

Education Meeting Minutes **Friday, October 12th, 2018**

The meeting was convened at 2:06pm.

1. CMSC470 Course Proposal: Marine Carput started the meeting. This proposal and outline was sent via email ahead of the meeting.

- This course will introduce fundamental concepts and techniques for automatically processing and generating natural language with computers. Students will study the machine learning techniques, models, and algorithms that enable computers to deal with the ambiguity and implicit structure of natural language.
- Minimum grade of C- in CMSC320; and 1 course with a minimum grade of C- from (MATH240, MATH461); and permission of CMNS-Computer Science department.
- Pre-reqs are reduced from what they are currently (students must have a C- or better in CMSC351).
- The biggest difference between this course and CMSC422 is that it goes beyond multiclass infrastructures.

Marine explained that there is a low number of students enrolled in the course (5 of the 22 seats are taken). Further, a big challenge she sees is that there are a wide variety of machine learning backgrounds, and she spent the first month of class bringing everyone up to speed. In order to keep advanced students engaged, the reading of research projects or papers would be incorporated for those students.

Another big challenge is computational power needed for the class, as student laptops aren't always able to accommodate the computations. Mihai Pop said that there are resolutions and options being discussed to address this issue because of the need for laptops to handle computation in MLM courses. There are web services that may be able to help.

The concern was raised that with the new version of pre-reqs, students could take this course without ever having taken CMSC330 and/or CMSC351, since CMSC320 only requires CMSC216. Alan Sussman suggested that the pre-reqs match those of CMSC422 (which include completion of CMSC330 and CMSC351 with a C- or higher). Marine agreed that this proposal should be voted on to include those pre-reqs.

Mike Hicks asked if this course when then be included in Information Systems (Area 2 in the undergraduate distributive areas), and Marine agreed it should be.

Alan asked how often this course would be taught moving forward. Marine replied that this course will be taught at least once per year.

With the proposed changes to the prerequisites, and the agreement that this course should be included in Area 2, the proposal was voted on.

51 yes, 0 no, 0 abstained.

2. CMSC454 Course Proposal: Aravind Srinivasan presented an overview of the CMSC454 course proposal, taking from information that was sent out ahead of the meeting. Samir has taught the course before as a special topics (498) course and provided information that was sent ahead of the meeting.

- This (2018) spring the class was offered as a 644/498. 8 students took 644 and in the end 5 completed the 498 (1 dropped after the exam since he did not do well).

- Of the 5, Samir checked and the grades were A+, A, A, A, B. The one who dropped might have scraped through with a B-. It was expected that at least 15-20 undergrads to sign up, but most don't seem to take 498s.

Mihai Pop asked how the topics covered in CMSC454 differ from other courses currently taught. Aravind stated that there is some overlap with courses like CMSC451 and CMSC423, but the courses are different; when it comes to CMSC451 specifically, this course only lightly touches on CMSC451 topics.

The question was raised if a course like CMSC454 would 'shift focus' from other CMSC450 courses, like CMSC451, and more students would sign up for 454. Mike Hicks said that given the surge in popularity in CMSC451, that seems unlikely, and any course offering in this area would be popular.

Mike also suggested that given the small number of students who have taken the course, this course should be given 'one full run' before giving it distributive area credit.

Alan Sussman asked who intended to teach the course. Aravind said he and Samir could, along with Mohammed.

Howard Elman brought up the point that the course seems to be heavy on numerical analysis. He questioned if students would have the necessary math background, as he finds that student's background and understanding of Linear algebra to be 'lacking'. Mike clarified that for now, the proposal states that students are required to have taken STAT400 or STAT410. MATH240/461 should be considered though.

Mike moved to vote on the proposal, with the caveat that the committee provide Samir feedback, as he was not in attendance to say if he wanted to add MATH240/461 as a prerequisite.

48 yes, 0 no, 3 abstained.

3. Proposal to Change Cyber Security Requirements:

Jon Katz presented on this proposal for changing the Cybersecurity Specialization requirements. The current requirements are 7 courses as follows:

- Required courses: CMSC 412 (operating systems), CMSC 414 (computer security), CMSC 417 (networks), CMSC 433 (programming languages), and CMSC 456 (cryptography).
- One of CMSC 411 (computer systems) or CMSC 430 (compilers).
- One of CMSC 420 (data structures) or CMSC 451 (algorithms).

The proposed change to the requirements reduces the number of required courses to 6, removes CMSC 420/451 (which seem least relevant), and provides, in his opinion, more flexibility.

Allow students to obtain a specialization in cybersecurity if they pass the following courses:

- CMSC 414 (computer security) and CMSC 456 (cryptography).
- Four courses from among CMSC 411 (computer systems), CMSC 412 (operating systems), CMSC 417 (networks), CMSC 430 (compilers), or CMSC 433 (programming languages).

Jon explained that the biggest issue the specialization is facing is the number of students who have completed the CS degree with this specialization. In 2017, only 8 graduated with this specialization. This change would hopefully help with the number of students who eventually graduate with this specialization (hopefully more).

Alan Sussman wanted to make sure that the proposal stated that the students must also meet all other CS requirements for graduation. Jon Katz stated that of course it would be added.

Mike Hicks felt that this proposal is much less flexible with the elimination of CMSC451 and CMSC420.

Alyssa Neuner asked what should be done about the 7th class that has now been eliminated. She inquired if the 7th class would be an elective. Mike stated that it would be an elective, and we would need to figure out how to word it as such.

Mike was also concerned about course capacity and course offerings. For example, CMSC430 is only offered once per year, and we are thin on faculty who can teach CMSC43X and CMSC41X courses as is.

Evan Golub stated that the biggest issue he sees is seat issues. He pointed to CMSC456 as an example. When he was advising many students told him that they chose not to pursue the cyber specialization because they could not get a seat in CMSC456. It was pointed out that this semester and next, CMSC456 has many more seats than in the past.

Vicki Fitzgerald said the biggest concern she sees with the cybersecurity specialization is CMSC412. She stated that students don't want to take it for the most part. If CMSC412 is still an option within the new set of classes for the specialization, she wondered if we could offer CMSC412 over summer. Jon Katz reminded her that it is now an option, so this shouldn't be necessary. Mike stated that he doesn't think most students will take CMSC412 any way if it's not required.

Alyssa stated that perhaps the reason students cannot make it through the specialization is because of repeat issues; if a student maxes out their repeats on a single class in the specialization, then they can no longer continue.

Mike Hicks proposed that we add CMSC451 to the list of courses students can choose from in this specialization. His fear is that seat capacity will skyrocket in other classes if CMSC412 is no longer required, so adding CMSC451 in with the four courses to choose from alleviates seat issues.

Jon Katz asked if students could be allowed to take a graduate class as their 7th course for the specialization. Alan explained that this is not possible.

Mike moved to vote on the proposal, with the inclusion of CMSC451.

48 yes, 0 no, 3 abstained.

4. Vote on MLM Specialization:

- This is not a minor, but a specialization
- When this was discussed in the spring, everyone seemed on board
- There was some talk in originally creating a MLM minor in conjunction with ECE, but that would create more seat capacity issues

Mike Hicks asked why CMSC320 was listed if it's already a prerequisite to CMSC422. Alan Sussman reminded the group that in proposals such as this, all prerequisites must be included, hence why CMSC320 is listed.

Jason Filippou reiterated the comments that he had left in the google doc that was opened prior to the meeting to discuss what was on the agenda. His comments and concerns overlap with the next item on the agenda, regarding the upper level course requirements. He believes there is too much overlap between MLM and image processing. He feels that if people end up combining, say, 426 and 422 to get easy As, but they won't learn

much. He proposes splitting the current 42x's ("Information Processing") into two different categories; Category 1: Information Processing and Visualization: 420, 424, 426, 427; Category 2: Artificial Intelligence: 421, 422, 423, 470.

Mike acknowledged Jason's concerns, and even though they are getting ahead with this discussion, Mike did say that they could explore splitting the categories up (machine learning and image processing). Mike says that this needs to be a separate discussion, and not to worry about that at this time. We can consider this change in the future.

The question was asked what the difference between a specialization and concentration. Alan interjected that concentration is not the right term, that we should be using specialization when referring to this proposal, as that is the correct terminology. Alan also reiterated that all prerequisites must be included within the proposal.

Mike moved to vote on proposal.

48 yes, 0 no, 3 abstained.

5. Proposal to Change the Upper Level Course Requirements:

Mike Hicks presented this portion. He pointed back to the information that was sent to all regarding this proposal ahead of today's meeting.

- There is significant demand for 42X courses (i.e., those in the information processing area). The major requirements aimed at ensuring breadth limit students' ability to take these courses. But doing so seems unnecessarily strict, as these courses exhibit significant breadth, with offerings in graphics, machine learning, computational biology, and databases.

Mike pointed to the fact that in the Fall of 2015, 487 students were enrolled in CMSC42X courses, compared to this semester where there are over 800 students taking courses in the same area.

- The current breadth requirements have not changed even as upper-level class offerings have evolved significantly. This makes them less effective at actually enforcing breadth, and they create an impediment to students attempting to graduate on time due to mismatched availability of seats.

Mike also stated that as mentioned by Jason before, there is a lot of diversity in the 42X area, and there's a lot of differences in these courses.

Mike stated in his original proposal, he was going to suggest we leave 42X alone and then combine 41X and 43X into one area and 45X and 46X in another area and maintain the 5-3 requirement.

Mike also says that he realized that by doing that, it would have forced students to take CMSC45X or 46X classes when they clearly don't want to (based on course registration for these courses). He also considered splitting the 42X courses in half while retaining the 5 to 3 requirement. But this would add complexity in rolling forward existing students, and might harm breadth.

The new proposal is that the student not be limited to 2 courses in one area, thus allowing a breakdown of 3-1-1 rather than 2-2-1 to satisfy the "5 in 3" requirement, e.g. a student could take three CMSC42X courses, on CMSC41X course, and one CMSC43X course.

Alan Sussman feels Mike is presenting a false choice. He feels students will take the courses that offered because they have no choice. Alan says Mike is basing his information on courses that were offered and seats that were open. Alan also reminded the group that it's not the case that students can't take more than two

classes in one area; they can actually take up to four courses in one area. The difference being now that those extra two courses become elective courses.

Alyssa Neuner told Alan that the problem with how the upper level area courses are now, is that it limits students from being able to take special topics classes if they're using four courses in one area (since special topics courses are electives). Alyssa feels Mike's proposal would help students rather than hurt.

It was brought up that it seems that students want to avoid more challenging classes in favor of 'easier' courses. The consensus is we want students to take courses they're interested in, but some faculty seemed concerned what our students are learning and the breadth.

Mike reminded the group that the department has always tried to encourage breadth and choice, and with his proposal, choice is more diverse and that breadth is naturally occurring.

Vicki Fitzgerald asked if IMDM courses will fit into this proposal as electives. Mike said that IMDM courses are not held to the same 2-2-1 rule as our students have now.

Mike said that with his proposal, he hoped to address the department's graduation rate. As it stands, CS has one of the worst graduation rates on campus because students have a hard time getting the courses they want/need. Most students need to take an extra semester in order to get the required classes. Mike also said that faculty are having to teach larger classes, and faculty want to leave; they have other offers or start-up opportunities, then we have to quickly find people to replace who we've lost. Mike believes that with our student population and seat capacity, it's a great disservice to students to have the current set-up (2-2-1). This approach provides more flexibility while still providing breadth.

Neil Spring believes that the entire point of getting students to take classes that they don't want to take is make them well rounded; he believes breadth in this case means forcing students to take classes in an area they might not want to take.

Mike can see Neil's point, but only believes that if breadth is hurt, it's only hurt a little bit.

Neil went on to say that he's only hearing anecdotal evidence that there's a problem. Alyssa then offered to work with the college to get more quantitative data versus qualitative data. Second, Neil doesn't see how special topics, such as CMSC320 fit into this proposal. He feels that it would be great if we could put special topics into specific areas. He doesn't think this proposal solves all the problems. Mike disagrees with Neil's assessment.

Alyssa asked the undergraduates in the room how they feel about the proposed changes since it impacts them. Emily likes it, as it seems to work in her favor personally. Justin doesn't see a reason to take special topics with or without the change (only distributive area courses). However, he can see it helping if students want to develop themselves in a particular area, he can see this proposal helping.

Howard Elman says that it's clear that this proposal will help graduation rates and help students get into classes, but asked if we had any sense how this may impact employment rate/employability of graduating students. Mike wasn't sure, but thought that if anything it may enhance their employability.

It was asked when this would be put into place. Mike said that if it's not voted on until November, probably not until next fall or spring.

Mike concludes that we can move to vote, or we can wait until November's meeting. It was moved to vote on proposal.

43 yes, 2 no, 6 abstained

6. Proposal to make priority registration for CMSC grad students:

Ramani stated that at the last meeting the idea seemed to be that we would save some seats for incoming students, and give instructors some flexibility in allowing out-of-department students they want in the course to enroll in the course. If there are seats left over, to allow others to enroll.

Ramani said that Hal believes it would lead to inequity because essentially giving 'arbitrary power' to instructors to allow them to basically pick and choose who they want in the course. Ramani said a bigger issue is that we have too many students and we don't seem to be addressing that issue; we seem to be putting band-aids on things. Straw poll last time showed everyone agreed to save seats and let professors let others in as they wish.

Mike said what some people may not understand is the second part where it says 'Permission of Instructor'. Mike says that that will only apply if the professor makes it 'Permission of Instructor'. However, even if it says that, instructors can essentially say anyone can enroll.

Mike reminds the group that the biggest issue is that students who are matriculating in can't get into the classes. A.P. said that the department can make classes for 'CS Majors' and that everyone else goes on a hold-file. Mike stated that this is essentially the proposal but doesn't address the qualifications of the non-majors getting in.

Jordan does not feel that he is capable enough to make decisions on what non-majors get in or who don't. Mike says that he can make that decision or not, but it's supposed to be empowering.

David Van Horn thinks limiting courses to CS students and then making a waitlist, where it's first in-first out, solves the problem. Ramani said that the problem with this is that other professors feel that students who may not make it off the waitlist add value to the course. Allowing professors to instead choose who to let enroll empowers them.

Mike said that we should vote on what Ramani is proposing (limit to CS students, and then professors can let others in as they want, then holdfile). Mike said that eventually professors will have to decide when and who gets off the holdfile.

It was asked exactly how many non-majors are in these classes. Alan stated that it ranges, his is close to half, others are 1/3rd non-majors.

It was asked if every course has to change, if some courses could stay open as they are now. Mike said it's not written here, but it's the professor's choice, you do not have to limit your class.

Ramani moved to vote on proposal.

41 yes, 2 no, 5 abstained.

7. Proposal to make CMSC 798E Graduate Seminar in Computer Science required for 1st year Students:

Ramani reminded the group that he wished to make this required during the 1st semester and to give students idea of breadth of CS.

The idea was to schedule this during a colloquium slot, those weeks when there wasn't a colloquium speakers we would have one of our faculty give a talk on their research. Ramani said that last meeting there was much discussion surround ding how long to give the faculty to talk, and to not give them the whole one hour but to present much shorter talks. This would be helpful if they are looking for RAs, etc.

Ramani stated that looking at data, there are significant numbers of students who do not get to do research until much later in their time here; this is not desirable. It is better to have them start earlier.

Ramani pointed out that last time Jon Katz stated his objection was that most reading groups seem to meet on Fridays, and this would interfere. Ramani again reminded us we did not have quorum last time to vote.

There was some discussion of making it required vs. not. Some professors found that a lot of students contact them to do research already, but this proposal seems to only be helpful if students don't know what they want to do research-wise; it does not apply to all students. Making it required seems to be another hoop for students to jump through with scheduling their classes. Also brought up that students may not always show up.

Jon Katz asked that if there are students involved in reading groups, could that serve as a substitute for this requirement. Mike said that seems a little bit against the proposal of this which is that 798E would be required for all; 798E would showcase what's going on across the department, with a reading group that's not happening.

Mike clarified that this would be a colloquium that would include UMD speakers and external speakers every Friday. The idea is to make sure everyone takes it. He also admitted he is on the fence about the proposal, but he is leaning towards it being required.

A first year professor stated that this proposal sounds like a great opportunity to capture an audience of students who may not know you or anything about your research. Colloquiums are low attended, and some professors may appreciate more students attending and getting to know students. She said that she can see why it's a pain from the student's prospective.

Someone else questioned if you could require students to show up every day, and Mike replied that of course you could, it's a class. You need to have an expectation that they show up like any other course.

Ramani moved to vote on this proposal as is.

34 yes, 3 no, 8 abstained. (did not pass)

8. Proposal to Change ECE Requirements:

Mike Hicks presented on this portion of the agenda.

In recent years, retention of students within the Computer Engineering program has become a problem. While there may be many reasons for this, the overly rigid nature of the program is a contributing factor.

The proposed changes to ECE's curriculum include:

- Modify the requirements for 300-level courses.
- Modify the number of technical elective credits.
- Modify the structure of and requirements for Category C.
- Finally, they expect an increase in the enrollment in STAT 400. The Math Department has tentatively expressed support for this proposal, and will plan to accommodate the additional seats.

Mike says essentially their plan relaxes some of the requirements for students completing the major, and they have more 'free credits'. There is the potential that with this change, ECE students may choose to take more 400-level CMSC classes.

On the flip side, Mike feels there may be fewer defections to CS because of the relaxed nature of the new proposal, limiting the flow of ECE students who become CS.

Mike stated that ECE told him we should all discuss this at the meeting, but he is unclear what exactly that means. He thinks though that what it means is that if you are at all concerned on how this may impact our program, maybe we could raise some objection.

It was asked how ECE students currently enrolled in our 400-level courses get granted permission. Mike replied that CMSC 400 levels are restricted to CS and ECE students, so they are able to be granted permission due to the restriction.

There were no other comments or objections. Mike will report back that we're OK with this proposal.

Meeting ended at 3:52pm.