

Institute Graduate Curriculum Committee
Minutes
Thursday, February 2, 2017

Present: Breedveld (ChBE), Pikowsky (Registrar), Bafna (CoD-ARCH), Chow (CoC-CSE), Cozzens (Vice Provost), Dixon (ME), Flowers (CoD-ARCH), Hays (CoC-IC), Jagoda (AE), Jayaraman (MSE), Johnson (GCC Student Representative), Schmidt-Krey (BIOL), Sluss (CoB)

Visitors: Hodges (REG), Bamburowski (Graduate Studies), Sokol (ISyE), Howard (ECE), Bramblett (IR/EDM), Balsam (GTRI/Secretary of Faculty)

Note: All action items in these minutes require approval by the Academic Senate. In some instances, items may require further approval by the Board of Regents or the University System of Georgia. If the Regents' approval is required, the change is not official until notification is received from the Board to that effect. Academic units should take no action on these items until USG and/or BOR approval is secured. In addition, units should take no action on any of the items below until these minutes have been approved by the Academic Senate or the Executive Board. It may also be that approval of the Southern Association of Colleges and Schools is also required.

There are 24 voting members, 13 needed to reach a quorum.

All votes are unanimous except as noted.

Academic Matters

1. A motion was made to *approve* a request from the School of Electrical and Computer Engineering for a new certificate. The motion was seconded and approved.

New Certificate - APPROVED
Certificate in BioRobotics

Overview

The BioRobotics Certificate is a result of the National Science Foundation (NSF) Research Traineeship (NRT) initiative in Accessibility, Rehabilitation and Movement Science (ARMS), an interdisciplinary traineeship program in human-centered robotics at Georgia Institute of Technology. It has the potential to transform graduate education. It will be engaging as it offers students challenging interdisciplinary experiences and comprehensive knowledge. Students will view this certificate as value added to their graduate education. The objective of this certificate program is to expand opportunities for students in the emerging field

of robotics. The BioRobotics Certificate program will positively increase the reputation and positioning of Georgia Institute of Technology as a continued leader in the robotics education field.

Learning Outcomes

- Students will learn about the fundamentals of robotics while gaining a biological perspective.
- Students will learn about various biomechanical and/or biological characteristics of living systems to use as motivation for developing new robot designs.
- Students will learn to apply these blended concepts through the immersion in an interdisciplinary robotics research project.

Curriculum

The BioRobotics Certificate requires four courses drawn from the following lists (all are existing courses and no pre-requisites are required):

Two Required Robotics Courses (6 credit hours):

- ECE/BMED/ME 7785: Introduction to Robotics Research—this course familiarizes students with the core areas of robotics: mechanics, control, perception, artificial intelligence and human-robot interaction. All Robotics Ph.D. students must take the foundational course as part of their curriculum.
- ECE/BMED/ME 8750: Multidisciplinary Robotics Research—this is a multidisciplinary research course in which research projects are proposed by students and supervised by two robotics faculty from different schools. This is one of the foundational courses required by all Robotics Ph.D. students.

Two Required Elective Courses (6 credit hours):

- ECE/PHIL 6710: Ethics of Biotechnology and Bioengineering Research—this course examines the ethics of biotechnological research, with a special focus on research ethics, healthcare and robotics. This course also satisfies the in-person RCR training requirement for doctoral students.
- ECE/BMED 8813: Interfacing Engineering Technology and Rehabilitation—this course introduces students to the emerging trends in rehabilitation technologies; its lectures and laboratory instruction help students develop skills in adopting objective criteria for evaluation emerging technologies with alternative methods.
- APPH 6231: Human Motor Control—this course examines selected motor control problems that the nervous system faces in the process of managing this mechanical complexity.

- APPH 6232: Locomotion Neuromechanic—this course introduces topics on the biomechanical and neural aspects of the control of limbed locomotion and movement.
 - APPH 6236: Neuromuscular Physiology—this course discusses the application of current experimental techniques in human studies in vivo.
 - APPH 6400: Human Neuroanatomy—this course teaches the anatomical makeup of the human nervous system. It closely examines details of central and peripheral neuroanatomy with links to functions; comparisons with non-human vertebrate neuroanatomy will be made.
 - APPH/ME 6746: Rehabilitative Engineering—this course allows students to participate in rehabilitation engineering as practiced in the assistive technology industry.
2. A motion was made to *approve* a request from the School of Industrial Systems and Engineering for a new course. The motion was seconded and approved.

New Course - APPROVED

ISYE 6501: Introduction to Analytics Modeling (3-0-3)**

Note: It was noted that the syllabus should contain the Office of Disability Statement (syllabus revised and updated on ICC site 02/03/2017). And, the first letter in ‘analytics’ for the course description should not be capitalized (description on NCP revised and updated on ICC site 02/03/2017). It was also agreed that the prerequisites should be removed. The proposer was referred to the CETL syllabus template, on their website, for general information.

Note: The School of Industrial Systems and Engineering reviewed the course and determined a more appropriate title for the course after the IGCC meeting. The School has proposed to update the course title to **Analytics Models and Methods with a transcript title of ‘ANALYTICS MODELS&METHODS’. The School was notified that the IGCC would need to review and approve of the change. The NCP and syllabus (except the course title change) will remain the same.

Administrative Item

1. Jeanne Balsam, Faculty Secretary, provided the Committee with some information on IGCC membership. Specifically, questions were posed in regards to whether the membership should be limited to tenure/tenure-track academic faculty and whether the current formula for determining membership still works for the Committee. Concerns were raised during the fall term about the number of **College of Computing** representatives due to the increase in enrollments for online Master’s degree and the resulting

difficulty to fill these Committee seats from a relatively small number of eligible faculty. It was determined that a review of Committee membership might be a timely activity going into Spring elections.

The Committee discussed the current formula that is solely based on the number of unique graduate students in each College. The question was whether this gives the Committee proper balance if those numbers include online students and part-time students. Online students tend to not to be registered full-time and in some cases, such as with the OMS-CS, they cannot take more than 9 hours, as opposed to a full-time residential PhD student with 21 hours. In addition, proper balance is questioned with the current formula since a significant number of students take courses across many colleges.

Committee members, after a long discussion and after considering alternative options, decided that the membership of the Committee would be better balanced if the proportional assignment of Committee seats (with minimum of 2 and maximum of 7 representatives per College) were based on number of credit hours taught within each College. Under this formula, the membership roster did appear to normalize in a way that made sense to the Committee.

The Committee also agreed, generally, that membership should be restricted to tenure-track faculty. Although academic professionals and others contribute in significant ways to the curriculum and academic advising, it is the tenure-track faculty that oversee courses and program content.

A proposal will be drafted to propose this change in the Faculty Handbook to the Statutes Committee and the Faculty Executive Board.

Student Petitions

1. A motion was made to approve actions by the Petitions Subcommittee on petitions in the following areas. The motion was seconded and approved.

The following petitions were reviewed administratively by the Registrar's office. (All approved except where noted.)

Petitions reviewed from 12/1/16 to 2/2/17:

- 14- Late registration for the current term (1 Denied)
- 10- Term withdrawal
- 5- Change grade mode (1 Denied)
- 2- Full graduate standing

- 3- Registration hour adjustment for current term
- 1- Seven year rule waiver
- 2- Six year rule waiver
- 3- Readmit after 1st drop
- 1- One hour registration rule waiver
- 1- Petition to return after withdrawing from previous term
- 2- Cancel registration for current term
- 4- Selective withdrawal
- 1- Count 9000 thesis hours as 7000 level thesis hours
- 1- Request to take 22 hours during the fall term
- 2- Adjust course registration to correct CRN
- 1- Count course toward degree requirement

Adjourned,

Reta Pikowsky, Registrar
Secretary