Institute Undergraduate Curriculum Committee
Academic Matters and Appeals (Full Committee)
Tuesday, February 11, 2014

Present: This meeting was conducted electronically. Committee members reviewed the materials on the ICC website and then voted via email.

Visitors: No visitors attended since this meeting was conducted electronically.

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.

Academic Matters

1. A motion was made to *approve* a request from the School of Mathematics to deactivate a course. The motion was seconded and approved.

   Course Deactivation: Approved (Proposal 4402)

   Mathematics 3770: Statistics and Applications

   The College of Engineering recently requested that the School of Mathematics decouple the current Math 3770, from CEE/ISYE 3770. The primary motivation arises from the School of Mechanical Engineering, but is supported by the School of Civil and Environmental Engineering (CEE) and Industrial and Systems Engineering (ISYE). The change reflects the requirements of the Mechanical Engineering curriculum. In particular, the approach and focus used by the School of Mathematics in Math 3770, which uses a different textbook from CEE/ISYE3770, was felt to be more appropriate for their students.
   As a consequence, the School of Mathematics submitted a New Course Proposal for Math 3670, Probability and Statistics with Applications, as a replacement for the current Math 3770. This was approved by the IUCC on November 5.
   Accordingly, we apply for the deactivation of Math 3770, once Math 3670 has been activated.

2. A motion was made to *acknowledge* without concern a request from the College of Computing for prerequisite modifications. The motion was acknowledged without concern.

Prerequisite Modification: Acknowledged without concern (Proposal 4445)

CS 4235-Intro to Info Security

Remove CS 1301/1315/1371 prereq and add CS 2200.

The School of Computer Science would like to change the prerequisite from CS 1301 to CS 2200 for CS 4235. CS 4235 covers hardware support for memory protection and address space isolation, role of operating systems in implementing protected resources, and network security. To understand threats and security techniques that can counter/mitigate them, students need familiarity with concepts such as address spaces, page tables, protection domains, system calls and network protocols. Since many of these topics are covered in CS 2200, we need to make this course a prerequisite for CS 4235.

Prerequisite Modification: Acknowledged without concern (Proposal 4455)

CS 4210-Advanced Operating Systems

The School of Computer Science would like to change the prerequisite for CS 4210 from CS 2200 to CS 3210 with a grade of "C or higher".

We want undergraduate students to take CS 2200 Systems and Networks, then CS 3210 Design-Operating Systems and then finally take CS 4210 Advanced Operating Systems. CS 4210 and CS 6210 are now typically cross-listed courses so it makes sense to have the same prerequisites, and CS 6210 currently requires CS 3210. CS 4210/6210 is an advanced course in operating system intended for a broad set of students, including senior-level undergraduate students, MS students, and CS Ph.D. students. It covers topics in operating systems that require knowledge about operating system kernels and system principles covered in CS 3210, including OS schedulers and their kernel-level implementation, basic hardware knowledge about uniprocessor and multiprocessor systems, and actual exposure to kernel functionality like what is found in the Linux operating system. Without exposure to these topics and the kernel-level programming also covered in CS 3210, students will not be sufficiently prepared for the rigorous course CS 4210/6210.

Prerequisite Modification: Acknowledged without concern (Proposal 4454)

CS 4510 – Automata and Complexity

The current prerequisite for CS4510 Automata and Complexity is (CS3510 - Design and Analysis of Algorithms or CS3511 –Honors Algorithms.) The School of Computer Science would like to add two more prerequisite classes.

The first new prerequisite reflects a prior exposure to probability and statistics and can be satisfied by taking: MATH 3215 or Math 3670 or Math 3770 or CEE 3770 or ISYE 3770 or (ISYE 2027 and ISYE 2028). Taking one of MATH 3215 or Math 3670 or Math 3770 or CEE 3770 or ISYE 3770 or (ISYE 2027 and ISYE 2028) is a Bachelor of Science in Computer Science Degree Requirement for all students (and for all threads.) This degree requirement reflects an introduction to elements of probability and statistics that we expect from all undergraduates. Our proposal is to require that students have taken an introduction to elements of probability and statistics (by taking one of MATH 3215 or Math 3670 or Math 3770 or CEE 3770 or ISYE 3770 or (ISYE 2027 and ISYE 2028)) prior to them taking CS 4510 –Automata and Complexity. In the Automata and Complexity class CS 4510 we cover probabilistic models of computation, and a prior exposition to elements of probability and statistics is necessary.

The second new prerequisite reflects a prior exposition to discrete mathematics with proofs and can be satisfied by taking MATH3012 – Applied Combinatorics, which is also a Bachelor of Science in Computer Science Degree Requirement for all students (and all threads.) This degree requirement reflects an introduction to elements discrete mathematics with proofs that we expect from all undergraduates. Our proposal is to require that students have been exposed to discrete mathematics with proofs (by taking MATH3012-Discrete Combinatorics) prior to them taking CS 4510 – Automata and Complexity. In the Automata and Complexity class CS 4510 the foundation on discrete mathematics with proofs, as guaranteed by MATH3012 – Applied Combinatorics is necessary.

OLD PREREQS: CS3510-Design and Analysis of Algorithms or CS3511 Honors Algorithms with a minimum grade of C or higher

NEW PREREQS: [(CS3510 or CS3511) grade C or higher] and MATH 3012 and (MATH 3215 or Math 3670 or Math 3770 or CEE 3770 or ISYE 3770 or (ISYE 2027 and ISYE 2028)).

Prerequisite Modification: Acknowledged without concern (Proposal 4454)

CS 4540 – Advanced Algorithms

The current prerequisite for CS4540 Advanced Algorithms is (CS3510 - Design and Analysis of Algorithms or CS3511 –Honors Algorithms.) The School of Computer Science would like to add two more prerequisite classes.

The first new prerequisite reflects a prior exposure to probability and statistics and can be satisfied by taking: MATH 3215 or Math 3670 or Math 3770 or CEE 3770 or ISYE 3770 or (ISYE 2027 and ISYE 2028). Taking one of MATH 3215 or Math 3670 or Math 3770 or CEE 3770 or ISYE 3770 or (ISYE 2027 and ISYE 2028) is a Bachelor of Science in Computer Science Degree Requirement for all students (and for all threads.) This degree requirement reflects an introduction to elements of probability and statistics that we expect from all undergraduates. Our proposal is to require that students have taken an introduction to elements of probability and statistics (by taking one of MATH 3215 or Math 3670 or Math 3770 or CEE 3770 or ISYE 3770 or (ISYE 2027 and ISYE 2028)) prior to them taking CS 4540 – Advanced Algorithms. In the Advanced Algorithms class CS 4540 we cover randomized and probabilistic methods in algorithms, and a prior exposition to elements of probability and statistics is necessary.

The second new prerequisite reflects a prior exposition to discrete mathematics with proofs and can be satisfied by taking MATH3012 – Applied Combinatorics, which is also a Bachelor of Science in Computer Science Degree Requirement for all students (and all threads.) This degree requirement reflects an introduction to elements discrete mathematics with proofs that we expect from all undergraduates. Our proposal is to require that students have been exposed to discrete mathematics with proofs (by taking MATH3012-Discrete Combinatorics) prior to them taking CS 4540 – Advanced Algorithms. In the Advanced Algorithms class CS 4540 the foundation on discrete mathematics with proofs, as guaranteed by MATH3012 – Applied Combinatorics is necessary.

OLD PREREQS: CS3510-Design and Analysis of Algorithms or CS3511 Honors Algorithms with a minimum grade of C or higher

NEW PREREQS: [(CS3510 or CS3511) grade C or higher] and MATH 3012 and (MATH 3215 or Math 3670 or Math 3770 or CEE 3770 or ISYE 3770 or (ISYE 2027 and ISYE 2028)).

3. A motion was made to *acknowledge* without concern a request from the College of Computing and School of Literature, Media, and Communication for a prerequisite modification. The motion was acknowledged without concern.

   Prerequisite Modification: Acknowledged without concern (Proposal 4407)

   CS/LMC 4731: Game Artificial Intelligence

   Remove CS 1332 and add CS 3600 as the new prereq for CS 4731/LCC 4731 (LMC 4731 begins Summer 2014 and already has the new prereq of CS 3600)

   The School of Interactive Computing would like to change the prereq from CS 1332 to CS 3600 for CS 4731/LCC 4731 with a grade of "C" or higher. Game Artificial Intelligence is the discipline of controlling computer games with intelligent algorithms. AI is an aspect of virtually all modern, large-scale computer games. As a sub-discipline of AI, our game AI class had substantial overlap with CS 3600. Most students have already taken CS 3600 by the time they enroll in CS 4731. Thus, instructors take substantial time teaching remedial AI algorithms to a couple of students in the class while the rest are bored. Further, by making CS 3600 a prerequisite of CS/LCC 4731, the class can make more rapid progress into advanced topics and cutting edge techniques that students find more interesting and give students an advantage when seeking jobs in the computer game development industry. Lastly, because many CS students in the Intelligence thread have already completed CS 3600 they are more prepared for the course than CM students who were taking LCC 4731 and did not have 3600 completed. We want to make the prerequisite consistent across both sections.

4. A motion was made to *acknowledge* without concern a request from the School of Chemical and Biomolecular Engineering for a prerequisite modification. The motion was acknowledged without concern.

   Prerequisite Modification: Acknowledged without concern (Proposal 4441)

   CHBE 4510: Proc & Prod Design & Econ
   CHBE 4520: Capstone ChBE Design
   CHBE 4530: Capstone ChBE Bio-Design

Course Number	Course Title	Current Prerequisites	Proposed Prerequisites
CHBE 4510	Proc & Prod Design & Econ	CHBE 3210 D AND CHBE 3225 D	CHBE 3210 C AND CHBE 3225 C

		AND	CHBE 4300		D	AND	CHBE 4300		C
		AND	CHBE 4515	Y	D				
CHBE 4520	Capstone ChBE Design		CHBE 3210		D		CHBE 4510		C
		AND	CHBE 3225		D	AND	CHBE 4515	Y	C
		AND	CHBE 4300		D				
		AND	(CHBE 4510	Y	D				
		AND	CHBE 4515	Y	D)				
CHBE 4530	Capstone ChBE Bio-Design		CHBE 3210		D		CHBE 4510		C
		AND	CHBE 3225		D	AND	CHBE 4515	Y	C
		AND	CHBE 4300		D				
		AND	(CHBE 4510	Y	D				
		AND	CHBE 4515	Y	D)				

In April 2011 the CHBE curriculum was modified to replace CHBE 4505 (3) and CHBE 4525 (3) Process Design & Economics/Bioprocess Design & Economics with a two semester sequence for senior design to consist of CHBE 4510 (2) Process & Prod Design and Economics and either CHBE 4520 (2) Capstone CHBE Design for Standard Option or CHBE 4530 (2) Capstone ChBE Bio-Design for the Biotechnology option. The senior sequence will be offered for the first time in AY 2014-15 as the split two-semester class beginning in Fall 2014, when CHBE 4510 will be offered. In Spring 2015, we will offer CHBE 4520 and CHBE 4530 for the first time.

The intent is to keep the prerequisites of the new courses the same as the prior courses, so these modifications are updates to match what had previously been in place for CHBE 4505/CHBE 4525. It is the policy of the CHBE school to require a minimum grade of C or higher in all core CHBE courses, and the prerequisites must reflect this.

In addition, it is necessary to modify the prerequisite for the Capstone class (CHBE 4520 and 4530) to require completion of CHBE 4510 first without concurrency.

Previously, CHBE 4515 Chemical Process Safety was a prerequisite for CHBE 4505/CHBE 4525 and concurrency was allowed. With the two-semester

sequence, CHBE 4515 will be a prerequisite for the Capstone Design classes, CHBE 4520/CHBE 4530, and concurrency will be permitted.

These changes are intended to update Banner to accurately reflect the prerequisites as previously approved by the ChBE Curriculum Committee.

5. A motion was made to *approve* a request from the School of Architecture to add a degree option for the Bachelor of Science in Architecture degree. The motion was seconded and approved.

Add a Degree Option – APPROVED (Proposal 4440)
Bachelor of Science in Architecture - Research Option

The School of Architecture requests Institute Undergraduate Curriculum Committee approval to participate in the *default* Research Option. Guidelines for participation have been approved by the school's faculty as described below.

Default Research Option Requirements:

To complete the research option, the student must:

- Complete nine units of supervised research, over a period of preferably three but at least two terms.
  - Research may be for either pay or credit [typically 4698 or 4699]*
  - At least six credit hours must be on the same research project, broadly defined.
- Write an undergraduate thesis or other substantial, written report showing results of the research.
  - A research proposal must be approved by a faculty advisor and one other faculty member.
    The proposal will normally be completed at the end of the student's first semester of research, but must be approved at latest before the start of their final term of research. An approved proposal is required for admission to the class "Writing an Undergraduate Thesis" (see below).
  - The thesis/report must be approved and graded by two faculty members.
  - Theses will be published in the Georgia Tech Library.
- Take the sequence of two 1-credit classes (LCC 4701: Undergraduate Research Proposal Writing and LCC 4702: Undergraduate Research Thesis Writing)
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*NOTE: For each hour of research for pay (audit), an hour of for-credit work must be substituted by the student to meet general degree requirements in the major.

6. A motion was made to *approve* request from the School of Biology for a change in co-requisites. The motion was seconded and approved.

Delete Co-requisites: Approved (Proposal 4401)
Delete co-requisites from BIOL 4450 and 4590

The School of Biology wishes to advise of changes to course co-requisites (2) for School of Biology courses. This change is desired to facilitate registration of high-demand sections using the priority ranking offered by the Waitlisting feature in OSCAR. This change only results in students enrolling separately for the BIOL 4450 and BIOL 4590 courses. No changes are being made to the prerequisites or degree requirements involving these courses.