



University of Alberta Quality Assurance Suite of Activities

Department of Biomedical Engineering: Academic Program Review

Excerpted Report 2017-2018

Department of Biomedical Engineering: Graduate Program Review

Programs Reviewed	<ul style="list-style-type: none"> • Master of Science in Biomedical Engineering • Doctor of Philosophy in Biomedical Engineering
Review Dates	February 27-28, 2018
Reviewers	<ul style="list-style-type: none"> • Dr. Robert E. Kearney, Committee Chair, McGill University • Dr. Alex MacKay, External Member, University of British Columbia • Dr. Janet Ronsky, External Member, University of Calgary • Dr. Maria Drangova, External Member, University of Western Ontario • Dr. Clayton Dickson, Internal Member, University of Alberta

Outcome

The External Review Committee confirmed the excellence of the the Department of Biomedical Engineering’s graduate program. Their findings supported the strong culture of research training within the Department. They noted that students benefit greatly from the engagement of dedicated supervisors who provide many research opportunities. In addition, the Committee found that students graduate in a timely manner, attend international conferences, publish in reputable journals and find employment.

The External Review Committee noted that the strengths of the program lie within its dual-Faculty positioning within the Faculty of Medicine and Dentistry and the Faculty of Engineering, and interestingly, suggested that this duality could also be contributing to a lack of specific identity for this unique and strong program.

The External Review Committee encouraged the Department of Biomedical Engineering to focus on sharpening its identity, broadening the scope of research to incorporate more non-MRI elements of the discipline, strengthen its collaboration with faculty within the Faculty of



Engineering, and to begin to envision future leadership transition planning.

Program Strengths

- The program has an updated Standard Operating Procedures manual that is available online for students and faculty. This SOP is extensive and the students who have used it indicated that it is very helpful.
- The core Department of Biomedical Engineering professors are very engaged in providing quality student supervision and research opportunities.
- The learning environment relating to MR imaging and neuroscience within the program is rich, vibrant and supports excellent research. Students have access to world-class infrastructure for MR imaging. The location of key infrastructure within a clinical setting provides discipline-specific aspects that align with best practices and expose students to clinicians and technical experts. The proximity of the majority of student and faculty offices to the hospital and imaging facilities provides an excellent “hands on” learning environment.
- Faculty encourage students to publish their work in scientific journals and to attend scientific conferences. This is evident by the highly productive publication rates that faculty have with students.
- Positive feedback from students on the learning environment.
- The program boasts strong diversity within its student population.
- The program’s retention to completion is excellent.
- Social and scientific cohesiveness amongst the students within the program is reinforced by the requirement of the common research seminar course (BME 600).

The committee made several key recommendations:

- The range of topics covered by the program is very limited. The major focus of the program is on MRI imaging. Consequently, students gain little exposure to the broad area of biomedical engineering.
- The program should develop discipline-specific professional development initiatives.
- The program would benefit from a strategic visioning and identity exercise and proactive leadership succession planning.
- Learning outcomes should be established.
- The program would benefit from greater linkages to existing biomedical engineering faculty and research embedded solely within the Faculty of Engineering.
- Student and staff work and study spaces should be improved.

Implementation Plan

In response, the Department of Biomedical Engineering, the Faculty of Medicine and Dentistry, and the Faculty of Engineering made the following commitments:

- The Department of Biomedical Engineering committed to review potential linkages



between the Faculty of Engineering, Faculty of Medicine and Dentistry, Faculty of Science, and the Faculty of Rehabilitation Medicine.

- Noting that the current space within the RTF building meets the needs of the program, the Department of Biomedical Engineering will consider plans to secure better long-term space for students and staff.
- Additional professional development will be developed. A vision and specific mission for the Department remains an active consideration and will be part of the five year plan. Connections to the Faculty of Engineering as well as other Faculties engaged in biomedical engineering will continue to be pursued.
- The program will revisit its learning outcomes to strengthen the focus of the programs.
- The Faculty of Medicine and Dentistry and the Faculty of Engineering will pursue strategies for enhanced collaboration with an aim to strengthen the scope of the Department of Biomedical Engineering's programs, research, and space.