



FOR INFORMATION

PUBLIC

OPEN SESSION

TO: Academic Board

SPONSOR: Susan McCahan, Vice Provost, Academic Programs
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PRESENTER: See above
CONTACT INFO:

DATE: May 21, 2020 for May 28, 2020

AGENDA ITEM: 3

ITEM IDENTIFICATION:

Review of Academic Programs and Units – Part 2

Follow-up Reports on Reviews:

- a) Edward S. Rogers St. Department of Electrical and Computer Engineering (Faculty of Applied Science and Engineering)
- b) Cinema Studies Institute (Faculty of Arts and Science)
- c) The David A. Dunlap Department of Astronomy and Astrophysics (formerly the Department of Astronomy and Astrophysics), the Canadian Institute for Theoretical Astrophysics (CITA) and the Dunlap Institute for Astronomy & Astrophysics (Faculty of Arts and Science)

JURISDICTIONAL INFORMATION:

The Committee on Academic Policy and Programs (AP&P) is the point of entry into governance for reports, summaries and administrative responses on the results of reviews of academic programs and units commissioned by academic administrators. The role of the Committee is to ensure that the reviews are conducted in accordance with University policy and guidelines, that an appropriate process has been followed, that adequate documentation is provided and consultations undertaken, and that issues identified in the review are addressed by the administration. Under the University of Toronto Quality Assurance Process, the AP&P may request a one-year follow-up report when concerns are raised in an external review that require a longer period of response.

This report is forwarded, together with the record of the Committee's discussion, to the Agenda Committee of the Academic Board, which determines whether there are any issues of general academic significance warranting discussion at the Board level. The same documentation is also sent to the Executive Committee and Governing Council for information.

GOVERNANCE PATH:

1. Committee on Academic Policy and Programs [for information] (May 6, 2020)
2. Agenda Committee of the Academic Board [for information] (May 19, 2020)
- 3. Academic Board [for information] (May 28, 2020)**
4. Executive Committee of the Governing Council [for information] (June 16, 2020)
5. Governing Council [for information] (June 25, 2020)

PREVIOUS ACTION TAKEN:

At its meeting on April 2, 2019, AP&P considered the following reviews:

- The June 2018 review of the Edward S. Rogers St. Department of Electrical and Computer Engineering (Faculty of Applied Science and Engineering), and the March 11, 2019 decanal response. AP&P requested a one-year follow-up report on the recommended changes within the research culture to a more cooperative model, suggestions that the department identify areas of priority in which it will provide leadership at an international level, and reform of the undergraduate programs.
- The March 2018 review of the Cinema Studies Institute (Faculty of Arts and Science), and the March 8, 2019 decanal response. AP&P requested a one-year follow-up on progress made towards increasing Faculty diversity.
- The March 2018 review of the David A. Dunlap Department of Astronomy and Astrophysics (formerly the Department of Astronomy and Astrophysics), the Canadian Institute for Theoretical Astrophysics (CITA) and the Dunlap Institute for Astronomy & Astrophysics (Faculty of Arts and Science), and the March 8, 2019 decanal response. AP&P requested a one-year follow-up report to address issues relating to post-doc morale and community-building across units, notably between the Department and the Dunlap Institute.

HIGHLIGHTS:

- a) Following the 2018 external review, the Edward S. Rogers St. Department of Electrical and Computer Engineering has established both a vision and mission statement through extensive consultation, led by the Chair. During these discussions, it was agreed that the Department values advancement in multi- and interdisciplinary contexts, across multiple fields. ECE is currently interviewing for a number of faculty positions, and prioritizing recruitment of individuals with multidisciplinary research interests; future hiring is also planned to replenish faculty at earlier stages in their career, with a continued focus on areas that bridge ECE to other disciplines.

ECE will support new seed initiatives to stimulate enhanced collaboration with various units within FASE; they are also working to promote transdisciplinary research partnerships with numerous units outside of Engineering. The Department is currently

conducting consultations to identify areas of research where it will seek to provide national and international leadership.

ECE has revamped its undergraduate recruitment efforts to better encourage a diverse cohort of students; they are currently revisiting their undergraduate curriculum, and the Faculty has established a Decanal Task Force on Academic Workload to identify workload issues across FASE, which will help to inform the evolution of the ECE curriculum. A departmental teaching workshop is scheduled for April 2020, and plans are underway to extend undergraduate scholarship-based opportunities, and enhance Professional Experience Year (PEY) offerings.

- b) The March 2018 review of the Cinema Studies Institute recommended increasing faculty diversity in the Cinema Studies Institute, and the Institute welcomes this opportunity to deepen its commitment to diversity. In fall 2019, two tenure-stream faculty joined CSI: a specialist in Black Visual Culture and Cinema (100% appointment in CSI), and a specialist in East Asian Cinema, (graduate appointment to CSI). The Institute is currently conducting a search for a Canadian Cinemas scholar, with an emphasis on Indigenous and Québécois cinemas as preferred areas of expertise. Furthermore, CSI is thinking strategically about ways to further increase diversity with any future faculty appointments, such as filling coverage gaps in South Asian Cinema, and appropriate opportunity hires for Black and Indigenous scholars.
- c) The concerns about Post-Doctoral Fellow morale in the three Astronomy and Astrophysics units were identified as relating to discrepancies across the units in remuneration and professional development opportunities. The units have developed a common recommended pay scale, which is now the basis of new PDF offers; they have also made changes to the funding of the summer undergraduate program so that all PDFs are able to participate. The Department is also supporting the development of an Astro PDF association that meets regularly with the Chair, and is invited to Department meetings. One junior faculty member has been appointed PDF Liaison, and another has been assigned to help develop PDF teaching opportunities.

Regarding community-building across units, a ‘Community Climate Committee’ has been established (including undergraduate and graduate students, PDFs, staff and faculty), with a mandate to make recommendations to leadership of the three units on issues of academic climate that fall within the Department’s purview. The Department has developed a Values Statement, now posted in common areas of all three units. The leadership of all three units has begun meeting monthly to discuss common concerns, policy issues, and further strategies for building community across the three units.

FINANCIAL IMPLICATIONS:

Not applicable.

RECOMMENDATION:

For Information.

DOCUMENTATION PROVIDED:

- a) Edward S. Rogers St. Department of Electrical and Computer Engineering (Faculty of Applied Science and Engineering) Follow-up Letter from Dean Christopher Yip, dated February 21, 2020.
- b) Cinema Studies Institute (Faculty of Arts and Science) Follow-up Letter from Dean Melanie Woodin, dated February 25, 2020.
- c) David A. Dunlap Department of Astronomy and Astrophysics (formerly the Department of Astronomy and Astrophysics), the Canadian Institute for Theoretical Astrophysics (CITA) and the Dunlap Institute for Astronomy & Astrophysics (Faculty of Arts and Science) Follow-up Letter from Dean Melanie Woodin, dated February 25, 2020.



UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING

February 21, 2020

Professor Susan McCahan
Vice-Provost, Academic Programs
University of Toronto

Dear Professor McCahan

Re: Follow-up Report on the External Review of The Edward S. Rogers Sr. Department of Electrical and Computer Engineering

I write in response to the request of the Committee on Academic Policy & Programs (AP&P) for a one-year follow-up report regarding the June 2018 external review of The Edward S. Rogers Sr. Department of Electrical and Computer Engineering and its programs, and our administrative response of March 11, 2019.

The following addresses the issues raised at the April 2, 2019 AP&P meeting:

1. Changes within the research culture to a more cooperative model

The Electrical and Computer Engineering (ECE) department has established both a vision and mission statement through extensive consultation meetings (led by the ECE chair on November 18, 2019, December 4, 2019 and January 9, 2020) and through email:

Vision: Excellence in electrical and computer engineering producing leaders in the creation and dissemination of knowledge for the benefit of society.

Mission: We aim to educate and nurture new generations of electrical and computer engineering talent for Canada and the world to advance society through discovery, leadership and innovation.

During discussions, it was brought forward and agreed upon that the ECE department values advancement not just within traditional electrical and computer engineering boundaries, but in multidisciplinary and interdisciplinary contexts across fields including other engineering disciplines, business, education, medicine, law, social sciences and art. Furthermore, the ECE department is currently developing specific goals for the mission in terms of research, education, entrepreneurship, society and environment. Through these broad discussions the department is re-orienting itself to a more cooperative and collaborative model on multiple fronts including research.

In addition, a cooperative model in research is being encouraged and evidenced through:

a. *Hiring priorities that focus on multidisciplinary research*

The ECE department is currently interviewing for seven faculty positions. Six of these positions are within ECE and are focused, in part, on recruiting faculty members with research interests at the intersection of electrical and computer engineering and other fields. For instance, an offer is being prepared for an applicant who works at the interface of control theory, medicine and civil infrastructure. In addition, a strategic hire to work collaboratively between ECE and North York General Hospital is being recruited. Moreover, the chairs of ECE and the department of Computer Science successfully proposed and received approval for a joint deep learning tenure-stream position supported by the University Fund (in honour of Professor Emeritus Geoffrey Hinton) that will enable closer collaboration between the two departments. Future hiring in ECE is planned to replenish faculty at earlier stages of their career to balance the large number of full professors. Focus will be placed, in part, on areas that bridge electrical and computer engineering to other disciplines.

Of the 80 current faculty in ECE, 10 hold budgetary cross-appointments in one other unit (Computer Science; Materials Science and Engineering; Mathematics; Physics; Biomaterials and Biomedical Engineering) and an additional 12 hold non-budgetary cross-appointments in one or two other units (Architecture, Landscape and Design; Computer Science; Institute for Studies in Transdisciplinary Engineering Education and Practice (ISTEP); Law; Mechanical and Industrial Engineering). The department will encourage further strengthening of ties and expansion of such partnerships to other units across other Faculties.

b. *Support for collaborative seed initiatives at the Faculty level*

The ECE department will support new seed funding initiatives in the Centre for Analytics and Artificial Intelligence Engineering (CARTE) to encourage new collaborations in analytics and AI applied to any area in engineering, and in the Institute for Water Innovation (IWI) to support new cross-departmental collaborations on water-related research between two or three PIs in different engineering departments.

The ECE department will continue to support seed funding programs such as CECSeed to stimulate enhanced collaboration between Chemical Engineering and Applied Chemistry and ECE, EMHSeed to encourage innovative partnerships among researchers in engineering and medicine, and XSeed to promote inter-disciplinary research between engineering researchers and the Faculty of Arts and Science.

c. *Leadership in institutional strategic initiatives*

The ECE chair, Professor Deepa Kundur, and Professors David Lie (ECE) and Lisa Austin (Law) are spearheading a broad and inclusive institutional strategic initiative focused around cybersecurity with the goal of building transdisciplinary research partnerships across the University of Toronto. Currently, participants include professors from ECE, Computer Science, Law, Industrial Engineering, Political Science, Munk School of Global Affairs and Public Policy, History, Faculty of Information, Rotman School of Management, and Geography with a goal of further expanding partnership. Efforts to engage faculty in psychology, criminology and Indigenous studies are planned. A cybersecurity workshop was held on November 20, 2019 to garner interest and identify opportunities. Future plans include hosting seminars and hackathons as well as applying

for large-scale funding through federal government opportunities for the formation of cybersecurity networks and the NFRF program.

Another institutional strategic initiative is in the proposal phase through the leadership of ECE's Professor Steve Mann around the area of humanistic intelligence, with partnership from Medicine and the Rotman School of Management.

Moreover, the Max Planck Centre for NeuroPhysics, spearheaded by ECE's Professor Joyce Poon, has been established to facilitate interdisciplinary research at the interface of ECE and neuroscience.

2. Identification of areas of priority in which the department will provide leadership at an international level

The department is conducting consultations to identify areas of research in which it will seek to provide national and international leadership. In addition to speaking to individual faculty members, the ECE chair has led meetings of ECE faculty on November 6, 2019, November 18, 2019 and February 5, 2020. Although the consultation process still continues in order to be more selective and to identify champions and appropriate partnerships, the following fields have been currently identified as potential areas of priority for leadership:

- Artificial intelligence (approximately 70 percent of ECE faculty conduct research involving artificial intelligence)
- Cybersecurity and privacy (an institutional strategic initiative has been established in this area)
- Quantum technologies
- Blockchain and distributed ledgers
- Brain engineering (multiple ECE faculty are involved in the U of T Centre for Advancing Neurotechnological innovation to application)
- Green technologies
- Healthcare
- Internet of Things
- Smart cities

3. Reform of the department's undergraduate programs including a change in admissions policy and greater availability of research and internship opportunities

a. Admission and recruitment

U of T Engineering's admission process includes consideration of student marks, extra-curriculars outlined by the applicant and – introduced in 2015 – a broad-based assessment score which is based on a video of the applicant answering three questions, graded by trained alumni. The grades employed for admission consideration have been adjusted for extra-curricular activities providing a broader view of the applicant beyond just academic performance in high school courses. In addition, the order in which admission decisions are being made has changed in the last year to improve yield from certain target applicants. Overall, we have recently observed a change in the demographics of our admitted cohort. For example, in the last year there has been a change in the number of women in our incoming first year class from 27 percent to 37 percent.

The ECE department has revamped its recruitment efforts for its undergraduate programs. The chair, director of recruitment and student ambassadors are now aligned in setting a tone to encourage a diverse cohort of students who value strong technical education, broad co-curricular opportunities available in the Faculty, and the ability to make societal impact. Highlighted possible career paths range from working in industry, entrepreneurship and research to continuing on to professional degrees such as law and medicine. A future plan is to include successful ECE alumni in recruitment efforts.

b. Curriculum

Although the flexible curriculum of ECE has many strengths, it is being revisited specifically in terms of design and research-oriented courses as well as balancing workload in the second year of studies. The department has introduced a new thesis course, ECE499: Research Thesis, so that qualified ECE undergraduate students can conduct research under the supervision of a faculty member for an academic credit.

In addition, a revamping of the capstone design course is being considered to better facilitate partnerships with industry and the local community to provide a variety of new opportunities for students to apply and consolidate their knowledge. An international experience in capstone design will be explored in 2020-2021 whereby ECE undergraduate students can collaborate with exchange students from Chinese University of Hong Kong, Shenzhen in the first term of fourth year and then complete the project in the second term, in part by visiting those students who would have returned to their home institution during Reading Week.

A request will be made in the next budget cycle to hire a teaching stream faculty member versed in design thinking and modern modes of pedagogy to help in the teaching and supervision of the capstone design course. Advancement efforts have also been directed to help establish an “Entrepreneur in Residence” position for ECE alumni and/or local entrepreneurs who will work with interested students to help commercialize their design projects.

Finally, the FASE Decanal Task Force on Academic Workload was established in January 2020 to identify workload issues broadly within U of T Engineering, which will help to inform the evolution of the ECE curriculum.

c. Non-traditional modes of teaching

In order to encourage faculty members to consider new modes of teaching, a departmental meeting on December 11, 2019 featured ECE faculty who have successfully applied active and project-based learning. Professors Jonathan Rose, Vaughn Betz and Micah Stickel discussed their innovative approaches to teaching and their personal experiences. The presentations were well-received. To build on this, the ECE Associate Chair for Undergraduate Studies is planning a one-day departmental Teaching Workshop in April 2020 to expose ECE faculty to the latest themes and results in education-related academic research, to present specific ideas and methodologies to incorporate alternative teaching techniques into classes and to develop links and relationships with other units such as ISTEP. Potential speakers being considered include Professors Susan McCahan, Carol Rolheiser (OISE), Greg Evans (ISTEP), Micah Stickel (ECE) and Cora McCoy (OISE) as well as Melissa Fernandes (FASE Learning Strategist) and Allison Van Beek (FASE Education Technology). Plans are also underway to hold several monthly departmental meetings in 2020-

2021 with educational themes, some involving inviting members of ISTEP, to discuss ways to collaborate with the ECE department.

d. Research and internship opportunities

Currently the department provides approximately 75 annual undergraduate summer research opportunities for students through various scholarships including NSERC USRA, UTEA and educational training stipends or studentships. It also provides opportunities where students are paid solely from research grants of faculty mentors. There are plans to extend scholarship-based opportunities, and FASE Advancement has been tasked with obtaining sponsorship to expand summer research opportunities including international placement in partner schools.

Another significant work opportunity is through the Professional Experience Year (PEY) Co-op Program, an optional 12-16 month paid work experience program for undergraduate students. In each of the last six years, almost 70 percent of eligible undergraduate students across all programs have participated. Among ECE students the rate is over 75 percent. The PEY Co-op Program, facilitated by the Engineering Career Centre, is currently restructuring and anticipates offering an enhanced program starting in the next academic year that improves support for students and employers during the recruitment cycle, increases student support during work term with visits and check-ins, enhances student development programming starting in first year, targets job development to diversify industry mix and develops international placement opportunities.

Thank you for the opportunity to provide this clarification. I am confident that these changes address the concerns of the AP&P.

Sincerely



Christopher Yip
Dean

cc: Deepa Kundur, Professor and Chair, The Edward S. Rogers Sr. Department of Electrical & Computer Engineering
David Lock, Coordinator, Academic Planning and Reviews
Daniella Mallinick, Director, Academic Programs, Planning and Quality Assurance
Caroline Ziegler, Faculty Governance & Programs Officer



UNIVERSITY OF TORONTO
FACULTY OF ARTS & SCIENCE

April 27, 2020

Professor Susan McCahan
Vice-Provost, Academic Programs
University of Toronto

Dear Susan,

I am writing in response to the request by the Committee on Academic Policy and Programs (AP&P) in regards to the March 26-27, 2018 external review of the Cinema Studies Institute and its undergraduate and graduate programs. At its meeting on April 2, 2019, AP&P requested a one-year follow-up report that addresses “*progress made towards increasing faculty diversity.*” The Faculty has worked with the Director of the Cinema Studies Institute to address the concerns of the AP&P committee.

The UTQAP reviewer report recommended increasing faculty diversity in the Cinema Studies Institute. The Institute welcomes this opportunity to deepen its commitment to diversity and is happy to report that recent hires have increased the representation of racialized groups and the gender diversity of the department as a whole. The Institute is presently conducting a search for a Canadian Cinemas scholar, a position that emphasizes Indigenous and Québécois cinemas as preferred areas of expertise. The Institute is also thinking strategically about how to further increase its diversity with any future faculty appointments, including filling important gaps in its coverage such as a specialist in South Asian Cinema (Bollywood and other industries of the subcontinent). The Institute is also considering appropriate opportunity hires for Black and Indigenous scholars.

I feel confident that the changes initiated by the program and its faculty address the concerns of the AP&P follow-up request.

Sincerely,

Melanie Woodin
Dean and Professor of Cell and Systems Biology

cc:

James Cahill, Director, Cinema Studies Institute

Poppy Lockwood, Vice-Dean, Academic Planning, Faculty of Arts & Science

Asher Cutter, Associate Dean, Undergraduate Issues and Academic Planning, Faculty of Arts
& Science

Daniella Mallinick, Director, Academic Programs, Planning & Quality Assurance, Office of the Vice-Provost,
Academic Programs

Andrea Benoit, Academic Review Officer, Faculty of Arts & Science

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UNIVERSITY OF TORONTO
FACULTY OF ARTS & SCIENCE

February 25, 2020

Professor Susan McCahan
Vice-Provost, Academic Programs
University of Toronto

Dear Susan,

I am writing in response to the request by the Committee on Academic Policy and Programs (AP&P) in regards to the March 19-20, 2018 external review of the David A. Dunlap Department of Astronomy and Astrophysics (formerly the Department of Astronomy and Astrophysics), CITA, and the Dunlap Institute, with their associated undergraduate and graduate programs. At its meeting on April 2, 2019, AP&P requested a one-year follow-up report that addresses “*issues relating to post-doctoral fellow morale and community-building across units, notably between the Department and the Dunlap Institute.*” The Faculty has worked with the Chair of the Department to address the concerns of the AP&P committee.

Postdoctoral Fellow morale:

The Post-Doctoral Fellow (PDF) morale issue relates to differences across the three units in remuneration and professional development opportunities. The three units -- CITA, the Dunlap Institute, and the Department – have developed a common recommended pay scale, which is now the basis of new PDF offers. The units have also improved morale through changes to the funding of their summer undergraduate program: PDFs are eager to supervise summer undergraduate research projects, which help PDFs develop supervision skills and advance their research. In the past, individually funded PDFs did not have the funding needed to take part in this program. All PDFs will now be able to participate, through funding provided by the Dunlap Institute; in return the Department is taking a bigger role in the oversight and administration of the summer undergraduate program.

To ensuring ongoing communication with PDFs, the Department is supporting the development of an Astro PDF association. The group leadership has been in place for about a year and meets with the Chair regularly. They are also invited to Department meetings. One junior faculty member has been appointed PDF liaison and another has been assigned to help develop teaching opportunities for PDFs.

Taken together, these initiatives have made significant progress in improving the morale of the units’ PDFs and building community.

Community-building and climate:

The reviewers’ report also cited concerns about the need to strengthen the sense of community between the Department, CITA, and Dunlap, and particularly about the challenge of finding “agreement on a common statement of values of equity, diversity and inclusion.” To that end, a community climate committee has been established with a mandate to make recommendations to the

CITA, Dunlap, and Department leadership on issues of academic climate that fall within the domain of the Department. The membership includes undergraduate and graduate students, PDFs, staff and faculty. The Department has developed a Values Statement which is now posted in common areas of all the Astronomy units, and notes that the unit shares the University of Toronto's "unwavering commitment to excellence, inclusion and respect" and highlights the unit's role as "a diverse community of faculty, students, scientists, staff and visitors, who strive toward an environment for our research, teaching and learning that is professional, inclusive and collaborative, and in which everyone is treated with equity and dignity." The community climate committee has the authority to make recommendations on how best to achieve these goals when common issues of concern arise.

In addition, the Directors of CITA, the Dunlap Institute and the Chair of the Department meet monthly to discuss common concerns and agree on policy issues, including ways to build community across the units.

I feel confident that the changes initiated by the program and its faculty address the concerns of the AP&P follow-up request.

Sincerely,

A handwritten signature in black ink that reads "M Woodin". The signature is written in a cursive, flowing style.

Melanie Woodin
Dean and Professor of Cell and Systems Biology

cc:

Ray Carlberg, Chair, David A. Dunlap Department of Astronomy and Astrophysics, Faculty of Arts & Science

Poppy Lockwood, Vice-Dean, Academic Planning, Faculty of Arts & Science

Asher Cutter, Associate Dean, Undergraduate Issues and Academic Planning, Faculty of Arts & Science

Daniella Mallinick, Director, Academic Programs, Planning & Quality Assurance, Office of the Vice-Provost, Academic Programs

Andrea Benoit, Academic Review Officer, Faculty of Arts & Science