Middlestates Report on UG Education (Gasarch):

Bill G – overview of the middlestates outcome for the UG Program.


Bill went over the process of each team used to evaluate the course. He shared the recommendations the committee had for the course evaluated. The committee recommend that a new course that could serve as prelude to 131 for students who have little or no prior programming experience but are considering majoring in CS. They also recommended that 216 syllabus be re-examined with an eye toward making the transition from 132 to 216 smoother.

The committee had other suggestion but will discuss those with the professors teaching the course.

Randomized Algorithm Course (Srinivasan):

How to analyze random processes, and how to apply them to computational tasks. Subjects include: an introduction to discrete probability theory, random variables, and concentration inequalities; randomized sorting and searching algorithms, approximation algorithms via randomized rounding, randomized data structures, distributed computing, summary statistics, sampling, and streaming.

Grading: HW (30%), Two midterms (30% total), Final (40%)

This is a theory only course, no coding will be required.

Discussion on making 320 a pre-req for 424 and 422 (Deshpande):

1) CMSC422: Change the pre-requisites to MATH240, CMSC320, and CMSC351 (i.e., remove CMSC330 and STAT400). MATH240 provides important and needed background in Linear Algebra. STAT400 is no longer needed since CMSC320 covers those topics. There is significant overlap between 320 and 422, and we need to avoid the situation where half the students in 422 have taken 320 and half haven't.

2) CMSC424: Change the pre-requisites to CMSC320, and CMSC351. CMSC320 is more relevant to CMSC424 and covers some of the introductory topics, making it easier to cover advanced topics in CMSC424. Among CMSC351 and CMSC330, CMSC351 covers more relevant topics. Perhaps CMSC330 can be made a recommended pre-requisite.

3) CMSC320: Change the pre-requisites for CMSC320 to include MATH240. MATH240
covers Linear Algebra, which is an important and useful background for CMSC320. This should only be done if it does not introduce additional delays for students. Perhaps it could be made a recommended pre-requisite.

The Committee raised concerns with these pre-requisite changes and will continue to discuss them at the next meeting.

400 Level Quantum Computing Course (Childs):

Description: Quantum information processing seeks to exploit quantum mechanical principles to provide a qualitatively different and more powerful way of processing information than is allowed by classical physics. This course aims to give a basic foundation in the field of quantum information processing. As this is a multidisciplinary subject, the course will cover basic concepts in theoretical computer science and physics in addition to introducing core quantum information topics. No previous background in quantum mechanics is expected or required.

Topics: Basics of computational complexity; basics of quantum information; quantum phenomena; quantum circuits and universality; relationship between quantum and classical complexity classes; simple quantum algorithms; quantum Fourier transform; Shor factoring algorithm; Grover search algorithm; physical realization of quantum computation; error correction and fault tolerance; quantum key distribution.

Prerequisite: MATH 240 (Introduction to linear algebra) or permission of instructor

Andrew presented this course and asked faculty to think about adding a Quantum Computing course. Asked how many students might take a course like this? Maybe course could be offer every other year, not every year. Math 240 would be a pre-req, no computer science course as a pre-req. This course can be offered to physics students as well.

Math 250 maybe a better pre-req or Math 310. Really need to think about the pre-reqs and then cross list with other departments. There was concern that there aren’t any computer science course as a pre-req.

The agenda wasn’t finished as the meeting ran out of time. The last two items to the first meeting in the Spring 2017 semester.

Meeting adjourn at 3:00 pm