

Education Meeting Minutes Friday, March 29, 2019

The meeting was convened at 3:00 pm.

1. Parallel Undergraduate Specializations in CS, Physics, and ECE: Hicks started the meeting. Childs presented the proposal to have a quantum specialization. This proposal outline was sent via email ahead of the meeting.

Proposal: To develop parallel undergraduate specializations in three departments: Computer Science, Electrical and Computer Engineering, and Physics. Students in these three units will have the chance to take a common set of courses that provide a basic working knowledge of quantum information concepts and prepare students for further study.

As quantum computers come closer to realization, there is an increasing need for students to gain familiarity with this subject. In particular, the National Quantum Initiative Act, which was recently signed into law (<https://www.congress.gov/bill/115th-congress/house-bill/6227>) supports the goal of this proposal. In addition, there are funding opportunities from the National Science Foundation, Department of Energy, and other agencies who have emphasized the importance of such efforts.

While there are several active graduate programs in quantum information worldwide, few universities have developed undergraduate offerings beyond a single course on quantum computing. Developing an undergraduate specialization in this area would leverage our strength in quantum science and show UMD leadership at a critical time.

There is currently a small working group from CS, ECE, and PHYS working to gather information to develop quantum study at the undergraduate level. It will be along the lines of Cyber Security specialization but slightly different. It will have parallel courses in ECE, CS, and PHYS, including CMSC/PHYS 457: Introduction to Quantum Computing. It would also require developing a new undergraduate version of PHYS 720, ECE/PHYS 4xx: Introduction to Quantum Technology. The specialization will include these two courses on top of regular upper level requirements (similar to how CE does specialization requirement). The working group is seeking feedback on other required courses that might be helpful in this sequence.

The second course (an undergraduate version of PHYS 720) might be hard for CS students to have the background necessary to do well in the course alongside Physics students. A proposed solution is to have a short winter course as a prerequisite to get CS students up to speed. Hicks asked, "Do you think a boot camp course will get CS students up to speed?" Childs responded, "Yes, it will be a focused course that includes only relevant topics." A winter course might impede out-of-state students from participating, therefore, there is a consideration to do an online course instead. Hicks agreed that an online course might work best.

The current student population in CMSC 457 is an equal distribution between Computer Science and Physics students and a few numbers of Engineering students.

2. Update to Data Science Specialization: Corrada Bravo presented the proposal. This proposal outline was sent via email ahead of the meeting.

Proposal: Add CMSC 470: Introduction to Natural Language Processing to Data Science Specialization.

Data Science is one of two Bachelor of Science specializations, along with Cybersecurity, offered by the Department. The course requirements include one course in Data Science applications. The current list of courses is listed here: <https://undergrad.cs.umd.edu/node/36>.

CMSC 470 was created and approved after the specialization was created and thus not included in the original list. The proposal is to amend the list of application courses to add CMSC 470. CMSC 470 will be listed in the category where students choose one course out of the list.

Hicks moved to vote on the proposal.

34 yes, 0 no, 0 abstained.

3. Update to Cybersecurity Specialization: Hicks presented the proposal. The proposal outline was sent via email prior to the meeting.

Proposal: CMSC 498X to be included as systems course option as a parallel option to CMSC 412 and CMSC 417. CMSC 498X has the same security components about communication and security threat that is taught in CMSC 412 and CMSC 417. It is already approved as a systems course.

CMSC 498x is currently listed on the website under Area 1 as an approved course for Fall 2018. This course is currently taught by an adjunct. The course might be offered more often if there continues to be a demand for the course. If the course is offered consistently then it will change to a regular course number.

Hicks moved to vote on the proposal.

34 yes, 0 no, 0 abstained.

4. Status of CMSC 133 (was: 131X) Course Rollout (Hicks): Hicks presented a status update.

Many Computer Science students at the University of Maryland have prior programming experience, however, are not adequately prepared to succeed in CMSC 131. The proposal is to have a 2-credit course, CMSC 133 (was CMSC 131X), available for students who pass the first half of the exemption exam but do not pass the second part. This course amounts to the second half of CMSC 131.

The proposal is in motion and there will be a pilot with Freshmen Connection in Fall 2019 where CMSC 133 will be offered starting week 7. Once the pilot is completed, it will need approval from PCC to be offered as a semester-long, 2-credit course starting Spring 2020.

Vicki and Nelson are leading the charge on the exemption exam. The exam is still paper-based and it will be conducted during orientation.

5. Status of IMDM: Eastman presented a status update on IMDM.

Currently waiting on budget approval. Once the budget is approved, Eastman will offer the opportunity for faculty to be involved. Some faculty will automatically be involved due to the courses they are teaching.

6. Announcement of Articulation Workshop, July 1: Eastman presented a status update.

The plan for the workshop is to invite community college and high school instructors and advisors for a day workshop in the summer. The workshop will be used to discuss CMSC major, LEP requirements and gateway course requirements. The information that is found online might be too long to understand therefore this will be a collaborative way to articulate course expectation, rigorous, and methods on how to prepare students for CMSC major at UMD. In the morning, there will presentations and discussions and in the afternoon, there will be breakouts (TBD). The workshop will be hosted by Lisa Kiely from the Office of Undergraduate Studies and Megean Garvin from the Maryland Center for Computing Education.

Hicks pointed out that the LEP provision is to have CMSC 131 and CMSC 132 available at community colleges for external transfer students. Provost requires that the department makes an effort to facilitate the articulation of the requirements. The workshop will help the ethos and expectation of curriculum development at community colleges to be aligned with the Computer Science course offerings at UMD. Currently, Montgomery College has two different tracks available to students where if a student's plan is to go to UMD, they take the courses that are more aligned with UMD courses. This workshop will be a great way to convey ideas and success stories amongst the different schools.

A donor has covered the cost of the workshop. An invitation will be sent to community colleges and high schools in the area.

7. TA Staffing, Management, and Assessment: Request for Comments: Hicks led the discussion on this topic.

There are currently about 300 undergraduate and 150 graduate TAs. It is important to assess the staffing and management of TAs to identify best practices since the department is growing in numbers. Hicks posed the following questions: “How do you feel about your TAs? Is more training required? Do you need resources to help you organize TAs? Do you need more resources or workshops to help you work with your TAs?”

Gong asked, “What’s the context of the current TA training?” Mount explained that the current topics covered in the training are: how to conduct yourself with students, professionalism, and scenario training. There is a need for more training topics from TAs such as technology training, how to use grading software, where to get their first paycheck, etc. Faculty shared about their experience with their undergraduate TAs.

Hicks proposed for faculty to have a TA management workshop to share best practices with each other. Some gave feedback that their TAs do not find the training helpful. Eastman said, “Instead of a workshop, it might be better to do coaching where we observe and coach the TAs on how to lead discussion rather than presenting ideas.” Hicks pointed out that a combined effort of workshop and coaching will be great.

Lin led a discussion on the TA turnover rate. A recent data pulled from Payroll showed that there is a significant turnover of TAs and that this year, two thirds of the TAs are new hires. Faculty pointed out that the 400 level courses require TAs who are 3rd year and 4th year students, therefore, the high turnover can be due to TAs graduating. The overturn could also be due to TA reassignment or TAs wanting more teaching experience rather than administrative/grading responsibilities.

Faculty mentioned that the BS/MS TAs might be stronger than just MS TAs since they went through the BS courses and are familiar with the material. BS/MS TAs are assigned by request by name or if faculty are requesting a MS TA.

Hicks will send an email with a survey about faculty’s TA experience and ask for date availability for a TA management workshop.

Meeting ended at 4:00.