

**THE UNIVERSITY OF MARYLAND, COLLEGE PARK (DRAFT)
PROGRAM/CURRICULUM PROPOSAL**

DIRECTIONS:

- Provide one form with original approval signatures in lines 1 - 4 for **each** proposed action. Keep this form to one page in length.
 - Early consultation with the Office of the Associate Provost for Academic Planning & Programs is strongly recommended if there are questions or concerns, particularly with new programs.
 - Please submit the signed form to Claudia Rector, Office of the Associate Provost for Academic Planning and Programs, 1119 Main Administration Building, Campus.
 - Please email the rest of the proposal as an MSWord attachment to pcc-submissions@umd.edu.
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DATE SUBMITTED____

PCC LOG NO.

COLLEGE/SCHOOL____

DEPARTMENT/PROGRAM__

PROPOSED ACTION (A separate form for each) ADD____ DELETE____ CHANGE__x__

DESCRIPTION (Provide a succinct account of the proposed action. Details should be provided in an attachment. Provide **old** and **new** sample programs for curriculum changes.)

The Computer Science Department would like to combine two courses, CMSC 212 and CMSC 311, into one four (4) credit course entitled CMSC 216.

JUSTIFICATION/REASONS/RESOURCES (Briefly explain the reason for the proposed action. Identify the source of new resources that may be required. Details should be provided in an attachment.)

New courses have been added the CS department, and this change lets student count these new courses as part of the 15 credit hours of CMSC 400 level courses required of all majors.

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APPROVAL SIGNATURES - Please print name, sign, and date

1. Department Committee Chair _____

2. Department Chair _____

3. College/School PCC Chair _____

4. Dean _____

5. Dean of the Graduate School (if required) _____

6. Chair, Senate PCC _____

7. Chair of Senate _____

8. Vice President for Academic Affairs & Provost

VPAAP 8-05

Proposal.

The Computer Science Department proposes the following changes to the BS degree: (1) to allow the courses CMSC423, CMSC425, and CMSC436 to count towards the degree as described in the detailed requirements for the major.

Rationale for the Changes to the Program.

CMSC423 was created several years ago, and is now regularly offered by multiple faculty and typically has an enrollment of 35-40 students. Computational Biology has matured as a field, and it now appropriate to use this class as standard senior CS elective.

CMSC425 and CMSC436 are new classes, but each has been offered multiple times as a special topics classes (425 four times and 436 twice). The topic areas of programming Computer Games (425) and programming mobile devices (436), are new but rapidly maturing parts of computer science. The department wishes to allow students to take these courses to meet their required 15 credits of 400-level CMSC classes.

None of these changes alter the number credits required for the degree or the order in which they must be taken. They simply provide additional options that may be used to satisfy existing requirements. Existing rules to limit the number of courses counted from specific sub-areas of computer science will continue to ensure students have a well-balanced background in CMSC courses.

Current Requirements for the Major (parts to be changes shown in italic).

Requirements for the Major

The course of study for a Computer Science major must include all of the following requirements:

1. A grade of C or better in each of the following courses:
 - a. CMSC 131 or a score of 5 on A version of the JAVA Advanced Placement exam or a score of 4 or 5 on the AB version of the JAVA Advanced Placement exam or an acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.
 - b. CMSC 132 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.
 - c. CMSC 216 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.
 - d. CMSC 250 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.
 - e. At least 27 credit hours at the 300-400 levels. These must include CMSC 330, CMSC 351, and at least 15 credit hours from the following CMSC courses with no more than two courses from a single category:

Computer Systems: Up to two of 411, 412, 414, 417

Information Processing: 420, one of 421 or 424 or 426 or 427

Software Engineering/Programming Languages: Up to two of 430, 433, 434, 435

Algorithms and Computation Theory: 451, one of 452 or 456

Numerical Analysis*: One of 460 or 466.

***Note:** Courses in Numerical Analysis require MATH 240 and 241 as additional prerequisites. Students without either of these prerequisites must choose their 15 credit hours from the remaining courses in the other four areas.

3. MATH 140 and 141. A STAT course which has MATH 141 (or a more advanced mathematics course) as a prerequisite, and one other MATH, STAT, or AMSC course which has MATH 141 (or a more advanced mathematics course) as a prerequisite. A grade of C or better must be earned in each of the courses. No course that is cross-listed as CMSC may be counted in this requirement.

4. A minimum of 12 additional credit hours of 300-400 level courses in one discipline outside of computer science with an average grade of C or better. No course that is cross-listed as CMSC may be counted in this requirement. **Note:** The following general guidelines should be observed when selecting courses for this upper level supporting sequence:

a. Courses must have all the same four-letter acronym

b. Each course should be a minimum of 3 credits.

c. Only 1 special topics or independent study course (such as courses numbered 498 or 499) may be used. Any variations must be approved by the Undergraduate Program Director. No course used to fulfill another requirement (other than CORE Advanced Studies) can be counted in this requirement.

Proposed Requirements (changes shown in italics):

The course of study for a Computer Science major must include all of the following requirements:

1. A grade of C or better in each of the following courses:

a. CMSC 131 or a score of 5 on A version of the JAVA Advanced Placement exam or a score of 4 or 5 on the AB version of the JAVA Advanced Placement exam or an acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.

b. CMSC 132 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.

c. CMSC 216 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.

d. CMSC 250 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.

e. At least 27 credit hours at the 300-400 levels. These must include CMSC 330, CMSC 351, and at least 15 credit hours from the following CMSC courses with no more than two courses from a single category:

Computer Systems: Up to two of 411, 412, 414, 417

Information Processing: 420, one of 421 or 423 or 424 or 425 or 426 or 427

Software Engineering/Programming Languages: Up to two of 430, 433, 434, 435, 436

Algorithms and Computation Theory: 451, one of 452 or 456

Numerical Analysis*: One of 460 or 466.

***Note:** Courses in Numerical Analysis require MATH 240 and 241 as additional prerequisites. Students without either of these prerequisites must choose their 15 credit hours from the remaining courses in the other four areas.

3. MATH 140 and 141. A STAT course which has MATH 141 (or a more advanced mathematics course) as a prerequisite, and one other MATH, STAT, or AMSC course which has MATH 141 (or a more advanced mathematics course) as a prerequisite. A grade of C or better must be earned in each of the courses. No course that is cross-listed as CMSC may be counted in this requirement.

4. A minimum of 12 additional credit hours of 300-400 level courses in one discipline outside of computer science with an average grade of C or better. No course that is cross-listed as CMSC may be counted in this requirement. **Note:** The following general guidelines should be observed when selecting courses for this upper level supporting sequence:

a. Courses must have all the same four-letter acronym

b. Each course should be a minimum of 3 credits.

c. Only 1 special topics or independent study course (such as courses numbered 498 or 499) may be used. Any variations must be approved by the Undergraduate Program Director. No course used to fulfill another requirement (other than CORE Advanced Studies) can be counted in this requirement.

Catalogue changes.

New Courses:

CMSC216 Introduction to Computer Systems (4 credits): Three hours of lecture and two hours of discussion/recitation per week. *Prerequisite* CMSC132 with a grade of C or better, or satisfactory performance on the department placement exam and permission of department. *Co requisite:* CMSC250. *Not open to students who have completed CMSC212 or CMSC313.* Machine representation of data including integers and floating point. Modern computer architectural features and their interaction with software (registers, caches). Interaction between user programs and the OS: system class, process, and thread management. Optimizing software to improve runtime performance using both compilers and hand tuning.

Sample Program:

No changes

Transition to new curriculum.

As soon as approved, student may count these three courses to the major as indicated above.