamic Garden:** In June 2009, His Highness the Aga Khan announced plans to create a traditional Islamic garden within the university's Devonian Botanic Garden in recognition of the growing partnership between the university and the Aga Khan University. Design is advancing to facilitate the proposed garden and building infrastructure. The Ecological Learning Centre is a critical piece of garden infrastructure that is intended to integrate this and other gardens within the Devonian Botanical Garden site, providing learning and research space, community outreach programs, and visitor and tourism support. Designs have commenced related to site infrastructure based on current Government of Alberta support.

- **The Galleria Project (E-DACC):** This proposed project continues to progress and we look forward to government's commitment. Proposed new infrastructure for the departments of music, and art and design, within the Faculty of Arts, would satisfy their space program requirements. The Galleria is an innovative collaboration involving private philanthropy, corporate investment, and public funding involving all orders of government.

- **St Joseph's College Women's Residence:** This residence expansion project aims to introduce 282 beds to the University of Alberta's on-campus housing inventory in an all-female residence. As an extension of St. Joseph's College, the new residence will operate in a collaborative manner with the rest of the university's residence system. It will be completed in the summer of 2015.

- **U of A District Energy System:** The university's district energy system provides substantial savings in utility costs not only to the university, but also to other taxpayer-funded institutions in the greater campus area, such as the hospitals, the Jubilee Auditorium, Canadian Blood Services, Alberta Government facilities, etc. Over the last five years, the university's purchase prices for natural gas and power have been the lowest amongst the major post-secondary institutions in Alberta, averaging 20 per cent less for natural gas and 47 per cent less for power. The substantial savings generated from our activities in Alberta's deregulated energy markets enable all of our customers to pursue more efficiently their core missions of teaching, research, and medical services. Students in residence on North Campus also benefit from the lower utility costs. Additional benefits for all customers are the high reliability of services obtained and lower environmental impact due to efficiencies in operating large central facilities.

- **U of A Utility Group:** The university's utility group provides expertise in utility matters to smaller institutions and partners, such as Lakeland College, the Downtown Arts District initiative, and the City of Edmonton's development of the Blatchford Field.

PROJECT COMPLETION

- **Li Ka Shing Centre:** Last year, the capital fit-out of the CGMP (current good manufacturing practice) area was completed, which concludes the remaining major fit-up for this facility. The extensive commissioning process was completed this year and final certification granted for 2015.

- **Donadeo Innovation Centre for Engineering (Shell and Core):** Even with the renewal and repurposing of the existing Chemical and Materials Engineering building, there is a continued and pressing need for program space in the Faculty of Engineering. ICE will support the faculty's focus on providing increased space for graduate student programming and associated faculty and staff. Construction of the base shell and core of this facility is nearly complete and fit-out of the facility is scheduled to be completed in the spring of 2015.

- **South Academic Building Repurposing:** A portion of the South Academic Building has been repurposed and renewed to accommodate the growing need for wet lab space for the Faculty of Agricultural, Life and Environmental Sciences and the School of Public Health. This space has attracted world-leading researchers in the areas of soil reclamation and water research.

- **Medical Isotope and Cyclotron Facility:** The partnered redevelopment of the old Balmoral Curling Club into a state-of-the-art cyclotron facility was completed in late 2012. The university space is occupied and has been operational since 2012. Alberta Health Services is anticipated to start moving into their space in the late spring of 2015.

- **The Jeanne and Peter Lougheed Performing Arts Centre (formerly the Camrose Performing Arts Centre):** This project is the result of strong capital and program partnerships with the city and county of Camrose. Construction of this facility, located on Augustana Campus, started in the fall of 2012 and is now complete.

- **Pharmacy Fit-Out:** Phase II of the Pharmacy fit-out within the Medical Sciences Building has commenced. This space is connected to both the Katz Group Centre for Pharmacy and Health Research and the Edmonton Clinic Health Academy, and provides needed space for offices, student services, and teaching and research.

- **Physical Activity and Wellness (PAW) Centre:** Construction of this facility began in late 2012 in response to growing demand for additional recreation and fitness space, as well as research and programming space in the Faculty of Physical Education and Recreation. This project is funded in partnership with the Students' Union, Graduate Students' Association, Alberta Lotteries, private donors, and institutional dollars and was completed in January 2015.

- **New Access for South Campus off 122 Street (63 Ave):** An infrastructure development project in partnership with the City of Edmonton, the new access was opened in November 2014.

MAJOR FUNDED CAPITAL PROJECTS UNDERWAY

- **Donadeo Innovation Centre for Engineering Fit-Out:** Due to the critical need to accommodate the demand and planned growth of our engineering programs, the university has approved funding for the fit-out of this facility.

- **Student Housing:** Residence projects underway add a total of 213 beds to our inventory and will increase the university's ability to provide housing to 13.75 per cent of full-time students. These new residences will provide housing for faculty cohorts, and support the university's goal of providing purpose-built housing for up to 25 per cent of its full-time student population.

- **Peter Lougheed Hall:** This residence expansion project will add about 150 beds to our on-campus housing inventory. The new residence will support the Peter Lougheed Leadership College, part of the larger Peter Lougheed Leadership Initiative between the U of A and The Banff Centre focused on leadership development of undergraduate students.

- **East Campus Village Infill Housing Projects:** These two East Village facilities will provide a total of 70 new bed spaces and will increase our ability to provide on-campus housing to just over 13.75 per cent of full-time students. The unique designs have permitted the streetscape to remain in balance with adjacent facades using a typical residential housing scale.

- **Research & Collection Resource Facility (RCRF):** This project involves construction of a purpose-built facility of approximately 3,437 gross square metres and will be suitable to house 5.1 million volumes (anticipated requirement to 2035) on South Campus with easy access. The new facility will include all required environmental and retrieval systems expected in a modern records depository, would be expandable to accommodate future needs, and will provide outstanding opportunities for increased student access and for expanded academic initiatives.

Key Focus Areas and Capital Planning Considerations

The Capital Plan assumes that government guidelines and directions, including sustainability initiatives, must be met when undertaking planned projects. The university continues to work with government to develop a sustainability model for the institution that would be approved by all parties to facilitate sustainable design and operational practices.

The university's highest project priorities (See tables 1, 2, and 3) have been identified as requiring additional funding support from the Alberta government. Due to continual review of budgets and scopes of previous and emerging projects, the priorities and estimated costs within the Capital Plan may not match the university's list of capital projects or values as outlined in the most recent BLIMS submission. Project cost estimates are reviewed and updated annually, and adjusted as required. Estimates have been adjusted to align with current market conditions and take into account the university's and government's experience of the current construction costs and projected market escalation.

FOCUS AREA 1: FUNCTIONAL RENEWAL AND REDUCTION IN DEFERRED MAINTENANCE LIABILITY

BACKGROUND

Recent investment in new facilities has created an opportunity to creatively address physical and functional renewal of our buildings. Many older facilities are not designed to accommodate the functional and operational requirements of current and future faculty and students. Therefore, combining functional and physical renewal projects through backfill projects provides a best-value model for capital projects, minimizing the need for new buildings while facilitating the needs of tomorrow's learners and researchers—all at a significantly reduced capital cost.

To capitalize on these opportunities, adequate Infrastructure Maintenance Program (IMP) funding is critical. Where possible, this funding continues to be leveraged in partnership with other internal and external funders. The university's deferred maintenance liability cannot be significantly reduced unless an increase in annual grant funding or one-time funding is received.

Institutional deferred maintenance liability identifies condition-related deficiencies recommended for remediation within five years under a series of events that are established by the provincial government. The estimated total recognized deferred maintenance on supported and unsupported university facilities is $723.4 million for supported facilities and $122.3 million for unsupported (ancillary) facilities. In supported facilities, 88.5 per cent of the deferred maintenance occurs in facilities over 40 years of age. Similarly, in unsupported facilities, 89 per cent of the deferred maintenance liability occurs in facilities greater than 40 years old.

Of the $723 million in recognized deferred maintenance for supported facilities, 53 per cent is associated with science lab facilities and 32 per cent with office and classroom facilities. These facilities are mission critical to program delivery and research for the University of Alberta.

There are more deferred maintenance costs than reported, because many costly building upgrades dealing with changes in code, hazardous material removal, functional renewal, barrier-free access, indoor air quality, and various energy and operational efficiencies are not currently recognized by government in the deferred maintenance tracking tool.

The university manages a portfolio of facilities totalling 1.8 million gross square metres over more than 500 buildings, of which 50 per cent are more than 40 years old and 80 per cent are more than 20 years old. As part of reporting to government, we also report on our buildings' Facility Condition Index (FCI). Approximately 17 of our buildings have an FCI over 30, with Dentistry/Pharmacy being the highest at 66.

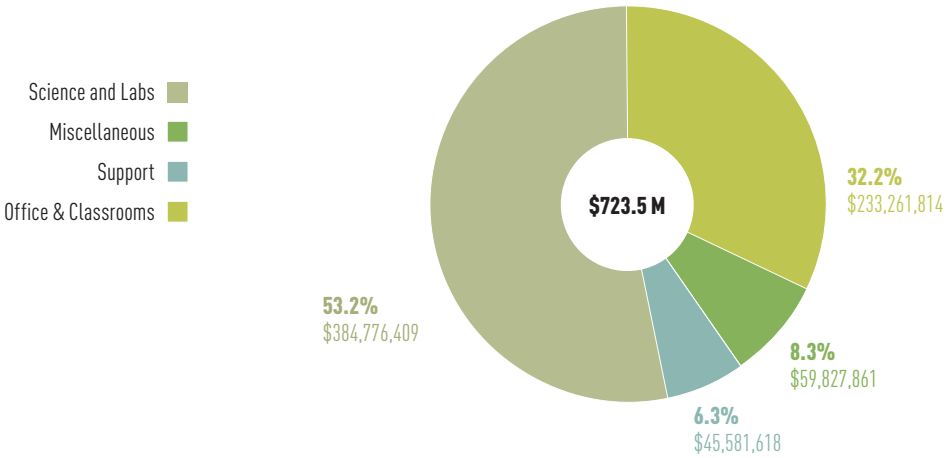
With aged facilities, major system failures or life safety items arise on an emergency basis and must be addressed. Due to a number of major failures over the past three to four years, the university has advised government that adjustments may be required to the three-year rolling IMP plan. The university continues to proactively monitor and co-ordinate with government on growing pressures in order to maintain access and minimize the risk of being required to shut down teaching, learning, and research space.

Funding cuts to the Infrastructure Maintenance Program, combined with the loss of one-time grants for preservation and deferred maintenance projects, has reduced our ability to address deferred maintenance liabilities. As the institution renews its strategic capital plan in 2015–2016, it will work with government to articulate these impacts and develop plans that are balanced and respond to new realities, while outlining needs and specific strategies to continue to aim at proactively managing risks.

Without supplementary, one-time grants for large, high-priority projects, renewals such as Cameron Library exterior skin replacement or the renewal of the Medical Sciences and the Clinical Sciences buildings, will have to be deferred to future years. As noted in Figure 15, 54 per cent of deferred maintenance occurs in facilities that are mission-critical to program delivery and research for the U of A. This is a significant number that will at some point have an impact on program delivery. Focus on reduction of deferred maintenance for science lab and classroom facilities needs to be a priority to support program delivery.

As a result of grants and a strategic approach to addressing critical deferred maintenance, the institution's deferred maintenance liability has shown a gradual reduction (with facilities over 40 years of use showing the most improvement). However, we anticipate that, if the previous funding levels are not restored, the recent trend of a reduction in deferred maintenance will be reversed.

FIGURE 15 DEFERRED MAINTENANCE BY BUILDING FUNCTION—SUPPORTED BUILDINGS



OBJECTIVES

- Maximize opportunities to identify and proactively address deferred maintenance and functional renewal in recently vacated space, through joint renewal and repurposing projects.

- Support the academic and research goals of the institution and maximize use and life of existing infrastructure, by ensuring that space is functional for current and future learning and research.

- Continue to maintain the condition and functionality of the university's physical assets, which play a critical role in our ability to attract, support, and retain the best students, faculty, and staff.

- Reduce the risk of building system failures that could affect life safety or result in building closures.

- Identify and proactively address deferred maintenance in a sustainable manner and in collaboration with government. In this way we can jointly identify assets at or near the end of their functional life.

- Ensure stable, long-term funding for deferred maintenance, and work with government to develop funding strategies that could support increased funding on the order of $25 million to $35 million annually.

- Maintain the reliability of the university's utility plant through focused investment in the functional renewal that deals with both deferred maintenance and increased efficiency with new technology.

INITIATIVES

- **Three-Year Infrastructure Maintenance Program Expenditure Plans:** This initiative was adopted by the university in 2004 and was formalized with a request by government for an initial submission in 2008. The rolling three-year plan has been part of the university's annual reporting to government and is carried as a financial update in our quarterly reports to provide timely progress reports on the use of grants.

- **Benchmarking With Other Canadian Universities:** This initiative began in 2005 and was updated in 2010–2011. For the next update, the university will be working through CAUBO on a national benchmarking initiative for deferred maintenance. As the western co-ordinator, we are in the process of securing the participation of all Campus Alberta institutions, and will share the outcome of the report with government.

- **Heating Plant Expansion and Renewal:** The university will seek government funding to ensure the continued supply of reliable services to our campus and surrounding government buildings served by our central plant. The possibility of leveraging this investment with additional institutional borrowing to install a new co-generation plant that could produce both steam and power simultaneously will also be examined. This project would reduce the campus's overall carbon footprint, reduce our demand on the Alberta grid system, and increase our capacity to produce reliable power.

KEY ISSUES

- **Sustainability:** Through recommissioning and sequenced renewal of targeted buildings that are functional and structurally sound, the university can lower the carbon footprint and energy requirements in older assets. The potential social, environmental, and economic benefits can be dramatic.

- **Increased Liability:** Current and previous IMP funding levels alone do not provide adequate funds to address current and trending levels of deferred maintenance.

- **Operational Continuity:** An inability to maintain the operations, functionality, and utilization of capital assets places the institution at risk of negatively affecting current and future research, teaching, and learning.

- **Reduce Capital Requirements:** Renewal and repurposing of target buildings that are functional and structurally sound result in lower overall capital costs as compared with the cost of a comparable new green field building.

- **Space Utilization:** The university is reviewing space use to determine how underused space could provide cost-effective swing space during renewal or repurposing projects, as well as to explore opportunities for consolidation, repurposing, and enhancing support of teaching and research.

- **Renewal and Repurposing:** Adequate funding for repurposing space in key older buildings is still a challenge. Deferred maintenance is an ongoing issue, but when renewal projects are coupled with modernization projects, the entire functionality of the building is upgraded to meet the needs of today's learners, teachers, and researchers.

FOCUS AREA 2: ENVELOPE FUNDING FOR PRE-DESIGN SERVICES

BACKGROUND

Prior to entering design phases for a capital project, certain services, beyond the capacity of the institution's staff, must be procured in order to clarify needs (e.g., general and functional space programming), outline scope and size, identify solution alternatives, select the preferred solution, and determine a relatively firm cost. When dealing with existing facilities, it is imperative to understand the facility's constraints within which the project team must work. In addition, services of external professionals are often required to assist with significant initiatives, such as studies and master plans to clearly define objectives, future use, and adjacency issues. Past project experience has reinforced the value of preliminary engineering efforts, resulting in projects being delivered on time and on budget.

The traditional funding model sees projects initiated once full funding is secured; projects generally take three to five years to deliver, depending on scale and complexity. However, the university has also had significant success using partnerships to deliver its capital priorities, resulting in reduced capital requirements compared with the more traditional approach. To effectively develop and explore partnership opportunities, significant up-front work is required to properly scope, budget, and vet potential projects. The university is seeking pre-design funding to create an inventory of projects ready to move forward as new capital funding and partnership opportunities become available.

Pre-design services must provide a clear tie between campus development and the immediate and long-term strategic vision of the institution. The university understands that approval of pre-design does not constitute approval for, or promise of, future capital funding for a specific project. However, being ready as funding becomes available, the university can potentially save millions of dollars in inflationary costs that might be incurred if construction is delayed.

There are a number of cases in which up-front pre-design has aided the university to actively engage and leverage partnership funding opportunities. For example, taking a staged approach with the Li Ka Shing Centre for Health Research Innovation and the Katz Group Centre for Pharmacy and Health Research buildings allowed for a proactive and quick response to the demands of the federal KIP program. Currently, the Devonian Education and Learning Centre (schematic design), the Gathering Place (schematic design) and Dentistry/Pharmacy Building redevelopment (design development to core and shell) have all benefited from funding for pre-design that has resulted in a refined budgeting process in establishing capital requirements.

OBJECTIVES

- In the short term, seek funding for pre-design services related to strategic priorities and major opportunities, or mandate both, to provide greater scope and budget certainty and to enable responses to new funding in a timely manner. As greater levels of funding become available, seek a long-term funding envelope program that would include government contributions through capital grants as well as partnered contributions from internal sources where possible.

- Provide strong and clear campus planning documents that are rooted in leading urban design and sustainability principles. The plans will seek to provide necessary direction, ensuring academic program needs of the university are met, with careful consideration to the expressed interests of the surrounding neighbourhoods.

- Reduce the university's reliance on expensive, long-term commercial leasing with better pre-design planning that anticipates the university's quickly increasing space needs.

INITIATIVES

Funding for Pre-design Services: Recently, a letter was submitted to government outlining the importance of pre-design funding in the current economy. The letter outlined two potential approaches to pre-design funds. The first was a list of projects and estimated design costs per project, with funds proposed to be disbursed over three fiscal years. The second approach was to work with government to establish an annual funding allowance, which suggested an annual planning envelope in the range of $2 million to $3 million.

Project Readiness and Responsiveness: Within this framework, projects yet to be approved would be partially advanced prior to project approval. Taking this action provides significant benefits: better-defined project scopes and budgets provide a higher level of program and cost certainty. It also facilitates a quantitative and qualitative approach in matching the project with the most appropriate delivery model, whether a traditional design bid build or a more entrepreneurial P3 approach. Lastly, it positions the institution and government to respond quickly to the ever-changing construction marketplace and new potential funding programs.

KEY ISSUES

- Backfill Planning and Repurposing: With the completion of a number of new buildings, there is an opportunity to leverage renewal with redevelopment. Given the goals and aspirations outlined in the CIP and the existing deferred maintenance associated with these buildings, a number of factors require consideration in assessing the residual capacity resulting from new construction. Up-front planning will enable the university to create a renewal and repurposing plan to ensure today's assets can deliver tomorrow's programs (as identified in the respective general space programs for the various faculties and administrative units) in the most sustainable way.

- Increased Research Intensity: As a research-intensive institution, the University of Alberta is faced with a growing need to convert administrative and undergraduate space to accommodate growth in graduate, doctoral, and post-doctoral programs. These research programs require significantly more physical space and infrastructure than the university's aging inventory can accommodate. Advanced planning is essential to investigate how to best renew and repurpose these areas to maximize utilization.

- Increasing Area of Aging Infrastructure: Though new construction has accommodated the planned growth of the institution, the university must continue to respond to its learning goals. There are a number of targeted buildings for which planning work must be completed: the Dentistry/Pharmacy Building, the Medical Sciences Building, the Clinical Sciences Building, the Augustana Science Building, and the South Academic Building (formerly Chemical Engineering Building). Advanced pre-design funding for condition concept studies and reports would provide the opportunity to responsibly accommodate future growth, while aligning with the expectations of government.

- Campus Planning and Community Expectations: The university continually engages its neighbours and stakeholders in the planning and design of its campuses as they develop. Communities increasingly demand that the university's planning documents be detailed enough that they are fully aware of the impacts of development. Critical to meeting these expectations is our ability to continue to work alongside these communities and ensure that the consultation process is maintained through the development of sector plans, as well as project-specific siting, pre-design and preliminary design efforts.

- Long Range Development Plan: The LRDP needs to be updated to reflect new lands acquired, such as Enterprise Square, St. Albert lands, Devonian Botanic Garden, Kinsella Ranch and Mattheis Ranch. Given the recent amendments to our north and south campuses, the university will be working to repackage its LRDP document so that each of our five geographically distinct campuses will have individual plans that properly reflect the unique and varied programming and community considerations associated with these campuses.

FOCUS AREA 3: STUDENT AND WORKFORCE HOUSING

BACKGROUND

The University of Alberta continues to respond to pressures for additional student residences, faculty and staff housing, and accommodation for visiting researchers. Research indicates that the quality of housing facilities and academic programs correlate with academic performance and the success of students. These facilities are also a key tool in the university's ability to attract and retain students, faculty, and staff. The university aims to provide purpose-built housing for up to 25 per cent of full-time students, which is in line with peer institutions.

To fulfil the objectives of the university's white paper on student housing, the academic plan, and the priorities of the Government of Alberta, the university plans to both increase on-campus, purpose-built, supportive, and accessible housing, and answer an increasing need to integrate support programs and academic learning space into student housing. This will meet the needs of targeted groups such as graduate, rural, Aboriginal, and international students. Faculty, staff, and mature students with families are also increasingly seeking housing options at the university, and must be included in current planning.

OBJECTIVES

- Use the findings and recommendations contained in the U of A's white paper, "Student Housing – for Now and for the Future"[18] (February 2015), to provide the context of further discussion and planning concerning housing on campus.
- Continue working with the Ministry of Innovation and Advanced Education, other ministries, and stakeholders to develop creative housing solutions that are sustainable and meet the goals of the university, students, and their families.
- Emphasize the importance of funding for residential program space that supports the academic mission and student success.

[18] Student Housing – for Now and for the Future – White Paper , February 2015

INITIATIVES

- Residence Services Accommodation and Program Study:[19] This study presents a road map with respect to how residences might develop in the future, including the types of programs and activities that should occur in support of the development of the whole person. The university will be using this document as a guide in planning and developing additional space to provide opportunities and access to rural, Aboriginal, under-represented, and international students, as well as students with families.

- Condition and Functionality: The university does not receive targeted deferred maintenance funding for student residences. Student residences have high infrastructure needs, compounded by the university's inability to recover the current backlog costs of maintenance or modernization via rental revenues. In 2010–2011, the university began reviewing strategies that would help build a reserve fund for maintenance and renewal of student residences (Residence Services Capital Reserve Strategy, June 2010), and our newest student housing complexes have building reserves integrated into the rental rates. Changing student demographics and requirements, as well as improved understanding of program delivery, are driving the need for modernization in several of our older student residence communities. The university will continue to work with government to identify one-time and continuing deferred maintenance funding for student housing to prevent closure of much-needed residence spaces.

- Partners: The university will continue to meet with private-sector developers to explore viable options to achieve our residence and housing targets.

- Property Taxes: The university will continue to discuss means of eliminating municipal property tax assessments on student housing, thereby directing more funds to critical deferred maintenance.

- Lights-On Funding for Academic Program Areas Within Residence: In some student housing communities (especially in first- and second-year residences) as much as 20 to 35 per cent of the gross area is being used to provide space that accommodates co-curricular programming, study halls, and other student support

[19] Residence Services Accommodation and Program Study, July 2008

services. If these spaces did not exist in residences, there would be pressure to provide these spaces elsewhere on campus. The university will continue to work with government to find ways to acknowledge these aspects of student development and discuss ways to bring lights-on funding to academic program areas in residence spaces.

- Capacity: The university is exploring strategies to add student residence capacity on its campuses, as well as to provide workforce housing options on the West 240 lands on South Campus and Michener Park.

- Michener Park Redevelopment: Available and supportive family housing is essential for recruiting and retaining graduate students and post-doctoral fellows. Ancillary Services has undertaken community and business planning with a view to advancing this important project. The first phase of this project will result in an approximate doubling of our current married-student housing units and the creation of a community that can seamlessly integrate with the surrounding communities. This project will also serve to eliminate the existing deferred maintenance liability at the Michener Park site.

- Modernization Studies of Lister Hall and HUB: Lister and HUB are two communities that support undergraduate and international undergraduate students. Their modernization is critical to the university's ability to continue to meet the needs of these important cohorts.

- East Campus Village (Infill and New Residence Development): The university will continue to develop East Campus Village as a vibrant and supportive student community, expanding its successful model of cohort living and learning spaces. Creative and appealing infill housing projects are under construction, and the design for Peter Lougheed Hall is nearing completion.

- Augustana Campus: The university will continue to enhance student experiences at Augustana by planning new student residences and developing modernization plans for current communities.

FOCUS AREA 4: NEW SPACE

BACKGROUND

Between the 2011 opening of the Edmonton Clinic Health Academy and the pending opening of the Donadeo Innovation Centre for Engineering, the university, with the support of government, has added approximately 150,000 square metres of new and expanded space, most of which has already been accounted for in approved program expansions. As the university continues to take a measured response to growth, there is still a need for strategic construction of critical new facilities. It is also important to recognize that the needs of the U of A's five campuses vary, each serving unique and separate constituencies within Alberta.

The institution has identified a number of new expansion projects critical to its mission, vision, reputation, and global competitiveness. Some of the highest-priority projects include an integrated innovation centre housing provincial testing labs, private diagnostics facilities, and translational labs for the university; a building expansion to accommodate science programs on Augustana Campus; a new Alberta School of Business building to accommodate growth within the faculty; a new School of Music and Art & Design facility within the Faculty of Arts; the fit-up of the Donadeo Innovation Centre for Engineering; a new hockey arena; and a metabolic unit replacement on South Campus.

There are also a number of critical academic support facilities that have been identified for renewal, replacement, or expansion, including the Research and Collection Resource Facility (RCRF) formerly known as BARD. Academic support facilities are discussed in greater detail in the next section.

OBJECTIVES

- Outline the capital needs of the institution in order to deliver the vision and programs included within this Comprehensive Institutional Plan. Space must not only provide simple access, but also ensure that the entire educational and life experience of students is supported.

- Confirm the state of the current inventory of academic support facilities; identify adequacy, appropriateness, and availability; and engage government in discussions to outline the importance of these facilities and remediate identified shortfalls in these integrated program areas.

INITIATIVES

- **Priority Setting:** Continue to work with government to align priorities for new capital and partnerships.
- **Strategic Advance Planning:** Continue to work on advance planning of high-priority projects so they are in a state of readiness once new capital funding becomes available.
- **Partnerships:** Continue to explore partnerships through donations, and alternate financing and project delivery models, to leverage any available funding and reduce initial capital investment.

KEY ISSUES

- Provincial and Global Economies: Currently the key issue affecting new space and corresponding capital is continued economic uncertainty and volatility. The university needs to continue to work with government to develop strategies that maximize and leverage limited government resources.
- Lack of Adequate Academic Support Space: Over the past 10 years, there has been a concentrated focus on funding projects that lead directly to much-needed increases in access. This has now put a strain on our academic support spaces, which have not grown proportionally with recent increases in enrolment.

ADDITIONAL PLANNING CONSIDERATIONS

FINANCIAL STRATEGIES TO SUPPORT CAPITAL

There is a significant need for long-term funding certainty to facilitate institutional initiatives. Though there will likely always be a need for traditional provincial investment through one-time grants, the university is committed to seeking other opportunities and avenues that minimize this dependency. These include the following.

- **Borrowing:** It is critically important that the university work with government and its financial entities to develop alternative financial models that address current fiscal constraints within government. Borrowing is part of planning and building an internationally recognized research-intensive institution that will attract the best and the brightest faculty and students in the years to come. The university recently completed a briefing to the Ministry of Innovation and Advanced Education that outlined possible sinking fund scenarios that could be used to support these efforts and take advantage of high market returns and low long-term fixed borrowing rates.

- **Alternative Financing Arrangements:** Along with pursuing innovative partnerships for property development, the university also looks for alternative financing arrangements (e.g., bond issues and P3s) where feasible and advantageous. Increasingly, the funding of projects in this plan will reflect the partnerships noted above and will include funds from multiple sources. Donations, as well as partner contributions, will be sought and used to complete needed facilities. Leasing options will also be considered to lessen the demand for capital funding. The university will continue to seek ways to involve the private sector in the repair, development, and operation of new and existing housing inventory.

- **Partnership Development:** Opportunities to develop partnerships could allow the university to leverage funding and develop its physical resources in a cost-effective manner. While partnerships present a major opportunity for the university to develop its physical resources in an innovative and cost effective manner, they also present significant challenges to both the institution and province. First, the institution, along with government as its primary funding partner, must work within current public policy. Second, the university must carefully weigh the advantages apparent in a partnership arrangement against the potential loss of control over the future of its resources.

INFORMATION TECHNOLOGY

Although grants cover purchases for information technology, there is a need for an agreement on government support of maintenance and replacement for core information technology services. A key element to this support is that it must flow from a new funding source and not be redirected from the existing facilities' deferred maintenance grant. Information technology is foundational in a modern building. It can be used to control security, power usage, air conditioning, elevators, telephones, and many other core services. This infrastructure eventually wears out or needs upgrading to continue to meet operational, teaching, and research needs.

OTHER INFLUENCES AND CHALLENGES

Facility operating costs for high-intensity research facilities may still be greater than the funding provided through base operating grants. The university must carefully monitor actual costs in these facilities to determine whether a significant shortfall continues and report to government accordingly.

While the university appreciates and acknowledges the government's efforts to provide lights-on funding for new infrastructure, failure to provide funding that bridges the difference between the lower historic funding and today's funding requirements has resulted in a significant operational shortfall to the institution. This has affected overall operational service levels across our campus for existing facilities. As buildings are repurposed to accommodate additional research-intensive programming, there is also a need to review operating costs and associated funding requests for differential lights-on funding to accommodate program change within a building.

The lack of available and affordable child-care options on campus is becoming a deterrent not only to the recruitment of staff and faculty, but also to the attraction and retention of graduate students and students from traditionally under-represented groups, such as Aboriginal people.

New construction is required to achieve the LEED® silver certification level. The university is fully committed to sustainable construction and operations. We continue to engage government on the most economical means of validating building designs and operations in the interest of achieving the university's sustainability goals. Plus, we are actively pursuing alternative, cost-effective strategies to provide equal or greater certification levels at a lower cost. Consideration for alternate certification systems allowing for more prudent application of grant funds must be considered.

The age of University of Alberta facilities presents a challenge because required use and function may not match in the spaces that are available. Renewal of aged facilities is required to deal with functional issues and provide more appropriate space.

With the development of a land trust, the university may be able to monetize land assets to support its core academic and research needs.

Capital Funding Requests

This section outlines the University of Alberta's current listing of highest-priority capital and planning projects to ensure the institution can meet its mandate over the next three to five years. The projects listed within provide the foundation of our BLIMS submission for 2014–2015.

Pre-Design Projects Requiring Funding

Pre-design services work is critical to the long-range planning of the institution because it demonstrates how best to maximize utilization of land holdings, buildings available for repurposing, or projects critical to the delivery of the institution's academic program. The projects listed below represent priority planning projects that are planned over the next three to four years. Due to the critical nature of these projects, some of the planning projects have proceeded with partial funding in advance of needed and formalized government funding (denoted by * in the following tables).

Unfunded Priorities

The following are the university's highest priorities in the categories of renewal, preservation, and new and expansion, for which the institution is requesting consideration of government approval and funding. Due to continual review of budgets and scopes of previous and emerging projects, the priorities and costs have not been included within the Capital Plan but will be identified in the 2014–2015 BLIMS submission. However, the university assumes that projects identified as priorities in this update will, for the most part, be carried forward in its BLIMS submission.

TABLE 1 PRE-DESIGN / DESIGN PROJECTS REQUIRING FUNDING (LISTED IN ALPHABETICAL ORDER)

PROJECT	DESCRIPTION
Agricultural, Life and Environmental Sciences (ALES)	Planning for the growth and emerging priorities of the faculty in research and teaching and the feasibility of consolidating faculty departments in a single facility on the South Campus, including the assessment of other lands.
Augustana Science Building and Classroom Upgrade	Planning and design schematics to facilitate the renewal and expansion of the current labs servicing the Augustana science program and providing classrooms that meet projected growth and today's pedagogical needs.
Biomedical Engineering Building (Pre-Design)	Pre-design to build infrastructure and acquire equipment necessary to facilitate development of Canadian Institute of Bio-Medical Engineering on the North Campus.
Campus Space and Accommodation Planning*	In response to the CIP, increased growth in graduate and post graduate programming, and increased utilization, the university continues to refresh faculty space needs and maximize repurposing and minimize new or expansion demands.
Campus-Wide Renewal Project Planning	With limited decant space, the institution needs to develop a holistic plan that allows it to plan how various renovations and renewals can occur with minimal disruption to teaching, learning, and research outcomes.
Cameron Library and Information Pavilion (Curatorial)	The U of A is home to one of the largest collections in the country. The strength of our collections is critical not only to the researchers at the U of A, but also to those across Campus Alberta. Given that the current facility is not suitable for this program and is putting the collection at risk, replacement of this facility is becoming more pressing. Pre-design services would confirm the size of the facility, establish the operational requirements to maintain the integrity of our collections, and consider integration into a larger Campus Alberta model.
Gathering Place*	Design for a centre focused on students, faculty, and staff to serve as a community gathering place that embraces and provides an inclusive and supportive learning environment to increase participation by First Nations peoples within the post-secondary sector.
Institutional Backfill/Repurposing Planning	With the recent turnover of new facilities, there is a need to provide a co-ordinated review of critical institutional areas affected by changing use and occupancies. Primary building inventories would include the Clinical Sciences and Medical Sciences buildings (ECHA influenced) and the Biological Sciences Building (CCIS influenced). Co-ordinating efforts would provide a consolidated approach for a "best fit" solution.
Long Range Development Plan (LRDP) Updates	The university needs to update its LRDP plans for North Campus, Augustana, Michener Park, Enterprise Square, and Devonian. Considerable stakeholder engagement and consulting costs are associated with this work given the increased demands by our surrounding communities for detail and time to review. These plans are critical to the university's ability to maintain its ability to develop its lands to deliver on its mission and vision.
School of Business	Development of a building for the Alberta School of Business in a partnered opportunity with private sector. A building for the school also accommodates backfill requirements of social sciences and supports their growth needs.
School of Music/Art and Design	Development of a building that could house the School of Music and the Department of Art and Design in partnership with a private-sector developer. Concept pre-design and business case development would facilitate fund development, building schematics, and delivery strategies. Refer also to EDACC initiative.
South Campus Master Plan*	Sector planning needs to be completed for the land use and for a phased and sustainable utilities/infrastructure strategy that will accommodate projected long-term growth on this site and the possible relocation of some of the existing operations to off-site research stations.

TABLE 2 HIGHEST PRESERVATION PRIORITIES (LISTED IN ALPHABETICAL ORDER)

PROJECT	DESCRIPTION
Agriculture-Forestry Lab*	Upgrade base building infrastructure to allow for full functional renewal of laboratory spaces. This will permit increased program use in the facility.
Biological Sciences Renewal Program – Phase 1	Significant upgrades to mechanical and electrical base building infrastructure to support current and future needs.
Cameron Library Information Pavilions – Phase 1*	Phase 1 redevelopment and upgrade of Cameron Library to create an integrated learning environment with comprehensive user support, group study rooms, and a variety of settings for group discussion and quiet study zones.
Campus Saint-Jean Electrical Distribution*	Upgrade the existing site electrical distribution and main service to effectively manage the aging infrastructure issues and to facilitate future expansion objectives.
Campus-Wide Fire Alarm Modernization*	Replace/retrofit/renew fire alarm infrastructure in university buildings.
Campus-Wide Fire Suppression Upgrade*(P)	Replace/retrofit/renew fire suppression infrastructure in university buildings.
Chemical and Materials Engineering Building – Renewal (Phase 2)	Renewal and repurposing of the building to provide needed wet lab space for the Faculty of Engineering and address building envelope and operational issues. Phase 2 is the continuation of the project and would fully renew the existing building. Due to the critical need for this space, the Faculty of Engineering is providing bridge financing of $5 million toward Phase 2 of the renewal in advance of government funding.
Chemistry West – Phase 3 of Renewal – Building Envelope Perimeter Heating and Interior Upgrades	Upgrades for remaining floors on the north portion of the facility to the same standard as floors renewed in phases 1 and 2. Remaining floors to be upgraded on north 50%: basement, L1, L2, and L3. Replacement of perimeter heating system with individually controlled room zones.
Chemistry West – Floor Renewal*	As the base building upgrade and renewal work is now completed, the delivery model for the remaining fit outs can be accommodated as smaller phases of work.
Chemistry West and Chemistry East – Electrical Vault/Emergency Power Upgrade*	Electrical services for the facility are at capacity; no emergency power is available for building life safety systems. New electrical room and generator required.
Clinical Sciences Building: Phase 1 Design and Renewal	Building renewal and backfill with the completion of Edmonton Clinic Health Academy is complete. Focus is for renewal and repurposing. The project would be approached in three phases of renewal of the tower. Phase 1 is for design and building prep for phased renewal.
Clinical Sciences Building: Phase 2 Renewal and Repurposing	Building renewal and backfill with the completion of Edmonton Clinic Health Academy is complete. Focus is for renewal and repurposing. Phase 2 would accommodate one-third of the project and allow for decanting of remaining tower.
Convocation Hall Renewal	Renewal of hall stage, front lobby and interiors, all timed to coincide with building's centenary.
Dentistry/Pharmacy Building Renewal	Functional renewal of the building once the Edmonton Clinic Health Academy is complete and faculties have relocated. The existing building, constructed in 1921, has a high deferred maintenance liability and must be completely retrofitted before new tenants can be moved in. This project restores and reuses a historically significant building to the campus; allows for greater administrative efficiencies with the co-locating of many of our central services, reducing demand for outside leases; and most importantly, builds a new front door for our campus to the community of prospective students, current students, and alumni. The university is also preparing a phasing plan that will allow for the project to continue advancing as funding becomes available.

PROJECT	DESCRIPTION
Earth Science Building – Central System Upgrade*	ESB has had a significant increase in wet lab space. This has driven the need for base building mechanical and electrical upgrades. Initial studies indicate the upper floor can be isolated from the existing base systems and would allow the existing systems to manage the remainder of the building.
Heating Plant – Turbine Generator #3	Purchase and installation of a gas turbine to produce power and steam. The steam production will replace existing capacity that is 45 years old.
Medical Sciences Building – Phase 1 Renewal*	Select building renewal and repurposing/backfill to occur given the current base infrastructure.
Medical Sciences Building – Phase 2 Building Upgrade	Full facility renewal program and backfill.
Replacement of Remote Control Monitoring System (RCMS)*	Current remote control monitoring system provides control and monitoring of the major mechanical systems and space conditions in all major buildings, both on and off main campus. Replacement of obsolete system that is critical to day-to-day operation of university buildings.
Roofing Program*	Campus-wide program for upgrading of roofing systems for a three-year period to deal with roofing systems that are in the 12- to 15-year range and will be nearing the end of life expectancy.
Universiade Pavilion – Building Envelope Upgrade*	Renewal of building envelope to replace failing panels.
Van Vliet East and West – Upgrade of Mechanical Systems*	Complete renewal of building mechanical systems currently in very poor condition. Given student support of the Physical Activity and Wellness Centre project, there is an opportunity to partner for partial renewal of Van Vliet. Partial renewal deferred maintenance funds for this phase of work would be $4 million.
Various Facilities – Electrical Vault Upgrades*	Campus-wide upgrades of electrical vaults currently in poor condition and close to failure.

TABLE 3 HIGHEST NEW AND EXPANSION PRIORITIES (LISTED IN ALPHABETICAL ORDER)

PROJECT	DESCRIPTION	NEW SPACE (M^2)
Agricultural, Life and Environmental Sciences Building – South Campus	Planning for the growth and emerging priorities of the faculty in research and teaching, and the feasibility of consolidating faculty departments in a single facility within South Campus. Assessment of the impact of other lands being utilized by the faculty on its operations and programs.	60,000 (est)
Arena and Academic Sport Centre	The Arena Project is part of the long-range plan of moving all varsity programs to South Campus and having these buildings serve not just the university but the community at large. This facility will provide needed space for our hockey, wrestling and golf programs and will provide needed administrative, learning, and research space associated with varsity programs. The project assumes funding through various partnership resources, including philanthropy, borrowing, and government support. As well, this facilitates the replacement and relocation of our aging and antiquated metabolic facility.	14,954
Augustana Science Expansion and Renewal and Classroom Building Upgrade	Expansion and renovation of the existing building and infrastructure to meet the needs of the student enrolment and science program requirements.	6,046
Cameron Library and Information Pavilions (CLIP) – Phase 2: Research and Collections Resource Facility (RCRF)	Renovation and expansion of a recently purchased Federal Archive building to support our need for the Research and Collections Resource Facility (RCRF). A new South Campus facility is being planned; this will replace a previous request for $85 million that was to accommodate two distinct occupancies.	Phase 2 – 3,437
CLIP – Phase 3: Curatorial Facility	New space for Museum and Collections Services (MACS) to provide centralized space for collections with proper temperature and humidity controls.	32,437
Campus Saint-Jean Science Building	Expansion and renovation of existing facility to meet needs related to differential program enrolment throughout the entire campus, creation of new programs and partnerships with other faculties, and dedicated research space, which will allow opportunities for reuse within the backfill area. The university is targeting an additional $10 million in federal support.	5,319
Ecological Learning Centre – Devonian Botanic Garden	New facility to allow Devonian Botanic Garden to open year-round and support community outreach. Addition of parking lot and sound walls, as well as a new formal gate. This project will be programmed in conjunction with the developing Islamic Garden. The university is targeting $10 million of fundraising.	2,789
Gathering Place	Centre focused on Aboriginal students, faculty, and staff to serve as a community gathering place that embraces and provides an inclusive and supportive learning environment. Project will be aligned with current Education Tower location and be aligned with the building's current infrastructure and program areas. The university has secured a donation of $1 million to initiate the project.	2,100
Housing – East Campus Village	Development of up to 600 additional bed spaces to enhance the university's ability to accommodate projected growth. The request represents a cost of $115,000 per bed with an equity component of 30 per cent.	32,900
Housing – Michener Park	Complete redevelopment of buildings and supporting infrastructure doubling the current density in Phase 1. Assumes a 30 per cent equity component.	61,321
Metabolic Research Facility	Replacement and relocation of the outdated and aging metabolic facility on South Campus. The current facility is at the end of its life and relocation is part of the long-term vision of the South Campus. See Twin Arena project.	TBD

PROJECT	DESCRIPTION	NEW SPACE (M^2)
School of Business Building/Social Sciences Departments	Development of a building for the Alberta School of Business in a partnered opportunity with private sector. A building for the school would facilitate accommodation of the backfill requirements of the social sciences and support their growth needs. The social sciences are currently experiencing significant shortfall of space.	32,650
School of Music/Art and Design	Development of a building that could house the School of Music and the Department of Art and Design in partnership with a private-sector developer. The budget represents the potential equity required within the partnership arrangement.	32,500
Science Backfill	Various backfill renewal and repurposing of space as a result of the completion of CCIS (BioSci, Earth Sciences, Chemistry, South Academic Building).	TBD
South Campus – Infrastructure for Shared Use Facilities	New infrastructure to support the development of the northeast sector of South Campus—deep sewer, water supply, road lighting, and improvements specifically to support the siting of community complexes on campus. Work has proceeded in support of projects and timelines to accommodate federal grant timing.	N/A
South Campus – Utility Infrastructure	Initial infrastructure to provide first phase of utility and services in support of campus growth and to accommodate infrastructure located on adjacent Government of Alberta land (could also be provided through a P3 model).	N/A
TEC Edmonton Expansion	The success of TEC Edmonton in assisting startup companies through mentorship and business planning calls for a need to fit up additional space within Enterprise Square per original vision.	2,000
Translation Lab – Edmonton Clinic Diagnostic Centre	The project represents an opportunity to co-exist in a new translational lab with diagnostic services to foster translational science and to improve collaboration, training, and innovation.	6,900

INSTITUTIONAL BUDGET, 2015–2016

Recognizing the challenges faced by the provincial government, there is no more important time to invest in higher education. The substantial fall in oil prices reinforces the vital need for Alberta to further diversify its economy. Universities are critical to achieving this goal. With predictable levels of funding support from government, the ability to respond to market conditions, and the flexibility to fully utilize its resources to generate new revenues, the University of Alberta can continue to provide an exceptional learning experience, undertake world-leading research, meet the workforce demands of the province, and assist the government in diversifying Alberta's economy.

Consolidated Budget

Prepared under Public Sector Accounting Standards (PSAS), the U of A's 2015–2016 consolidated budget (see Table 4 on page 148) reflects the entire enterprise, including unrestricted and restricted funds. This includes funding for general operations, ancillary operations, research activities, and capital projects. Funding for general operations is fully unrestricted within the consolidated budget. Funding for ancillary operations remains within those operations, while the majority of research revenues, philanthropic sources of revenue, and capital project funding are fully restricted. The difference between unrestricted and restricted funds is in the degree of university control over the use of the funds. All unrestricted funds fall fully within the authority of the board to advance the institution's enterprise, whereas restricted funds can be used only for the purposes for which they were received. To further enhance the university community's understanding of the budget, a budget primer document is publicly available on the university's website.

For 2014–2015, the university is forecasting in its year-end estimates positive variances in provincial funding, tuition revenue and investment income, while forecasting negative variances in federal and other government funding, grants and donations, and sales of services and products. The net revenue variance is forecast to be a positive $40 million or 2.2 per cent of budgeted revenue. The largest single variance was investment income, with a $31-million positive variance. The variance was driven by the final sale of investment associated with the university's asset-backed commercial paper. Expenses are forecast to be $14 million less than budgeted, or 0.7 per cent of budgeted expense. For 2014–2015, the university is forecasting an overall positive variance of $54 million in its consolidated budget, with an excess of revenue over expense of $63 million.

For 2015–2016, the consolidated budget reflects an excess of revenue over expense of $23 million on budgeted revenue of $1,823 million and budgeted expense of $1,800 million. The $23-million excess of revenue over expense is equal to 1.3 per cent of the university's budgeted consolidated revenue.

The Statement of Operations (consolidated budget) under the PSAS, and the Statement of Cash Flows are presented in tables 8 and 9 on pages 156 and 157.

CONSOLIDATED REVENUE

Budgeted revenue for 2015–2016 is $1,823 million. As illustrated in Figure 16, 51 per cent or $940 million comes from the Government of Alberta, mostly through the Campus Alberta grant, sponsored research funding, and capital funding. Of the $940 million, $567 million represents the Campus Alberta Grant, the primary source of unrestricted funding for the university's day-to-day operating activity. The 2015–2016 budget has been prepared based on a zero per cent change to the Campus Alberta grant.

Federal and other government revenue of $189 million largely reflects the funding received by the university in support of its research mandate. This revenue is budgeted to be higher than the 2014–2015 estimated actuals and similar to the original 2014–2015 budgeted revenues. Any change in this revenue source is driven by the federal government's level of investment in Tri-Council funding and the university's national competitiveness in these and other funding competitions.

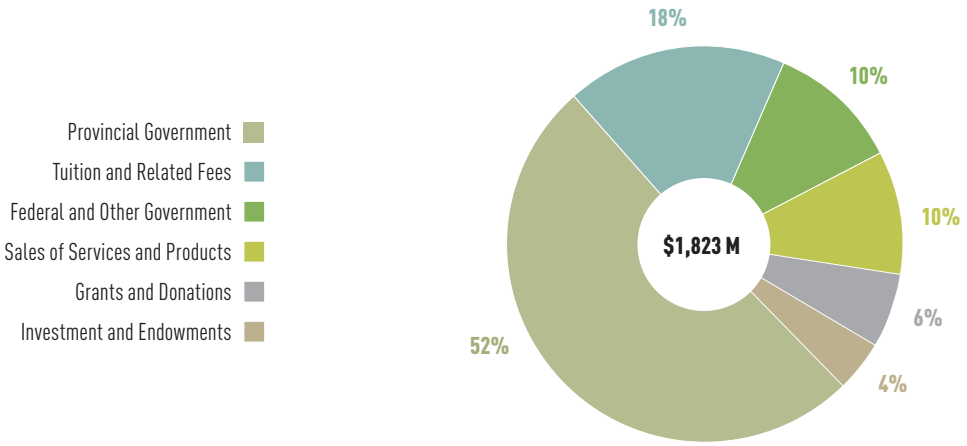
Tuition and related fees are budgeted at $333 million; at 18 per cent, they represent the second-largest source of consolidated revenue and are unchanged as a percentage of revenue from 2014–2015. Tuition and related fees include all instructional fees, market modifiers, and non-instructional fees. The fee revenue is largely unrestricted,

resides in the operating fund, and is used for the day-to-day general operations of the university. In December 2014, pursuant to the provincial tuition fee regulation, the Board of Governors approved a 2.2 per cent increase to all tuition fees. The 2015–2016 budget also factors in five new market modifiers (law, the MBA program, physical therapy, economics and pharmacy) as approved by the Minister of Innovation and Advanced Education, subject to approval by the Board of Governors. Market modifiers allow for a correction in the discrepancy between tuition fees set by a board of an institution in respect of a specific program of study and tuition fees for similar programs of study in other jurisdictions or in other sectors or institutions of Campus Alberta. The budget has also factored in a 2.3 per cent increase to all mandatory non-instructional fees.

The fourth-largest source of revenue comes from sales of services and products, representing 10 per cent of total consolidated revenue, or $179 million. This revenue is primarily derived from ancillary operations such as residence services, the bookstore, parking, and food services. This revenue source has declined from previous years, driven largely by lower bookstore sales revenue. For 2015–2016, sales revenues were adjusted based on a board-approved base increase in residence fees of 2.3 per cent and a weighted average increase of 3.5 per cent to select units. Parking rates for permits was increased by 2.3 per cent. Revenues from sales of services and products are also derived from operating activities across all faculties and units. Examples include sales associated with physical education and recreation activities (passes, camps, etc.), medical clinical assessments, and rental of equipment.

The other sources of consolidated revenue for 2015–2016 include grants and donations of $107 million and investment income of $74 million.

FIGURE 16 CONSOLIDATED REVENUE BUDGET 2015–2016 BY SOURCE ($MILLION)



CONSOLIDATED EXPENSE

For 2015–2016, consolidated expense is budgeted at $1,800 million. The budgeted expense for 2015–2016 reflects a 1.5 per cent cut to the operating budgets of faculties and administrative units for total expenditure reductions of approximately $10 million in the operating fund.

As Figure 17 illustrates, investments in salaries and benefits to maintain teaching, research, and other critical activities account for over $1 billion or 61 per cent of total expense. At the time of preparing the budget, the university was still in negotiations with both associations. Therefore, the salary and benefit expenditures are based on a forecast adjustment to salaries and benefits. Any final salary and benefit negotiations that differ from the forecast will result in a variance to the recommended budget.

In addition to the negotiated changes to salaries and benefits, the university must also budget for inflationary increases to non-statutory benefits such as supplementary health plans, any statutory benefit increases, and adjustments to pension plan contributions in response to unfunded pension plan liabilities.

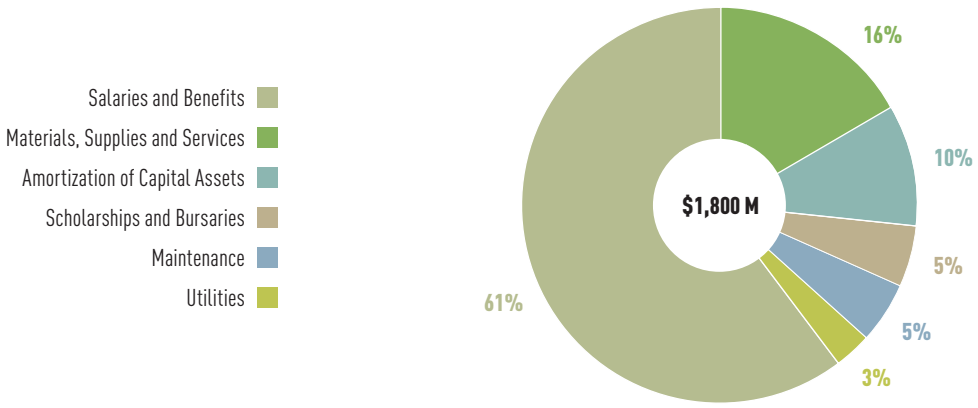
The university's next largest expense is materials, supplies, and services. Budgeted at $292 million, these expenses provide essential support across the campuses, including information systems and technology, research expenditures, library resources, and day-to-day operations such as insurance premiums, communications, and classroom support. This expense line also includes the costs of goods sold and recovered. In budgeting for these expense items, the university continues to face the challenge whereby inflation within higher education significantly exceeds general inflationary pressures. Examples of this include library collections, which are affected not only by general inflationary increases, but also by the value of the Canadian dollar. For 2014–2015, the library budget was increased by nine per cent or $1.9 million in response to publisher increases and currency adjustments, with approximately half of the adjustment due to the falling Canadian dollar. Information technology saw inflation increases of 2.4 per cent and facilities and operations saw average inflation increases of 2.5 per cent. These inflationary increases are all occurring at a time when the university's budget has been prepared on the assumption of a zero per cent change to the Campus Alberta grant.

A further significant expense in the consolidated budget is $180 million for the amortization of capital assets. Under PSAS, amortization is an annual expense that is calculated based on the estimated useful life of the asset. These assets include such things as buildings, scientific and computing equipment, software, and learning resources.

For 2015–2016, scholarship and bursary expenses are budgeted at $93 million, a $10-million increase from the 2014–2015 estimated actuals. This increase demonstrates the university's ongoing commitment to provide students with access to the necessary funding support.

On a continuous basis, the university implements plans and strategies that maximize administrative efficiencies in delivering vital services in direct support of the university's core mission. The university tracks and reports to the provincial government the proportion of operating expenditures directed toward administrative purposes over a two-year cycle. The provincial government establishes the reporting criteria for administrative expenditures and sets five per cent as the benchmark for administrative expenditures as a proportion of operating expenditures. Based on the ministry's criteria, for the 2012–2013 to 2013–2014 cycle, the university allocated 4.7 per cent of its expenditures for administrative purposes.

FIGURE 17 CONSOLIDATED EXPENDITURE BUDGET, 2014-15 ($MILLION)



Operating Fund

Consistent with the University of Alberta's commitment to providing transparent budget information, the university also presents the budget by fund, including the university's operating fund, in addition to the fully consolidated budget table (see Table 4).

As noted, the operating fund is unrestricted and is used to support the primary teaching and learning activities of the university. To ensure alignment of the operating fund with the consolidated budget, this fund is presented using PSAS and therefore includes the amortization of capital assets.

For 2015–2016, the university has budgeted total operating fund revenues of $1,036 million and total operating fund expense of $1,038 million for an operating fund deficiency of $2 million. The operating fund has been prepared based on the core assumption of a zero per cent change to the Campus Alberta grant, along with required budget cuts to the faculties and administrative units that bring the operating fund close to a balanced position. Every one per cent change in the Campus Alberta Grant is equivalent to $6 million.

The two primary sources of revenue within the operating fund are the Campus Alberta grant, and tuition and related fees totalling $898 million or 87 per cent of the operating fund revenue. The remaining 13 per cent of revenue is derived from federal and other government funding, donations and investment income, and sales of services and products.

Within the operating fund, 76 per cent or $788 million of expenses are associated with salaries and benefits. Nine per cent of expenses are associated with the materials, supplies, and services that support teaching and learning, with the remaining 14 per cent of expenses associated with utilities, maintenance, amortization, and scholarships and bursaries.

Notwithstanding the challenging budget pressures faced by the university, through the budgeting process a number of critical funding pressures were identified for 2015–2016. Examples of this include one-time expenditures that would enable the university to acquire and protect ice-core samples. These samples are a critical research tool needed by university researchers studying the full impact and causes of climate change. The university will also invest in essential software required to sustain its web content management system and thus maintain its web presence. Investments will also be made in the copyright office to ensure compliance with copyright legislation. Finally, the university will provide funding to the Advancement portfolio. This will replace the revenue that was to be derived from a charge against first-year interest earnings on new donations.

For 2015–2016, the university introduced an important change to its current resource management model. As of the 2015–2016 budget, responsibility for funding negotiated across-the-board salary increases (ATB) and merit will be the responsibility of faculties and administrative units. In previous years, any increase to the cost of ATB and merit was the responsibility of central administration. When ATB and merit increases exceeded the amount of new revenue coming into central administration, a budget cut would be applied to the

faculties and administrative units to fund the costs of ATB and merit. By transferring responsibility of merit and ATB directly to faculties and administrative units, the university eliminates a back-and-forth administrative process. This transfer of responsibility has been planned for months and has been approved by deans, VPs, and acting provost to be implemented beginning in the 2015–2016 budget cycle. While this budget change was being contemplated, the provost's office began working actively with the deans to generate new sources of net revenue. The goal is for the faculties, and where possible administrative units, to generate, over time, new sources of revenue that will enable them to fund the costs of ATB and merit.

Based on the assumption of a zero per cent change to the Campus Alberta grant, fiscal estimate calculations and emerging budget pressures, to achieve a modest $2.6 million deficiency in the operating fund, central administration will be implementing a 1.5 per cent cut to the faculties and administrative units. Plans for achieving these cuts are currently being developed. For budget purposes, given these cuts, operating fund expenditures have been reduced by $10 million based on historical patterns of where cuts have been applied in the past. At this time, the budget does not include any one-time severance costs that may be associated with the budget cuts. These costs have been estimated at $2.5 million; however, this could vary depending on final budget cut strategies implemented by the faculties and administrative units.

In the absence of a provincial budget and any confirmation of changes to the Campus Alberta grant, the university's budget has been developed based on a zero per cent change to the Campus Alberta grant. This represents significant revenue risk to the university. Every one per cent change in the grant equals approximately $6 million in revenue. In the event that the provincial government implements a reduction to the Campus Alberta grant, the university will manage this change through the use of one-time sources in 2015–2016. However, to correct for this change in grant funding, corresponding base budget cuts will be required in 2016–2017. For example, if the grant is reduced in 2015–2016 by five per cent or approximately $30 million, a minimum four per cent budget cut would be required in 2016–2017 over and above the cuts already factored into the 2015–2016 budget.

The university recognizes that in the current environment, to sustain and enhance the quality of its research and the student experience, it must grow its revenues. For example:

- growing the university's endowment from $1 billion to $1.25 billion would increase endowment income by $12 million
- generating one per cent of the faculties' 2013 net expenditures in the form of net new revenue would produce $5.1 million
- increasing funding from the federal government's research support funding program from approximately 19 per cent to 30 per cent of Tri-Council funding will generate $11 million in new revenue
- adjusting tuition to reflect market demand can yield new revenue (e.g., when fully in place, the recently approved market modifiers will generate $8 million)
- development of a land trust will have significant positive financial impact to the university over the life of the project

To facilitate efforts to pursue and realize the benefits of these revenue generators, it is important to note that there some significant constraints currently place that need to be removed. For example, the university is not allowed to use its own facilities to deliver cost-recovery programs even when there will be no impact on the delivery of core educational programming. The university also has little flexibility in adjusting tuition fees to better reflect market conditions. With increased flexibility from government, the university would also fully expect to be held accountable for its performance and its overall outcomes.

Operating Fund Budget Assumptions and Sensitivities

The university prepares its fiscal estimates and final budgets using a comprehensive integrated planning and budget process, involving key stakeholders from across the institution. Key budget assumptions and sensitivities are the cornerstones of the university's multi-year budgeting process. The goal is to achieve improved accuracy in forecasting elements of the budget and provide common assumptions for budget planners across the university.

2015–2016 BUDGET ASSUMPTIONS

Key highlights of the university's revenue assumptions include:

- a zero per cent change to the Campus Alberta grant
- a 2.2 per cent increase in general tuition fees and the phased implementation of market modifiers for economics, pharmacy (for 2017–2018), law, master of business administration, and master of science in physical therapy
- a 2.3 per cent increase to all mandatory non-instructional fees
- marginal growth in investment income

Key highlights of the university's expenditure assumptions include:

- salary and benefit adjustments subject to ongoing negotiations
- employer-paid non-statutory benefit cost increases averaging 6.9 per cent driven by annual increases of 10 per cent to the pension plans
- faculties and administrative units assuming responsibility for the funding of negotiated ATB and merit
- a 1.5 per cent overall average cut to faculties and administrative units
- increase in scholarship funding

2015–2016 BUDGET SENSITIVITIES

Revenue Approximate Value

- one per cent on Campus Alberta grant: $5.7 million
- 0.25 per cent on short-term interest rate: $1.3 million
- one per cent increase on credit tuition: $2.5 million

Expense Approximate Value

- one per cent change in salary settlements (AASUA and NASA): $5.7 million
- one per cent increase in benefits: approximately $1.4 million
- $1/gigajoule increase in natural gas: $2.3 million (ancillary budget)
- one per cent operating budget reduction: $7 million

FORECAST BUDGET ASSUMPTIONS

The university has used the following forecast budget assumptions.

Revenue assumptions:

- The grant will remain unchanged for each of 2016–2017 to 2018–2019.
- Regulated tuition will increase annually by Alberta CPI (approximately two per cent per year) as confirmed by the ministry.
- All mandatory non-instructional fees will increase by a minimum of Alberta CPI.
- Interest income will remain at historically low levels.

Expenditure assumptions:

- Changes to ATB salary adjustments, merit, and benefit costs will be subject to collective agreement negotiations for 2015–2016 and beyond.
- Faculties and administrative units will assume responsibility for the funding of ATB and merit for 2015–2016 and beyond.
- All other expenditures are forecast to increase in the range of two to seven per cent.

TABLE 4 CONSOLIDATED BUDGET, 2015-2016 ($000's)

	2014-15		Budget	Projections		
	Approved Budget[1]	Prelim. Actuals	2015-16	2016-17	2017-18	2018-19
Revenue:						
Provincial Government	861,492	901,291	940,491	920,192	926,763	933,913
Federal and Other Government	188,670	179,516	188,997	194,738	201,382	207,461
Tuition and Related Fees	313,594	319,145	333,053	342,719	356,116	368,760
Grants and Donations	133,247	113,362	107,278	116,115	119,753	123,042
Investment Income	58,900	93,327	73,879	81,602	80,709	84,085
Sales of Services and Products	192,917	182,035	179,292	185,242	188,329	191,653
Total Revenue	**1,748,821**	**1,788,676**	**1,822,990**	**1,840,608**	**1,873,052**	**1,908,914**
Expense:						
Salaries	875,530	877,292	915,941	942,924	971,478	1,000,406
Employee Benefits	177,093	176,585	183,524	191,665	199,965	210,469
Materials, Supplies and Services	292,172	275,206	292,320	289,659	298,081	306,971
Utilities	48,506	50,890	53,808	58,639	57,320	59,219
Maintenance	84,259	86,645	81,663	71,015	70,497	71,457
Scholarships and Bursaries	85,158	82,751	92,719	95,707	98,828	102,087
Amortization of capital assets	176,605	176,426	179,841	179,089	185,700	192,945
Total Expense	**1,739,323**	**1,725,795**	**1,799,816**	**1,828,698**	**1,881,869**	**1,943,554**
Excess of Revenue Over Expense	**9,498**	**62,881**	**23,174**	**11,910**	**(8,817)**	**(34,640)**
Investment In Capital Assets	(73,856)	(32,057)	(9,781)	(17,654)	(266)	(1,751)
Net Transfers Credit (debit)	10,000	-	-	-	-	-
Increase (decrease) for the Year	(54,358)	30,824	13,393	(5,744)	(9,083)	(36,391)
Unrestricted Net Assets, Beginning of Year	(98,872)	(89,173)	(58,349)	(44,956)	(50,700)	(59,783)
Unrestricted Net Assets, End of Year	**(153,230)**	**(58,349)**	**(44,956)**	**(50,700)**	**(59,783)**	**(96,174)**

TABLE 5 CONSOLIDATED BUDGET 2015-16 BY FUND ($000's)

	Consolidated Budget by Fund, 2015-16					
	Operating	**Ancillary Operations**	**Research**	**Capital**	**Special Purpose**	**TOTAL**
Revenue:						
Provincial Government	594,763	-	120,877	126,783	98,068	**940,491**
Federal and Other Government	7,682	-	171,690	9,091	534	**188,997**
Tuition and Related Fees	331,101	1,952	-	-	-	**333,053**
Grants and Donations	12,909	-	77,434	12,728	4,207	**107,278**
Investment Income	20,579	2	34,531	38	18,729	**73,879**
Sales of Services and Products	68,527	96,772	13,993	-	-	**179,292**
Total Revenue	**1,035,561**	**98,726**	**418,525**	**148,640**	**121,538**	**1,822,990**
Expense:						
Salaries	645,881	23,798	192,020	-	54,242	**915,941**
Employee Benefits	142,243	5,003	24,553	-	11,725	**183,524**
Materials, Supplies and Services	93,084	34,126	136,754	-	28,356	**292,320**
Utilities	47,300	6,508	-	-	-	**53,808**
Maintenance	27,167	23,948	2,400	27,422	726	**81,663**
Scholarships and Bursaries	34,494	-	40,877	-	17,348	**92,719**
Amortization of Capital Assets	47,993	10,630	-	121,218	-	**179,841**
Total Expense	**1,038,162**	**104,013**	**396,604**	**148,640**	**112,397**	**1,799,816**
Excess (Deficiency)	**(2,601)**	**(5,287)**	**21,921**	**-**	**9,141**	**23,174**
Investment in Capital Assets	15,309	1,808	(1,147)	(25,751)	-	**(9,781)**
Net Transfers credit (debit)	10,934	(1,536)	(18,518)	18,261	(9,141)	**-**
Increase (decrease) for the Year	**23,642**	**(5,015)**	**2,256**	**(7,490)**	**-**	**13,393**
Unrestricted Net Assets, Beginning of Year	(161,084)	44,690	48,178	9,867	-	**(58,349)**
Unrestricted Net Assets, End of Year	**(137,442)**	**39,675**	**50,434**	**2,377**	**-**	**(44,956)**

Institutional Budget Risks

As a result of current market conditions, the price of oil, government funding levels, and uncertainty about key government policy decisions, the budget risks to the university are substantial.

Specific factors affecting the university's budget risks include the following.

- Campus Alberta grant: The grant continues to be the university's primary source of unrestricted revenue. With low oil prices forecast for the medium term, the resulting loss to provincial government revenues could result in the government tightly controlling funding to the university.

- Tuition revenue: The university requires the ability to adjust tuition levels in response to market demand and conditions. This is particularly true regarding graduate student tuition fee levels. If the Campus Alberta grant continues to decline, the university must have the flexibility to generate alternative sources of funding to fulfil its academic mission and sustain the quality of the learning experience.

- Interest rates: With the decline in oil revenue and slowing of the economy, the Bank of Canada has begun to reduce the bank rate. Continuing reductions in the Bank of Canada rate will put downward pressure on interest rates and the university's interest income.

- Exchange rates: The Canadian dollar has declined against the U.S. dollar over the last six months and will continue to decline with reductions in the bank rate and the price of oil. Although a lower Canadian dollar benefits the provincial government in terms of revenue and reduces some international students' cost of tuition, a declining Canadian dollar also increases the university's costs for good and services purchased in U.S. dollars.

- Alternative revenue: The university must increase its capacity to generate alternative sources of revenue to offset changes to grant funding, tuition revenue limitations, and low investment income returns. However, these strategies will take several years to fully implement and may be subject to significant fluctuations.

- Compensation: The single largest expenditure for the university is employee compensation. Total compensation negotiations with the associations are critical in terms of their impact on the university's budget and forecasts. The university must achieve alignment between its primary revenue and cost drivers.

- Health-care premiums: On January 1, 2009, the provincial government eliminated health-care premiums. At the time, the university paid 100 per cent of health-care premiums at a cost of approximately $6 million per year. There has been some indication that the government may consider reintroducing some type of health-care premium. If reintroduced, this will present a budget risk to the university.

- Pension plan contribution rates: The continuing increase in pension plan contributions represents a significant risk to the university. Without structural reforms to the pension plans, the level of pension plan contributions as a percentage of total benefit costs will become unsustainable.

- General inflationary pressures: Across the university, materials, supplies, and services are increasing at least at the rate of the consumer price index and in some cases at higher rates. The gap whereby operating expenditures are increasing at a faster rate than operating revenues requires ongoing cuts to faculties and operating units.

Capital and Ancillary Budgets

CAPITAL

In the competitive world of 21st-century post-secondary education, the vitality, vibrancy, and sustainability of the University of Alberta's multi-campus educational and research ecosystem can only be maintained through well-supported, well-planned strategic construction of new facilities, and repurposing and renewal of existing facilities. As the university changes, space must transform to meet new needs and requirements. The university's ability to meets its own and the province's objectives depends on continued investment for new facilities and for renewal and repurposing of older facilities.

Table 6 lists the capital projects for 2015–2016. Examples of the major new capital projects include Peter Lougheed Hall and the Research and Collections Resource Facility. Examples of major capital construction at various stages of completion include the final fit-up of the Donadeo Innovation Centre for Engineering and continued residential development within East Campus Village. New and continuing capital construction is budgeted at $118 million of the $140 million in capital projects. The capital budget also includes just over $22 million in capital program spending under the infrastructure maintenance and energy management programs. Detailed information on the university's capital plan can be found on pages 109 to 137.

TABLE 6 CAPITAL BUDGET FOR 2015-2016 ($000's)

	Actuals to Date Preliminary	2015-2016	Forcast to Complete	Total Estimated Project Budget
Capital Projects (underway or proceeding):				
Agricultural Research Infrastructure - St Albert / Kinsella / Mattheis	11,447	700	300	12,447
CME Renewal - Levels 2, 3 7	4,500	-	-	4,500
Devonian Botanic Garden - Infrastructure Upgrades	3,500	1,500	8,000	13,000
Devonian Botanic Garden - Islamic Garden	2,500	7,500	18,000	28,000
East Campus Village - 89th Ave Grad Residences	24,043	1,683	-	25,726
East Campus - Infill	2,131	3,000	369	5,500
Edmonton Clinic Health Academy	374,179	5,663	2,168	382,010
HRIF Project (Li Ka Shing / Katz Group) Fit Outs	109,060	5,200	4,882	119,142
HRIF Project (CTRIC cGMP Fit Out - Li Ka Shing Level 7)	15,697	100	-	15,797
Innovation Centre for Engineering (ICE)	127,324	7,076	-	134,400
Peter Lougheed Hall (formerly Leadership College)	8,585	25,000	6,415	40,000
Pharmacy Fit Up	46,797	400	-	47,197
Physical Activity & Wellness Centre (PAWC)	56,246	1,754	-	58,000
Research & Collections Resource Facility	2,000	20,000	8,000	30,000
South Campus Infrastructure - Phase I	5,367	86	-	5,453
South Campus - Intersection 63 Ave / 122 Street	5,578	300	50	5,928
Other Capital Projects	60,573	4,367	825	65,765
Projects Underway / Proceeding - Subtotal	**859,526**	**84,329**	**49,009**	**992,865**
Future Projects				
Augustana Science & Classroom	500	7,500	82,000	90,000
Devonian Botanic Garden - Ecological Learning Centre	-	50	19,950	20,000
East Campus Village III	4,000	21,000	10,000	35,000
South Campus Arena	1,000	5,000	54,000	60,000
Future Projects - Subtotal	**5,500**	**33,550**	**165,950**	**205,000**
Total	**865,027**	**117,879**	**214,959**	**1,197,865**
Annual Capital Programs:				
Infrastructure Maintenance Program Grant		17,404		
Energy Management		5,000		
Total		**22,404**		
TOTAL		**140,283**		

* The recommended Capital Budget forecast was developed on October 15, 2014 and contains values which may not align with or may not include projects identified in the Comprehensive Institutional Plan.

ANCILLARIES

The university runs several ancillary operations: Ancillary Services (Residence Services, Hospitality Services, Parking, Real Estate and Commercial Property Management Services, ONEcard), the Bookstore, Enterprise Square, the University Health Centre, and utilities.

These ancillary operations provide services to the campus community in support of the university's mission and academic priorities. In the case of utilities, in addition to providing services to North Campus, the operation provides services to a number of other organizations. All of the university's ancillaries must generate the required revenues to support both their operating and ongoing capital requirements, and therefore maintain both operating and capital reserves.

With the exceptional of the Bookstore, the university's ancillary operations continue to be in a positive financial position while maintaining required operational and capital reserves. Over the last several years, the Bookstore has undergone significant restructuring in response to fundamental changes in the retail book sector. With these changes, including a consolidation of its operations, the Bookstore is implementing plans that will enable it to move toward a positive operational position. See Table 7.

Ancillary Budgets, 2015-2016

TABLE 7 ANCILLARY BUDGET 2015-2016 ($000's)

	2014-15		Budget	Projections		
	Budget	**Forecast**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Ancillary Services						
Revenue						
Revenue - Internal	11,856	11,937	12,023	12,190	12,393	12,588
Revenue - External	52,264	52,834	54,666	57,349	59,135	60,397
Total Revenue	**64,120**	**64,771**	**66,689**	**69,539**	**71,528**	**72,985**
Reserve Balances:						
Operating Closing Balance	1,821	1,875	1,437	2,663	3,705	4,281
Capital/Maintenance Closing Balance	21,516	21,551	24,203	9,212	14,403	20,349
Augustana: Residence, Conferencing, and Food						
Revenue						
Revenue - Internal	54	67	56	57	58	59
Revenue - External	3,133	3,665	3,438	3,509	3,579	3,651
Total Revenue	**3,187**	**3,732**	**3,494**	**3,566**	**3,637**	**3,710**
Reserve Balances:						
Operating Closing Balance	808	1,000	1,000	1,000	1,000	1,000
Capital/Maintenance Closing Balance	3,786	3,117	3,223	3,203	3,381	3,564
Bookstore						
Revenue						
Revenue - Internal	1,647	1,051	634	646	659	673
Revenue - External	22,600	15,590	13,649	13,618	14,541	14,815
Total Revenue	**24,247**	**16,641**	**14,282**	**14,264**	**15,200**	**15,487**
Reserve Balances:						
Operating Closing Balance	(3,345)	(464)	(1,134)	(1,176)	(1,055)	(897)
Capital/Maintenance Closing Balance	(315)	-	-	-	-	-

	2014-15		Budget	Projections		
	Budget	Forecast	2014-15	2015-16	2016-17	2017-18
University Health Services						
Revenue	**6,345**	**6,038**	**6,320**	**6,442**	**6,571**	**6,612**
Reserve Balances:						
Operating Closing Balance	229	264	294	293	525	716
Capital/Maintenance Closing Balance	200	200	200	200	200	200
Utilities						
Revenue						
Revenue - Internal	50,857	54,650	56,915	61,580	58,987	60,157
Revenue - External	20,311	20,224	20,655	22,557	21,509	21,932
Total Revenue	**71,168**	**74,874**	**77,570**	**84,137**	**80,496**	**82,089**
Reserve Balances:						
Operating Closing Balance	3,065	1,332	332	332	332	332
Capital/Maintenance Closing Balance	14,503	15,817	10,117	10,117	10,117	10,117
TOTAL REVENUE	**169,067**	**166,056**	**168,355**	**177,948**	**177,432**	**180,883**
Reserve Balances:						
Operating Closing Balance						
Capital/Maintenance Closing Balance	39,689	40,685	37,744	22,733	28,102	34,231
Total	**42,268**	**44,692**	**39,673**	**25,844**	**32,608**	**39,662**

* Ancillary Services includes: Enterprise Square, Commercial Property, Parking Services and Housing & Food Services

Statement of Operations and Statement of Cashflows

TABLE 8 STATEMENT OF OPERATIONS BUDGET FOR THE YEARS ENDING MARCH 31, 2016 TO 2019 (IN THOUSANDS OF DOLLARS)

	Estimated Actual 2015	Budget March 31, 2016	Forecast March 31, 2017	Forecast March 31, 2018	Forecast March 31, 2019
Revenue:					
Government of Alberta grants	901,291	940,491	920,192	926,763	933,913
Federal and other government grants	179,516	188,997	194,738	201,382	207,461
Student tuition and fees	319,145	333,053	342,719	356,116	368,760
Sales of services and products	182,035	179,292	185,242	188,329	191,653
Donations and other grants	113,362	107,278	116,115	119,753	123,042
Investment income	93,327	73,879	81,602	80,709	84,085
Total Revenue	**1,788,676**	**1,822,990**	**1,840,608**	**1,873,052**	**1,908,914**
Expense:					
Learning	947,019	976,439	1,002,346	1,036,248	1,073,322
Research	461,928	474,620	486,906	504,648	523,133
Facility operations and maintenance	127,749	126,795	120,443	119,582	123,346
Special purpose	83,656	117,949	118,187	118,969	119,794
Ancillary services	105,443	104,013	100,815	102,422	103,958
Total Expense	**1,725,795**	**1,799,816**	**1,828,698**	**1,881,869**	**1,943,554**
Excess of revenue over expense	62,881	23,174	11,910	(8,817)	(34,640)
Accumulated operating surplus, beginning of year	404,461	467,342	490,516	502,426	493,609
Accumulated operating surplus, end of year	**467,342**	**490,516**	**502,426**	**493,609**	**458,969**

TABLE 9 STATEMENT OF CASH FLOWS BUDGET FOR THE YEARS ENDED MARCH 31 (IN THOUSANDS OF DOLLARS)

	Actual 2014	Estimated Actual 2015	Budget 2010	Forecast 2017
Operating Transactions				
Operating surplus (deficit)	18,374	62,881	23,174	11,910
Add (deduct) non-cash items:				
Amortization of tangible capital assets	169,151	176,426	179,841	179,089
Expended capital recognized as revenue	(114,226)	(119,542)	(121,218)	(119,201)
Losses on disposal of tangible capital assets	1,386	-	-	-
Inventory writedown	547	-	-	-
Increase in employee future benefits	10,608	2,796	(2,433)	(4,491)
Increase in accounts receivable	12,261	(2,209)	(2,253)	(2,298)
(Increase) decrease in inventories and prepaid expenses	(3,367)	(1,247)	(1,345)	(1,451)
Decrease in accounts payable and accrued liabilities	46,150	12,082	12,663	13,273
Increase in deferred revenue, less expended capital recognized as revenue	29,875	83,592	66,339	94,224
Cash provided by operating transactions	**170,759**	**214,779**	**154,769**	**171,056**
Capital Transactions				
Acquisition of tangible capital assets	(150,965)	(204,938)	(220,698)	(214,472)
Cash applied to capital transactions	**(150,965)**	**(204,938)**	**(220,698)**	**(214,472)**
Investing Transactions				
Purchases of portfolio investments, net of sales	(118,665)	(46,231)	(68,312)	(71,428)
Endowment investment gains (losses)	60,227	17,390	38,247	40,059*
Cash provided by (applied to) investing transactions	**(58,438)**	**(28,841)**	**(30,065)**	**(31,369)**
Financing Transactions				
Endowment donations	20,475	18,841	20,065	21,369**
Debt - new financing, net of repayments	26,201	27,241	62,302	36,372
Cash provided by (applied to) financing transactions	**46,676**	**46,082**	**82,367**	**57,741**
Increase (decrease) in cash and cash equivalents	46,676	46,082	82,367	57,741
Cash and cash equivalents, beginning of year	17,156	25,188	52,270	38,642
Cash and cash equivalents, end of year	**$25,188**	**$52,270**	**$38,642**	**$21,598**

* Source: Endow Key Budget Driver Forecast 2015-16. UEP growth factor applied to endowment balances.

** Source: Endow Key Budget Driver Forecast 2015-16

RESOURCE AND RISK IMPLICATIONS

The University of Alberta will continue to play a fundamental role in the future productivity and prosperity of the province. We fully acknowledge and accept the responsibility for maximizing the use of our resources and, where possible, for generating resources that will advance our mission.

However, if the province wishes to address some of the challenges it faces, it must be prepared to invest appropriately in the university and provide the university the flexibility it needs to fund its mission. What is needed is a commitment to a long-term funding model that recognizes the unique aspects of a comprehensive academic and research institution, including the funding of graduate students, the research enterprise, and the facilities that support not only the university's mandate, but also much of Campus Alberta.

COMMITMENT TO LONG-TERM SUSTAINABLE FUNDING

The volatility in oil prices and the impact on government revenues has resulted in significant uncertainty in adjustments to the Campus Alberta grant. There also continues to be uncertainty in government policy, particularly as it relates to the flexibility of the university in utilizing its resources in support of cost-recovery and revenue-generating programs and services. This uncertainty hinders the ability of the university to plan effectively and attract new resources through donors, international consortia, and governments. The university is committed to expanding its resources, generating new revenue, and maximizing its use of resources; however, clarity in Campus Alberta grant commitments, a basic understanding of matching fund opportunities, and confirmation of government policy is critical in achieving this goal. Long-term predictability in the level of government funding will also help facilitate greater co-operation and co-ordination of activities within Campus Alberta.

❖ **The University of Alberta seeks from government three-year rolling funding commitments to the Campus Alberta grant enabling all of Campus Alberta to more effectively plan and fulfil their post-secondary education mandates.**

INVESTING IN ALBERTA'S INNOVATION ENGINE

In the last year, due to budget reductions, the university has had a net reduction of 52 in its full-time faculty. The university must retain and continue to attract world-leading faculty and increasing numbers of high-calibre graduate students and post-doctoral fellows. Graduate students, the engines of innovation, are vital to the province's economic diversification and competitiveness, and require more resources than undergraduate students. They require different types of space, competitive funding, and most importantly, more individualized time with internationally recognized faculty who can mentor and support them in their learning and research endeavours. The fact is that graduate students cost more than undergraduate students.

Top universities in North America and around the world strive to achieve specific critical minimum target ratios including 1:3 graduate students to undergraduate students and 1:4 faculty members to graduate students. If the U of A is to achieve these target ratios and position itself to compete internationally and meet the growing demands of the Alberta economy, new resources must be invested in post-doctoral fellows, graduate students, and new faculty positions.

❖ **The University of Alberta seeks government's commitment to the development of a targeted funding envelope that supports and appropriately funds growth in the number of graduate students, post-doctoral fellows, and the required professorial positions.**

DIRECT COSTS OF THE RESEARCH AND INNOVATION ENTERPRISE

The university develops, acquires, and works to sustain core infrastructure and services for Alberta's research and innovation enterprise. Examples of this infrastructure include greenhouses and growth chambers; animal care facilities, which enable innovation and discovery related to human and livestock health; research stations that support sustainable agriculture and environment; highly specialized equipment for advanced imaging; and specialty fabrication labs for the design and manufacture of unique research equipment. In addition, there are core costs associated with the increasingly complex areas of intellectual property regulation, external research grant and contract negotiation, financial management, and accounting standards along with the critically important health, safety, and regulatory functions. This infrastructure provides a competitive innovation arena for Alberta's current industries and sectors, and demonstrates to those industries not yet invested in the province that their work can be executed here, in partnership with the university. Pre-commercialization development and testing for medical, health, and drug innovations could not be done without the provision of the facilities provided at the U of A. These facilities are required for the discovery, translational, and pre-commercialization activities that we undertake internally and with private-sector partners.

The current funding models and previous contributions to these costs are no longer sufficient to sustain the university's direct costs of the research and innovation enterprise. The university and CARI sector require a long-term funding model that acknowledges and funds these critically important costs.

❖ **The University of Alberta seeks government's commitment to the provision of new targeted resources to fund the direct costs of the research and innovation enterprise.**

INVESTING IN THE DIGITAL ENVIRONMENT

The infrastructure of information and computing technologies at the university is complex. It includes networks to connect buildings and campuses, wireless services, and additional specialized local networks. This infrastructure is the foundation of the university's digital environment that supports its academic, research, and administrative requirements, and its aspirations for efficiency and innovation.

Advances in information and communications technology, especially in the arena of mobile computing, continue to transform learning environments. There are many examples across the university, notably digitally supported programs in physical therapy and medicine. At the same time, the opportunities for the university to leverage digital technologies to enhance its efficiency and reduce administrative costs are substantial. These digitally supported academic programs, as well as the opportunities to reduce administrative costs through the leveraging of technology, not only benefit the university, but can also benefit Campus Alberta.

The government has several examples of the benefits associated with sharing the cost of various technologies. The university strongly supports this approach and believes that it should be expanded.

❖ **The University of Alberta seeks government's commitment to the provision of matching dollars in support of digital technologies that will enhance the learning and research environments and achieve efficiencies within the university while bringing benefits to Campus Alberta.**

INVESTING IN CAPITAL INFRASTRUCTURE

The university's ability to meet its own and the province's objectives depends on continued investment for new facilities, for renewal and repurposing, and for addressing deferred maintenance of older facilities. With the completion of several large-scale capital projects over the last decade, the university now has the opportunity to sustainably maintain and, where appropriate, repurpose aging assets and infrastructure as new funding is made available. As areas and buildings are vacated by programs relocating to newly constructed buildings, smart, forward-thinking planning is required that looks beyond simple renewal and explores repurposing opportunities. By coupling renewal and backfill projects, the university provides a best-value model for creating projects that look toward our future operational and academic needs at a reduced capital cost. However, strategic investment in new infrastructure and buildings remains vital in maintaining the delivery of best-in-class academic programs.

Funding cuts to the Infrastructure Maintenance Program, combined with the loss of one-time grants for preservation and deferred maintenance projects, has reduced the university's ability to address deferred maintenance liabilities. Current and previous IMP funding levels alone do not provide adequate funds to address current and trending levels of deferred maintenance. Stable, long-term funding will be essential, and the university will work with government to develop funding strategies that could support increased funding on the order of $25 million to $35 million annually.

The university has developed its current listing of highest-priority capital and planning projects to ensure the institution can meet its mandate over the next three to five years. Pre-design services work is critical to the long-range planning of the institution because it demonstrates how best to maximize utilization of land holdings, buildings available for repurposing, or projects critical to the delivery of the institution's academic program. The projects listed below represent priority planning projects that are planned over the next three to four years.

North Campus

- Chemical Materials Engineering ($24.8M)
- Dentistry/Pharmacy Repurposing ($250M)
- Edmonton Clinic Diagnostic Centre - Translational Labs U of A ($63M)
- Heating Plant Expansion ($40M)
- Gathering Place ($18M)
- School of Business ($185M)
- Research and Collections Resource Facility ($30M)
- Edmonton Downtown Arts Campus ($30M/year operating lease: term of 30 years)

South Campus

- Twin Arena ($30M)
- District Energy Plant – Phase 1 ($127M)

Augustana Campus

- Augustana Science Building ($40M – Phased Delivery)

Campus Saint-Jean

- Science Lab Renovation and Renewal ($40M)

As in the past, the university will continue to investigate strategies for leveraging existing assets through partnerships, and alternative and private funding.

❖ **The University of Alberta is seeking funding for critical deferred maintenance, planning and pre-design, and capital projects as indicated.**

COMPLETING THE ACCESS TO THE FUTURE PROGRAM

In today's environment, strong endowments are a vital source of funding to advance the university's priorities. Endowments provide a relatively stable and predictable source of ongoing funding that allows academic institutions to sustain their efforts over time and tackle large-scale, complex problems that may take generations to solve. Endowments also help attract and retain exceptional faculty and students, sending a signal of significant commitment and support for their work and allowing them to commit to in-depth study.

The Access to the Future Fund was a highly successful tool in attracting donations to the university. With the desire to grow its endowment, the university directed donations made as a result of the Access to the Future Fund to its endowment. Founded in March 2005, the Access to the Future Fund successfully stimulated $425 million in philanthropic support, with only $25 million in donations having been matched to date. The suspension of the program frustrated and disappointed a significant number of donors, making it much more difficult to engage with them for further donations until their matching gifts are received. It is vitally important to the university that the remaining balance of the Access to the Future funds be paid out.

❖ **The University of Alberta is seeking a payout of approximately $98.4 million in yet-unmatched donations within the Access to the Future Fund. Completing the match of donations in the program will increase the institution's success in securing philanthropic funding that supports broad-based excellence.**

RISK IMPLICATIONS

Like all internationally competitive research-intensive universities, the U of A must deal with a variety of risks that have the potential to hinder its growth and the realization of its vision, mission, and strategic objectives. Many of these risks have been identified throughout this document.

1. The ongoing challenges in the fiscal environment have required the university to undergo significant structural changes across the academy and administrative operations. Already the university has seen a net loss in academic faculty and has seen its research funding start to decline. This new financial reality gives rise to numerous institutional risks, including the impact on quality; ability to grow research and establish international partnerships; maintenance of program accreditation; ability to attract and retain the highest-quality faculty, staff, and students; maintenance of infrastructure; and overall institutional reputation.

2. Enrolment growth must be managed from the perspective of meeting the labour demands of the province and supporting the research mandate of the university. This will require the university striking the right balance of undergraduate to graduate students to position the university as an internationally competitive research-intensive institution. To grow its graduate student numbers, the university needs the necessary funding support for graduate students and the capacity to grow its professoriate. At the same time, with increasing financial pressures and reduced capacity across the university, the net result will be an increase in entrance averages with the result of qualified Alberta students being turned away. Finally, the university must monitor carefully trends in international student applications. With an extremely high percentage of international students coming from China, any downward shift in demand will affect the university's international student numbers.

3. Without the appropriate number of leaders, teachers, researchers, and support staff contributing to their full potential, the university will not be able to provide the quality of the learning experience or participate in the world-leading research expected of an internationally competitive research university. Previous and planned budget reductions will negatively affect the capacity of the university to attract and retain the appropriate number and type of staff.

4. For the university to remain relevant to its students and meet the needs and expectations of its faculty to engage in the highest-calibre research, it requires continuous investment in leading-edge IT infrastructure, highly skilled personnel, and support. The university must also invest in the required security infrastructure to safeguard the personal, financial, and research data within its IT systems. Previous and planned budget reductions will negatively affect the capacity of the university to make the required investments in information technology to advance its mission and safeguard its data.

5. Due to reductions in funding, the university is starting to see an increase in deferred maintenance levels. High levels of deferred maintenance put at risk ongoing operations of facilities. In addition, limited or no funding of capital for new, expansion, or renewal projects will affect the capacity of the university to meet its strategic goals and will have a negative impact on the economic goals of the province.

6. An institution that aspires to be among the top research-intensive universities in the world can only achieve that goal through the recruitment of internationally renowned faculty, the capacity and funding to attract graduate students and post-doctoral fellows, the ability to provide the necessary research supports and infrastructure, and the establishment of strategic collaborations and partnerships with an extensive range of stakeholders. The current fiscal environment and lack of research matching dollars will have a negative impact on the university's research competiveness and performance.

7. As the U of A has moved toward the vision of being one of the world's great public universities, its national and international profile has increased. The university must address the current economic and financial challenges it faces in such a way that it does not negatively affect its increasing national and international reputation as an exceptional place to learn and work.

8. While the university must assume risks in support of its mandate as an internationally recognized research-intensive institution, it must also promote appropriate risk management plans and strategies that develop responsive attitudes and behaviour at all levels of the organization to maintain a healthy and safe environment for all. Continuing reductions in funding reduce the capacity of the university to provide best-in-class enterprise risk management and health and safety management systems.

9. All students who attend the university arrive with their own expectations, abilities, talents, experiences, and levels of maturity. The university must strive to ensure that students have access to the supports they need and the best possible opportunity to reach their potential, however that may be measured or defined. If our students do not develop their academic or personal potential, the university will fail to achieve its mission. Previous and planned budget reductions may negatively affect the capacity of the university to provide the programs and services required for students to meet their potential.

10. Through its integrated enterprise risk management framework, the university will monitor, manage, and mitigate these and other emerging risks in an effort to avoid substantial impact on its ability to fulfil its strategic objectives.

UNIVERSITY OF ALBERTA

"uplifting the whole people"

— HENRY MARSHALL TORY, FOUNDING PRESIDENT, 1908

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