Memo: Change in Degree Program Requirements for the B.S. in Computer Science
To: Curriculum Committee
From: Mathematics and Computer Science (MAJ George Rudolph)
Date: 2016-04-19

Proposal
We ask that the following changes be made to the Computer Science B.S. Degree Program:

1. MATH 240 Linear Algebra is dropped as a required course, and replaced with a 3-credit-hour General Elective. There is no change in total program hours.
2. In published degree plans, STAT 361 is moved to Spring of Year Two and the General Elective is moved to Spring of Year Three.
3. This change in program requirements retroactively applies to all enrolled CS majors as of Spring 2016.

Rationale
The Computer Science Degree Program currently requires 4 mathematics courses and 1 statistics course. This set of courses reflects ACM guidelines and ABET accreditation standards prior to 2013, which specified that curriculum must include at least 15 semester hours of mathematics, which must include discrete mathematics, differential and integral calculus, probability and statistics and one other Mathematics course. The Mathematics and Computer Science Department chose MATH 240 as the fifth course, in order to meet that requirement. Many other colleges and universities require 5 MATH/STAT courses because this had been the ACM/ABET standard for many years.

The ACM (Association for Computing Machinery) 2013 Curriculum Guidelines changed the recommended mathematics/statistics requirements for Computer Science Programs, and ABET has followed suit. The new requirement, which was in place when the Computer Science program was re-accredited in 2014, is that the program must include one year (two semesters) of mathematics appropriate to the discipline beyond the pre-calculus level. At least one half year (one semester) must include discrete mathematics; the additional (one semester of) mathematics might consist of calculus, linear algebra, numerical methods, probability, statistics, number theory, geometry, or symbolic logic (from ABET 2015-2016 Computer Science Program Criteria).

The Computer Science faculty believe this change will provide students more flexibility in pursuing a minor (including cybersecurity) and provide professional preparation in line with current accepted standards.

Impact
This change reduces the number of mathematics courses (including statistics) required from 5 to 4, and increases the number of general electives from 4 to 5. STAT 361 will replace MATH 240 in Spring of Year Two and be replaced by a General Elective in Year Three of the published program plan. The number of total program hours is unchanged.