Minutes of the Faculty Council  
Meeting of April 11, 2018  
Michael E. Charles Council Chamber (GB 202)


REGRETS: Edgar Acosta, Tania Albarghouthi, Chris Bouwmeester, Jim Courtney, Madison Taylor Desembrana, Levente Diosady, John Harrison, Elias Kyriacou, Aidan Malone, Susan McCahan, Kayla Steadman, Victor Xin

GUESTS: Suraj Borkar, Sharon Brown, Mikhail Burke, Dani Couture, Sonia De Buglio, Jingwen Francis, Leslie Grife, Cori Hanson, Avi Hyman, Syed Imam, Ezzat Jaroudi, Shashi Malladi, Lee Mayhew, Emily Meyertholen, Shivani Nathoo, Ghata Nirmal, Arash Nourimand, Valentin Peretroukhin, Dan Pettigrew, Catherine Riddell, Ashton Roza, Michelle Spence, Alex Tichine, Michela Trozzo, Geoff Wichert, Mitchell Zak, Matthew Zhang, Caroline Ziegler (Secretary)

1. Speaker’s Welcome and Adoption of the Agenda

Council Speaker Doug Reeve welcomed members to the fourth and final Faculty Council meeting of the 2017-2018 academic year and acknowledged the university’s use of traditional land.

The agenda and meeting package were distributed on April 2, 2018. Several items, including the minutes of the December 12, 2017 and February 27, 2018 Council meetings; Report 3586 Revised: FASE Promotion Procedures from Associate Professor, Teaching Stream to Professor, Teaching Stream; Report 3591 Revised: Engineering Graduate Education Committee Update; and a memorial tribute to Professor Emeritus Bruce A. Francis, were distributed on April 9, 2018. Report
On a motion duly moved, seconded and carried, it was resolved –

THAT the agenda be adopted as revised.

2. Adoption of the Minutes of Previous Meetings

No errors or omissions were noted in the minutes of the previous two meetings, and on regular motions duly moved, seconded and carried, it was resolved –

THAT the minutes of the meeting of December 12, 2017 be approved.

THAT the minutes of the meeting of February 27, 2018 be approved.

3. Memorial Tribute

The Speaker acknowledged the passing of renowned businessman, investor and philanthropist Peter Munk on March 28, 2018. An Engineering alumnus (EE 5T2), Mr. Munk was one of the university’s most generous and visionary benefactors.

The Speaker introduced and welcomed Jingwen Francis and Lee Mayhew, who were attending Council to hear the memorial tribute read in honour of Professor Emeritus Bruce A. Francis. Jingwen Francis is Professor Emeritus Francis’ wife and Mrs. Mayhew is his sister.

Farid Najm, Chair of The Edward S. Rogers Sr. Department of Electrical & Computer Engineering, read the following memorial tribute.

Be it resolved –

THAT the Council of the Faculty of Applied Science & Engineering record with deep regret the death on March 27, 2018 of Professor Emeritus Bruce A. Francis.

Bruce Francis was born in Toronto in 1947 and grew up in Hamilton and Grimsby. He obtained his BASc and MEng degrees in Mechanical Engineering at the University of Toronto in 1969 and 1970. In 1971, he joined the (then) Electrical Engineering Department at the University of Toronto as a PhD student under the supervision of Professor Murray Wonham. He received his PhD degree in Electrical Engineering in 1975. In 1976-78, he held postdoctoral positions at the University of California, Berkeley, Cambridge University, and McGill University. He was first an Assistant Professor at McGill in 1978-79, then at Yale University in 1979-81, and finally at the University of Waterloo in 1981-84. In 1984, he joined the ECE department at the University of Toronto as an Associate Professor, and was promoted to Full Professor in 1986. Of his return to Toronto, Bruce wrote “I had landed where I had always wanted to be, in the best control group in Canada, at the best university in Canada, with the best engineering program (Engineering Science), in my home country.”
Bruce’s scientific career was remarkably rich and varied. He is considered by many to be one of the most influential researchers in control theory. It is not possible in a few words to do justice to Bruce’s many scientific achievements. We will mention two fundamental ones.

In his PhD research with Murray Wonham, Bruce investigated the problem of structural stability of linear multivariable regulators. The object of inquiry was a class of feedback controllers capable of regulating some variables in a control system irrespective of parameter variations and external disturbances. In this context, Bruce proved that such a controller must by necessity incorporate an internal model of the external disturbances acting on the system. This so-called “Internal Model Principle” is one of the most profound results of linear control theory, and one that continues to inspire much research in control theory and in fields as diverse as biology and neuroscience. In the early 1980s, Bruce began a vigorous collaboration with George Zames at McGill University, and others, on what became known as the H-infinity control problem. This problem, originally formulated by Zames, formalizes classical notions of robustness and performance in an elegant operator-theoretic framework. Throughout the 1980s, Bruce worked on the H-infinity control problem with great vigour. Of this exciting period of his scientific life, Bruce wrote: “George and I had four H-infinity papers at the CDCs in 1981, 1982, and 1983. These were the high points of my career, because the topic of H-infinity became really hot. At one of my CDC presentations, there were people standing in the doorway because there were not enough chairs in the hall.”

Bruce’s research on the H-infinity control problem culminated in 1989 with a celebrated paper in the IEEE Transactions on Automatic Control that provided the definitive solution to the problem. The paper in question was co-authored with J.C. Doyle, K. Glover, and P.P. Khargonekar, and is one of the highest cited papers in the history of the Transactions on Automatic Control, winning the Outstanding Paper Award and the IEEE W.R.G. Baker Prize Award.

In 1990, Bruce published a monograph titled Feedback Control Theory, with co-authors J.C. Doyle and A.R. Tannenbaum. In it, he revisited classical feedback control from a modern perspective, leveraging the viewpoint of H-infinity control and presenting some of the new results he had just developed in this area. This monograph made a major impact in his academic community, and it remains to this day a prime example of scientific writing of the highest quality. This book was followed, in 1994, by another influential monograph that Bruce co-authored with Tongwen Chen, titled Optimal Sampled-Data Control Systems.

As was mentioned earlier, Bruce’s contributions to control theory are extensive and far-reaching. Bruce’s research was driven by an intense curiosity and an uncompromising desire to understand each subject at the deepest, foundational level. He never took anything for granted, and courageously questioned the status quo. His writing was elegant and minimalist, his style economical and mathematically rigorous.

Besides being a remarkable scientist, Bruce was a successful teacher, winning four teaching awards at the University of Toronto, and inspiring generations of graduate students and colleagues with his elegant mathematical style and precise problem formulations. Bruce was also a beloved and charismatic research supervisor. Twelve of the students he supervised in various capacities are now professors at universities in Canada, the USA, China, and Japan. Bruce was a
mentor to many of his younger colleagues, instilling principles of academic integrity and standards of scientific writing. Bruce is for many colleagues the model of a true academic.

In 2004, Bruce was diagnosed with Parkinson’s disease. Despite an inner turmoil of which perhaps only a few close friends were aware, Bruce endured his condition with fortitude, even humour. In 2012, he became Professor Emeritus and retired gracefully from his academic pursuits. Bruce is survived by his beloved wife Jingwen and daughter Lian.

Be it further resolved –

THAT this tribute to Professor Emeritus Bruce A. Francis be inscribed in the minutes of this Council meeting and that copies be sent to his family as an expression of the respect and gratitude of the members of this Council.

The Speaker assumed concurrence with these resolutions, and Council stood to observe one minute of silence in honour of Professor Emeritus Bruce A. Francis.

4. Report of the Dean

Dean Amon welcomed members to Faculty Council and provided the following report.

(a) Myhal Centre for Engineering Innovation & Entrepreneurship

It was announced last week that our new building will be called the “Myhal Centre for Engineering Innovation & Entrepreneurship” in recognition of the very generous support and vision of George and Rayla Myhal. George has had a distinguished career with Brookfield Asset Management for almost 40 years, and is currently president and CEO of Partners Value Investments. The Myhals will attend the official opening of the building on April 27, 2018 in the Lee & Margaret Lau Auditorium, along with Chancellor Michael Wilson, President Meric Gertler, Governing Council Chair and FASE alumna, Claire Kennedy, the past and present Engineering Society presidents, and many other of our Faculty’s closest supporters and friends. To acknowledge our faculty members’ contributions and patience throughout this ambitious and complex undertaking, Dean Amon invited them to join in celebrating this momentous occasion.

The ribbon-cutting ceremony will be followed by a celebratory reception in the building’s foyer. Because we do not expect to have occupancy beyond the first four floors at this time, a brief tour of the building will be limited to a small group of our external guests and major donors. An open house is scheduled for September 13, 2018, where our broader Engineering community will have an opportunity to tour the building.

The opening of the Myhal Centre signals a new era for our Faculty. Designed for interactive learning, collaborative innovation and sustainability, its cutting-edge interactive auditorium, technology-enhanced active learning classrooms, fabulous design studios and makerspaces and versatile student club spaces will afford our students outstanding, meaningful experiential learning opportunities and make them stronger and more creative engineers. Its collaborative research facilities will provide a home for the innovative centres and institutes we have created over the
past 10 years, from the Centre for Global Engineering, launched in 2008, to the Institute for Studies in Transdisciplinary Engineering Education and Practice, which will launch in July 2018. It is also one of the most energy-efficient buildings on campus, meeting or exceeding most sustainable design strategies to maximize energy efficiency, including rooftop photovoltaic cells and skylights, an advanced air delivery system, passive solar shading on the building’s exterior, and rainwater collection for landscape irrigation.

The Dean invited Council members to join the celebration on April 27, where we will begin this new chapter in our Faculty’s story.

(b) Convocation

Our Faculty will have three convocation ceremonies on June 19, 2018.

The morning ceremony at 10:00 includes graduates from UTIAS, IBBME, Civil & Mineral Engineering, Engineering Science, and Materials Science & Engineering. Guest speaker Janis Chodas, an Engineering Science and UTIAS alumna, will receive an honorary degree. Ms. Chodas is currently the Director for Engineering and Science at NASA’s Jet Propulsion Laboratory and formerly led the Juno mission, including the launch and early operations of the Jupiter-bound spacecraft.

The afternoon ceremony at 2:30 includes graduates from Chemical Engineering & Applied Chemistry, and Mechanical & Industrial Engineering. The guest speaker is our colleague, Professor Molly Schoichet of Chemical Engineering & Applied Chemistry, who was named Ontario’s Chief Scientist in November.

The evening ceremony at 6:30 includes graduates from Electrical & Computer Engineering. The guest speaker is Professor Emeritus Safwat Zaky, past ECE Chair, former Vice-Provost, Planning and Budget, and current Chair of the Engineering Alumni Network’s Awards and Honours Committee. All are encouraged to attend these ceremonies and any events held by the departments, divisions and institutes to bid our students farewell, and to meet and celebrate with their families.

(c) Celebrating Engineering Excellence Reception

Our Faculty’s annual Celebrating Engineering Excellence reception is on April 18, 2018 in Council Chambers, where deserving colleagues will receive staff, research and teaching awards. Council is invited to attend this event to acknowledge the tremendous accomplishments of our colleagues, and to network and celebrate our Faculty’s successes during another outstanding academic year.

(d) External Review of the Department of Electrical & Computer Engineering

Our next scheduled external review is of the Department of Electrical & Computer Engineering on June 18-19, 2018. The review team has been selected and the department is preparing their self-study and visit itinerary.
(e) **Academic Plan Implementation**

We are in the final stages of creating our Academic Plan implementation document, which will guide us as we work toward the goals set forth in the Academic Plan approved by this Council in December 2017. The implementation document should be finalized in mid-May, and many of the actions described are already in process.

(f) **Engineering Society Leadership Transition**

Dean Amon welcomed the 2018-2019 Engineering Society leadership team, which will take office on April 14, 2018, and acknowledged incoming President Shivani Nathoo; Vice-President Academic, Shunshi (Matthew) Zhang; and Vice-President, Student Life, Michela Trozzo, who were at the meeting. We look forward to working with the EngSoc executive in the coming year, and thank them for committing their time and abilities for the benefit of our undergraduate students. She also acknowledged the outgoing Engineering Society representatives for their tremendous leadership and contributions over the past year, particularly President Jonathan Swyers, who was at the meeting.

There were no questions for Dean Amon.

The Speaker noted that the following items will be considered by regular motion, requiring a simple majority of members present and voting to carry.

5. **Addition of PhD Level to Collaborative Specialization in Psychology and Engineering**

Julie Audet, Vice-Dean, Graduate Studies and Chair of the Engineering Graduate Education Committee, presented Report 3585.

The collaborative specialization in Psychology and Engineering was launched in the fall of 2017 for master’s students in the departments of Mechanical & Industrial Engineering and Psychology. During its first year, the number of registered Psychology students was lower than anticipated. Adding a PhD degree level will allow more Psychology students to participate, as it will provide them with more time for the collaborative specialization’s research component.

At the conclusion of the presentation, the following regular motion was moved and seconded –

THAT a PhD degree level be added to the existing Master’s Collaborative Specialization in Psychology and Engineering, effective September 2018.

In response to a question, Professor Audet stated that five MIE students and three Psychology students were registered in the master’s collaborative specialization since its introduction.

The motion was carried.
6. **FASE Promotion Procedures from Associate Professor, Teaching Stream to Professor, Teaching Stream**

Jun Nogami, Chair of the Department of Materials Science & Engineering and UTFA council member, presented Report 3586 Revised, our Faculty’s Promotion Procedures from Associate Professor, Teaching Stream to Professor, Teaching Stream. These procedures reflect amendments made to the university’s Policy and Procedures on Academic Appointments (PPAA) in 2015 to introduce professorial ranks and titles for full-time teaching-stream appointments.

At the conclusion of the presentation, the following regular motion was moved and seconded –

**THAT the Faculty of Applied Science & Engineering Promotion Procedures from Associate Professor, Teaching Stream to Professor, Teaching Stream, as described in the “Teaching Stream Promotion Checklist” attached to Report 3586 Revised be approved, effective immediately.**

There was no discussion and the motion was carried. The report will be forwarded to the university’s Committee on Academic Policy & Programs for approval, and the Academic Board of Governing Council for information.

[Secretarial note: As a result of discussions at the Committee on Academic Policy & Programs on May 10, 2018, the title of the document was changed from “Summary of Promotion Procedures from Associate Professor, Teaching Stream to Professor, Teaching Stream” to “Divisional Guidelines for the Evaluation of Teaching Effectiveness for Promotion to Professor, Teaching Stream” to adhere to university norms.]

7. **Change to Final Examinations Policy**

Phil Anderson, Chair of the Examinations Committee, presented Report 3588. This is a proposal to modify the grading policies in the undergraduate calendar regarding Type C examinations to clarify that students are not permitted to bring photocopies and computer-generated aid sheets into these exams. This change will come into effect for exams in 2018-2019. The policy pertaining to Type D examinations, which allows instructors more flexibility in specifying exactly what types of aid sheets they will permit, is still available to instructors.

This revision was prompted by an instructor who felt that students are losing a valuable learning experience by reproducing others’ aid sheets. Most instructors agree that this is good pedagogy.

At the conclusion of the presentation, the following regular motion was moved and seconded –

**THAT the sentence “Such entries will be handwritten and not mechanically reproduced” be added in the undergraduate calendar to Section XI. GRADING POLICIES, Part 5i, at the end of the definition of the Type C examination.**

Council discussed the accuracy of the word “mechanically” since there are other ways to reproduce an aid sheet. Since there have been few instances where this has been an issue,
Professor Anderson recommended that the revision be left as is. Members also discussed whether the requirement for aid sheets to be handwritten could raise accessibility issues, but Professor Anderson stated that the accessibility regulations in place for exams would also be applied here.

The motion was carried.

8. **Major Curriculum Changes, 2018-2019**

Evan Bentz, Chair of the Undergraduate Curriculum Committee, presented Report 3589 Revised, major curriculum changes for the 2018-2019 academic year. These affect programs in Engineering Science, IBBME and Mechanical & Industrial Engineering, and several of our cross-disciplinary offerings including the new Artificial Intelligence certificate and minor which are expected to come forward for approval in the fall.

At the conclusion of the presentation, the following regular motion was moved and seconded –

THAT the proposed curriculum changes for the 2018-2019 academic year, as described in Report 3589 Revised, be approved.

There were no questions and the motion was carried.

9. **Reports and Recommendations of Standing Committees**

The following reports were approved by the Executive Committee of Faculty Council at its March 20, 2018 meeting and are being presented for Council’s information.

(a) **Engineering Graduate Education Committee Update**

Julie Audet, Vice-Dean, Graduate Studies and Chair of the Engineering Graduate Education Committee, presented Report 3591 Revised, updates to the graduate curriculum which include new APS, MIE and MSE courses; a minor modification to the seminar series in the Collaborative Specialization in Psychology and Engineering; the creation of eight new emphases in Civil & Mineral Engineering; and a name change for a course in Mechanical & Industrial Engineering.

There were no questions and the report was received for information.

(b) **Implementation of the FASE Diversity Climate Survey**

Peter Weiss of the Community Affairs & Gender Issues Committee presented Report 3590, an update on the committee’s development of a diversity climate survey to be administered to FASE faculty, students and staff. The committee has consulted with the university’s Sexual & Gender Diversity Office on the questions and is very close to finalizing the survey.

A member noted that several survey questions had been reviewed by Indigenous Elders, and commended the committee for its proactiveness.

There were no questions and the report was received for information.

Safwat Zaky, Chair of the Engineering Alumni Honours & Awards Committee, thanked committee members for their work and presented Report 3592, which lists the candidates for induction into the 2018 Engineering Alumni Hall of Distinction and recipients of the Engineering Alumni Medal, 2T5 Mid-Career Award, 7T6 Early-Career Award, Malcolm McGrath Award, and L. E. (Ted) Jones Award.

There were no questions and the report was received for information.

11. **Appointments to Faculty Standing Committees and the Academic Appeals Board, 2018-2019**

The Speaker presented Report 3594, teaching staff nominations to our Faculty’s standing committees and the Academic Appeals Board for 2018-2019. An updated report including student and alumni members will be provided to Faculty Council at its October 2018 meeting.

There were no questions and the report was received for information.

12. **Service and Awards Presentations**

(a) **Retiring Faculty Member: Phil Anderson**

Farid Najm, Chair of The Edward S. Rogers Sr. Department of Electrical & Computer Engineering, acknowledged and thanked Phil Anderson, who will retire on June 30, 2018. Dean Amon presented Professor Anderson with a token of the Faculty’s appreciation.

(b) **Teaching Assistant Award: Suraj Borkar**

The Teaching Assistant Award recognizes teaching assistants who demonstrate outstanding performance in classroom instruction, consultation with students outside class, the use of effective teaching methods, and the development of course material.

After acknowledging the 2017 award recipient, Suraj Borkar, a PhD candidate in chemical engineering, and introducing his guests, Ghata Nirmal and Shashi Malladi, Dean Amon presented Mr. Borkar with the award of an engraved plaque and thanked him for his outstanding contributions to engineering education in the Faculty.

13. **Discussion Items**

The following items are for discussion purposes only.

(a) **Proposed Changes to FASE Constitution and Review of Bylaws**

The Speaker described changes proposed for the Faculty’s constitution, namely to incorporate language reflecting the new teaching-stream faculty appointment categories and Council’s delegated authority with respect to for-credit certificates. These amendments are required of all
Faculties at the University of Toronto and are proposed to come forward for our Council’s approval in the fall of 2018.

The Faculty’s bylaws will also be reviewed over the coming months to incorporate these changes, and to modernize and align them with university standards. Proposed revisions will be brought forward for discussion at the October 2018 Council meeting and for approval at the December 2018 Council meeting. Because extensive revisions to the bylaws are expected, Dean Amon will strike a working group to conduct the review and draft the changes.

During discussions, it was suggested that the working group consider allowing proxy voting, that it not revisit the composition of Faculty Council, and that it take enough time to ensure that adequate consultations can be held, particularly within departments.

The Speaker invited those interested in volunteering for the working group to contact him.

(b) Recommendations of the Eagles’ Longhouse Steering Committee

Jason Bazylak, Dean’s Advisor on Indigenous Initiatives and Co-Chair of the Eagles’ Longhouse Engineering Indigenous Initiatives Steering Committee, updated Council on the committee’s recommendations to improve our Faculty’s relationship with Indigenous peoples.

In January 2016, the university struck a steering committee in response to the federal Truth and Reconciliation Commission’s challenge to Canadians to engage in an ongoing process of reconciliation. This steering committee issued 34 calls to action. In response, our Faculty struck the Eagles’ Longhouse Steering Committee in March 2017 with members including an Elder from the Oneiada Nation and, from our Faculty, Indigenous instructors, staff and students, and those with personal and professional ties to the Indigenous community.

The Eagles’ Longhouse Steering Committee created a Blueprint for Action which is organized into four key areas: Indigenous Student Access; Indigenous Curriculum; Indigenous Spaces; and Indigenous Faculty and Staff Recruitment and Hiring. The Blueprint contains 33 immediate, short-term and long-term recommendations, highlights of which include integrating aspects of Indigenous culture into the delivery of courses in partnership with Indigenous communities; attending a Blanket Exercise or similar Indigenous cultural awareness session; and adding a traditional land acknowledgement to lectures. Professor Bazylak encouraged members of Council to read the Blueprint for Action when it is released in the coming weeks.

During discussions, a member described the University of Manitoba’s efforts to increase representation from the Indigenous community and Professor Bazylak said the Steering Committee is drawing upon their expertise. Council thanked the steering committee for its efforts and stated its desire to move forward with the recommendations.
(c) **Update on the New Course Management System**

Avi Hyman, Director of Academic and Collaborative Technologies and Institutional Strategist for Academic Technologies in the Centre for Teaching Support and Innovation (CTSI), provided an overview of the process to migrate from Blackboard to Quercus, the university’s new course management system.

Quercus will replace Blackboard on August 31, 2018. There are currently 45 courses running live in the new system, with summer courses being migrated. CTSI has been resourced to assist instructors with their data migration and will hold information sessions and hands-on course migration labs across the university. Engineering faculty can contact Dr. Hyman, as well as our Instructional Technology Specialist and librarians for assistance in moving their courses into Quercus before the deadline.

During discussions, Dr. Hyman explained that the name “Quercus” was chosen as a result of a contest that saw approximately 750 names submitted from students across all three campuses. It is Latin for “oak”. He clarified that it is not technically possible for information in Blackboard to be backed up in the interim in a way that will allow instructors to rebuild their courses in Quercus after the migration deadline. He also confirmed that Quercus can accommodate those who use Blackboard as a bulletin board and manually enter courses, by allowing manual “course shelves”, but cautioned that the functionality will be quite different from that in Blackboard.

May 11 will be “Quercus Day”, an event where faculty, staff and TAs can learn more about designing courses in Quercus.

14. **Other Business**

There was no other business.

15. **Date of Next Meeting**

The governance calendar for 2018-2019 is being developed and will be distributed to Faculty Council this spring.

16. **Adjournment**

The meeting was adjourned at 1:55 p.m.

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