

**Georgia Institute of Technology
Institute Graduate Curriculum Committee
2015-2016 Annual Report**

Tuesday, October 18, 2016

3-5:00 p.m.

Student Center Theater

Fall Meeting of the Faculty, Faculty Senate, & Academic Faculty Senate

Members: Baabak Ashuri (CoA-BC), Hayriye Ayhan (ISyE), Victor Breedveld (ChBE), Marco Ceccagnoli (CoB), Edmond Chow (CoC-CSE), Susan Cozzens (VP-Graduate Education & Faculty Dev.), Rob Dickson (CHEM & BIOCHEM), Benjamin Flowers (ARCH), Jeff Jagoda (AE), Sundaresan Jayaraman (MSE), Kristie Macrakis (HTS), Paul Neitzel (ME), Edward Omiecinski (CoC-CS), Reta Pikowsky (Registrar), Christine Ries (ECON), Ingeborg Schmidt-Krey (BIOL), David Sluss (CoB), Marilyn Smith (AE), May Wang (BME), Thomas Gable (Graduate Student Rep), Tucker Balch (Fac. Exec. Board Liaison)

Meetings: The Graduate Committee met 10 times during the 2015-2016 year. Dr. Victor Breedveld served as Chair of the Committee. Dr. Benjamin Flowers served as Vice-Chair of the Committee. Reta Pikowsky served as Secretary of the Committee. The business of the Committee is related to curriculum proposals and student petitions. Occasionally work groups are formed to discuss specific matters of policy or procedure.

Meetings were held on:

September 3, 2015
September 10, 2015
October 1, 2015
November 5, 2015
December 3, 2015
January 14, 2016
March 10, 2016
April 14, 2016
May 26, 2016
June 23, 2016

Curriculum Items: Over the 2015-2016 academic year, the GCC approved several modifications and additions to Georgia Tech's degrees, clarifications on policy, new courses, changes to courses, student petitions, and review of academic policies.

Informational/Discussion Items:

- Committee members discussed with Dr. Cozzens the recent concerns about plagiarism in theses. There are software products on the market that can be used to determine if a document contains material that has been previously published. A question was raised about whether this might also be helpful in regard to the assessment of course assignments. The feeling of the Committee, for now, is that these should be kept as separate discussions. How we validate thesis content and content of course assignment submissions (homework, project reports, essays, etc.) should be handled in separate conversations and in separate actions. The Committee feels that plagiarism in these is an important issue, particularly in light of recent events, and would strongly support Dr. Cozzens in seeking an Institute-wide license to ensure that all academic units have this tool available to proactively screen theses. It would be very helpful to be able to identify these kinds of issues earlier in the process of having a thesis submitted for final approval.
- Discussion of rule: Doctoral students must spend at least two full-time semesters in residence at the Georgia Institute of Technology and ordinarily must complete research for the dissertation while in residence. This item was placed on the agenda for discussion to determine if a change in Catalog policy is needed to further clarify the meaning of the phrase “in residence” for doctoral students. Any proposed change would have to be approved before the Catalog could be updated. The Committee concluded that a revision is appropriate and will work with Grad Studies and the Registrar’s office to propose modifications.
- The Office of International Initiatives gave an update on the initiatives in Shenzhen. There are opportunities in this area that may be worth exploration. Things are happening quickly and it is an excellent location in China. Specific mention was made of the OMS-CS program and the possibility of a hybrid model for this location. Other locations are also being considered. Committee members noted that proposals must come before the Committee and depending on their nature, approval or notification could also have to occur with the Board of Regents and/or the Southern Association of Colleges and Schools-Commission on Colleges.

Academic Calendar Exception

- College of Architecture
(Note: The amendment was made to enable the Committee to reconsider after the Spring 2016 term if this exception should be granted for future terms.)

Summary

Design studios in architecture, industrial design, and city and regional planning require students to present their final studio projects to a jury comprised of practitioners, the general public, and/or other faculty in a public setting. These studio reviews are in lieu of a final exam for the course. Under the previous academic calendar, these reviews took place throughout Dead Week and all studio reviews for students (both undergraduate and graduate) were completed by the last day of classes (or during the regularly scheduled exam period for that course). The reviews were spread through the week for several reasons: 1) to accommodate for review space constraints, 2) to allow students to participate in reviews of other years and disciplines, and 3) to allow jurors to participate in multiple reviews serving as a curricular review.

With the new changes in the academic calendar, it will not be possible to schedule all of the design reviews for the three programs in the two final instructional class days of the semester. While the College is working on a variety of strategies to complete all reviews by the end of the term, it may be necessary to schedule a limited number of reviews after classes have ended. As a result, the College of Architecture proposes the following exception for fall and spring semesters:

- For graduate student design courses that do not complete reviews prior to the end of classes or during the regularly scheduled exam period, reviews will be scheduled during the three days following the end of classes.
- Students with the heaviest course load that may require final examinations will have reviews scheduled during the reading period so as not to conflict with exams.
- In the event that a student has a final exam during their scheduled design review, the College will make the appropriate accommodations to resolve the conflict.

Note: This exception does not apply to undergraduate student design reviews, which will be completed by the end of classes each semester or during their scheduled exam period.

Renewed Cooperative Agreements

- GT Lorraine and Centrale Supelec (France).
- GT Lorraine and Institut National Polytechnique de Toulouse (France).
- GT Lorraine and Universite Internationale de Rabat (Morocco)
- GT Lorraine and École Nationale Supérieure D'Electricite de Mecanique de l'Universite de Lorraine (France)
- GT Lorraine and Institut National des Sceinces Appliquées (France)
- GT Lorraine and Université de Lille 1 (France)
- GT Lorraine and Ecole Nationale Superieure de L'Electronique et de ses Applications (France)
- GT Lorraine and Telecom SudParis (France)

- GT Lorraine and Sapienza – Università di Roma (Italy)
- GT Lorraine and Université de Technologie de Compiègne (France)

Changes in Colleges and Schools

- The College of Architecture is changing the name of the college to the **College of Design** to encompass and better describe the full range of academic offerings by the Schools within the college.
- CEE is updating “Construction Engineering” Specialization to “Construction and Infrastructure Systems Engineering” Specialization.
- The Schools of Biology and Applied Physiology were merged and named the School of Biological Sciences.

Degrees

Pre-Proposals:

- A presentation was made by Dr. Joel Sokol, College of Industrial Systems and Engineering, for future updates to the Master of Science in Analytics program.
 - The proposal would be to offer Master of Science in Analytics as a distance learning program. Dr. Sokol indicated the online version and the on-campus version would keep the same requirements, with no curricular changes. The fees would be structured in a similar way to those of the online MS-CS program. Dr. Sokol has been in touch with the Budget Office about how this would operate.
 - The existing courses will have to be reformatted for online delivery. It is also expected that they will not be able to offer all of the specializations in the online version and that they will have to build up this version of the program over time. They feel there is enough demand to populate it and get to a steady state in a short period of time.
- The Director of Graduate Studies made a presentation in regards to an upcoming proposal that will request an increase in the minimum TOEFL score for Institute graduate admission.

New Program Prospectus:

- Doctor of Philosophy in Machine Learning
- Master of Real Estate Development

New Degree:

- Doctor of Philosophy in Ocean Science & Engineering

- Professional Master's in Occupational Safety and Health

Renaming a degree:

- Master of Science in Information Security to Master of Science in Cybersecurity

Degree/Program Modifications:

- Master of Science in Computer Science
 - Computing Systems concentration – Add CS 6235 to concentration pick.
- Master of Science in Electrical and Computer Engineering
 - Addition of new required course in “Entrepreneurship” for 3 credit hours which will be taught as a Special Topics (ECE 8883) course for at least two terms and then pursuing a permanent course number of ECE 6899.
 - Deleting “minor” (6 credit hours/2 courses in another engineering discipline or science discipline which must be in similar topical areas).
 - Addition of one new “Approved Elective” for 3 credit hours.
- Doctor of Philosophy with a major in Computer Science (DR-CS)
 - Addition of Programming Proficiency. This will become one of the requirements of the program in addition to the existing requirements: CS 7001, Breadth, Qualifying Exam, Proposal, and Dissertation.
 - The Programming Proficiency course that is completed MAY be counted as a Breadth course if it appears on one of the Breadth lists.
 - Addition of CS 6476 and CS 7476 to Graphics and Visualization Breadth component.
 - Removal of CS 7495 from Graphics and Visualization Breadth component.
 - Remove CS 6280 and CS 7250 and add CS 7280 to Networking and Communications Specialization.
 - Computational Perception & Robotics concentration
 - Addition of CS 7650 from concentration pick.
 - Replace CS 7495 with CS 6476 (course renumbered)
 - Computer Graphics concentrations - Replace CS 7495 with CS 6476 (course renumbered).

- Doctor of Philosophy with a major in Human-Centered Computing (DR-HCC)
 - Addition of CS 6476 and CS 7476 to Artificial Intelligence Specialization.
 - Removal of CS 7495 from Artificial Intelligence Specialization.
 - Add minimum grade requirements “B” to fixed core, specialization and project course requirements.
 - Change “LCC” courses to “LMC” courses
 - Adjust Psychology-track elective requirements to fix an inconsistency in elective credit requirements and to allow for more flexibility in what electives can be used to fulfill requirements (making the Psychology track similar to LMC and ID tracks)
 - Add new courses; remove courses that are no longer being offered.
 - Add elective courses for the “Management of Technology” certificate.

- Doctor of Philosophy with a major in Biomedical Engineering (GT/Emory and GT/Emory/Peking)
 - Decrease number of required hours of Integrative Core courses (BMED 7011, 7012, & 7013—3 hours each) from six to three.
 - Increase the number of BME Engineering & Bioscience Fundamentals hours from 18 to 21.

- Master of Science in Biomedical Engineering
 - Decrease number of required hours of Integrative Core courses (BMED 7011, 7012, & 7013—3 hours each) from six to three.
 - Increase the number of BME Engineering & Bioscience Fundamentals hours from 18 to 21.

- Doctor of Philosophy with a major in Materials Science and Engineering
 - Decrease the number of required core courses to only **two core courses for all MSE students**, instead of the current requirement of **five** required courses (*3 core + 2 MSE major courses for each concentration*).
 - Remove concentrations from the MSE graduate degree program.
 - The remaining MSE required approved courses will be elective courses. All other requirements for the PhD in MSE [total number of credit hours required (37 credit hours after BS and 25 credit hours after MS), format of the qualifier exam, the requirements for the minor (9 credit hours), and the minimum overall GPA requirement of 3.0] will remain the same.

- Professional Masters in Applied Systems and Engineering
 - Update ASE 8803 (Analysis and Synthesis: Human Systems Integration) to permanent number ASE 6131

- Master of Science in Information Security
 - Propose new name for degree (Master of Science in Cybersecurity)
 - New specializations
 - Update curriculum to:
 - Two core courses from MS INFS are retained. Two new courses, one from policy and a second one from either policy or cyber-physical areas are added to the core.
 - Four MS INFS core courses become required courses for technology specialization of MS Cybersecurity.
 - MS INFS concentration/elective courses moved as electives in new program

New Track or Degree Option:

- ISyE offering BS/MS in BSIE/MSSCE
- Colleges of Engineering and Computing earn MBA with 39 credits beyond MS or PhD program.

Clarification on course requirements/electives for catalog/DegreeWorks:

- Master of Science in Digital Media
 - A list of electives was specified to be able to note in catalog and DegreeWorks acceptable courses for that requirement.

Certificates

Certificate Modification:

- Microelectromechanical Certificate
 - Add ME 6776 and ECE 6450 to elective options

Courses

New Subject Code:

- BCP – Building Construction Professional

New Courses:

- MATH 6001: Introduction to Graduate Studies in Mathematics 2-0-2
- BIOL 7200: Programming for Bioinformatics 2-3-3
- MGT 6203: Data Analytics in Business 3-0-3
- MGT 6345: Marketing Practicum 1-6-3
- ECE 7057: GT-Shenzhen Research Internship 3-0-3
- CEE 6585: Materials Science of Concrete 3-0-3
- CEE 8097: Introduction to Transportation Research 1-0-1

- CS 7280: Network Science 3-0-3
- EAS 6131: Ocean Modeling 3-0-3
- EAS 6133: Marine Ecosystem Modeling 3-0-3
- EAS 6155: Math Geophysical Fluid Dynamics 3-0-3
- EAS 6672: Ocean Dynamics 3-0-3
- CSE 6748: Applied Analytics Practicum 0-18-6
- MGT 6748: Applied Analytics Practicum 0-18-6
- ISYE 6748: Applied Analytics Practicum 0-18-6
- BCP 6700: Current Issues in Occupational Safety and Health 3-0-3
- BCP 6800: Culture and Leadership Influences on Safety and Health 3-0-3
- BCP 6900: Economic Analysis, Risk Management Financing & Insurance for Safety Professionals 3-0-3
- BCP 6950: Occupational Safety and Health Capstone 2-3-3
- BCP 8803 (Title: Fundamentals of Occupational Safety and Health Program Management) 3-0-3
- BCP 8813 (Title: Industrial Hygiene Principles and Health Hazards) 3-0-3
- BCP 8823 (Title: Hazardous Materials Management) 3-0-3
- BCP 8833 (Title: General Industry Occupational Safety and Health) 3-0-3
- BCP 8843 (Title: Advanced Safety Principles) 3-0-3
- BCP 8853 (Title: Applied Ergonomics) 3-0-3
- CEE 6215: Coastal Structures 3-0-3
- CEE 6538: Introduction to Non-Destructive Testing and Forensic Evaluation in Structures 2-3-3
- CEE 6650: Discrete Choice Making 3-0-3
- CEE 8099: Seminars in Structural Engineering Mechanics and Materials for PhD students 1-0-1
- MSE 6411: Thermodynamics of Materials 3-0-3
- MSE 6412: Structure of Materials 3-0-3
- MSE 7757: Teaching Practicum 3-0-3
- ASE 6131: Analysis and Synthesis: Human Systems Integration 3-0-3
- PUBP 6725: Info Security Policies 3-0-3
- PHIL 6710: Ethics of Biotechnology and Bioengineering Research 3-0-3
- APPH 6710: Ethics of Biotechnology and Bioengineering Research 3-0-3
- ECE 6254: Statistical Machine Learning 3-0-3
- ECE 6337: Electricity Markets 3-0-3
- ECE 6445: Power IC Design 3-0-3
- CP 6006: Visualization for Planners 0-3-1
- CP 6053: Planning Studio Urban Design 3-9-6

- CP 3217: Climate Change and the City 3-0-3
- CP 6243: Impact Assessment 3-0-3

Course Prerequisite Modifications:

- CS 6505: Computability & Algorithms
- BMED 6508: BioID Masters Project I
- BMED 6509: BioID Masters Project II
- ME 6222: Manufacturing Processes and Systems
- ME 6225: Metrology and Measurement Systems
- ME 6401: Linear Control Systems
- ME 6403: Digital Control Systems
- ME 6441: Dynamics of Mechanical Systems
- ME 6442: Vibration of Mechanical Systems

Co-requisite Modifications:

- BMED 6501: Fundamentals of Biomedical Innovation and Development Processes
- BMED 6502: BioID Clinical Literacy and Experience
- BMED 6503: Medical Markets and Clinical Specialties
- BMED 6504: Financial Planning for Development Projects
- BMED 6505: Product Planning and Project Management
- BMED 6506: Professional Communications for Biomedical Innovation and Development

Addition of Major Field Restrictions

- BMED 6501: Fundamentals of Biomedical Innovation and Development Processes
- BMED 6502: BioID Clinical Literacy and Experience
- BMED 6503: Medical Markets and Clinical Specialties
- BMED 6504: Financial Planning for Development Projects
- BMED 6505: Product Planning and Project Management
- BMED 6506: Professional Communications for Biomedical Innovation and Development
- BMED 6507: Medical Device Regulatory Requirements
- BMED 6508: BioID Masters Project I
- BMED 6509: BioID Masters Project II

* Add restriction to all MBID program courses for currently enrolled MBID students only. The committee concluded that no action needed be taken as the Registrar advised a solution on the local level with the scheduler of classes, adding the Major Field Restriction at the section level instead of on the Catalog level.

Course Deactivation:

- LCC 6213: Educational Applications of New Media
- LCC 6215: Issues in Media Studies
- LCC 6310: The Computer as an Expressive Medium
- LCC 6311: Visual Culture and Design
- LCC 6312: Design, Technology, and Representation
- LCC 6313: Principles of Interactive Design
- LCC 6314: Design of Networked Media
- LCC 6315: Product Production
- LCC 6316: Historical Approaches to Digital Media
- LCC 6317: Interactive Fiction
- LCC 6318: Experimental Media
- LCC 6319: Intellectual Property Policy and Law
- LCC 6320: Globalization and New Media
- LCC 6321: Architecture of Responsive Spaces
- LCC 6325: Game Design and Analysis
- LCC 6330: Expressive Virtual Space
- LCC 6340: Mixed Reality Experience Design
- LCC 6350: Spatial Construction of Meaning
- LCC 6399: Discovery and Invention
- LCC 6650: Project Studio
- LCC 6743: STS Core Seminar
- LCC 6748: Social Justice and Design
- LCC 6749: Feminist Theory STS
- LCC 6753: HCI Professional Preparation & Practice
- LCC 6770: Mixed Reality Design
- LCC 6800: Master's Project
- LCC 6998: HCI Master's Project
- LCC 7000: Master's Theses
- LCC 7999: Preparation for PhD Qualifying Exam
- LCC 8000: Pro-Seminar in Media Theory
- LCC 8001: Pro-Seminar in Digital Media Studies
- LCC 8801: Special Topics
- LCC 8803: Special Topics in Digital Media
- LCC 8813: Advanced Issues in Interactive Narrative
- LCC 8823: Special Topics in Game Design and Analysis
- LCC 8831: Special Topics in Technologies of Representation
- LCC 8999: Preparation for PhD Dissertation
- LCC 9000: PhD Dissertation
- ENTR 6001: Systems Thinking Principles
- ENTR 6002: Systems Thinking Applications
- ENTR 6011: Enterprise Transformation Principles

- ENTR 6012: Enterprise Transformation Practices
- ENTR 6021: Enterprise Modeling Fundamentals
- ENTR 6022: Enterprise Modeling Practices
- ENTR 6031: Value-Driven Transformation Concepts
- ENTR 6032: Value-Driven Transformation Strategy
- ENTR 6041: Enterprise Strategy Analysis
- ENTR 6042: Enterprise Strategy Planning
- ENTR 6051: Transformation Economics Principles
- ENTR 6052: Transformation Economics Methodology
- ENTR 6053: Transformation Economics Investments
- ENTR 6061: Fundamentals of Information Strategy & Management
- ENTR 6062: Information System Implementation
- ENTR 6063: Information System Leadership
- ENTR 7000: Thesis
- PTFE 6100: Mechanics of Fibrous Materials
- PTFE 6101: Dynamics of Textile Processing I: Dry Processing
- PTFE 6200: Industrial Chem Process
- PTFE 6201: Dye Synthesis
- PTFE 6202: Phys Chem-Polym Sorption
- PTFE 6301: Natural Polymers
- PTFE 6751: Phys Chem-Poly Solutions **
- PTFE 6752: Polymer Characterization **
- PTFE 6755: Theoretical Chem-Polymer **
- PTFE 6759: Mate-Envir Conscious Dgn**
- PTFE 6768: Polymer Structure & Props **
- PTFE 6778: Intro to Biomaterials **
- PTFE 6795: Math, Stat & Comp Tech-Mate **
- PTFE 6796: Struct-Property Relation **
- PTFE 6797: Therm & Kinetic Microstruc **
- PTFE 6998: Safety and Ethics
- PTFE 6999: TFE Colloquium
- PTFE 6xxx: Text & Fiber Eng Elective
- PTFE 7000: Master's Thesis
- PTFE 7100: Advanced Principles of Fiber Formation, Structure, and Properties
- PTFE 7771: Mechanics of Polymer Solids and Fluids **
- PTFE 7791: Damage & Fail Composites **
- PTFE 7792: Mechanics of Composites **
- PTFE 7793: Manufacture-Composites **
- PTFE 7999: Prep-Doctoral Qual Exams
- PTFE 8001: TFE Seminar
- PTFE 8002: TFE Seminar
- PTFE 8801: Special Topics

- PTFE 8802: Special Topics
- PTFE 8803: Special Topics
- PTFE 8804: Special Topics
- PTFE 8813: Special Topics
- PTFE 8814: Special Topics
- PTFE 8900: Special Problems
- PTFE 8901: Special Problems
- PTFE 8902: Special Problems
- PTFE 8997: Teaching Assistantship
- PTFE 8998: Research Assistantship
(**) Cross-listed with multiple schools, so those corresponding courses will remain valid cross-listed courses.
- REP 6001: GTREP Armstrong Atlantic
- REP 6002: GTREP Georgia Southern
- REP 6003: GTREP Savannah State
- REP 6004: GTREP GT Savannah
- LCC 8802: Special Topics
- LCC 8804: Special Topics
- LCC 8805: Special Topics
- LCC 8806: Special Topics
- LCC 8832: Special Topics in the Technology of Representation
- LCC 8833: Special Topics in the Technology of Representation
- LCC 8903: Special Problems in Human-Computer Interaction
- LCC 8910: Special Problems
- LCC 8920: Special Problems
- LCC 8930: Special Problems
- LCC 8940: Special Problems
- LCC 8950: Special Problems
- LCC 8997: Teaching Assistantship
- LCC 8998: Research Assistantship
- PHIL 6010: Biotech Research Ethics

Student Petitions and Appeals

The Graduate Committee acted on 308 student petitions in academic year 2015-2016. Of these, 291 were handled administratively in areas where the Committee had delegated responsibility to the Petitions Subcommittee and the Registrar. There were 0 written appeals that were acted on in 2015-2016. For reference, in academic year 2014-2015, the Committee acted on 253 petitions.

Submitted by:

Dr. Victor Breedveld, Chemical and Biomolecular Engineering
Chair, IGCC, 2015-2016