UNIVERSITY AT ALBANY  
STATE UNIVERSITY OF NEW YORK

Introduced by: Department of Computer Science

Date: May 5, 2008

REVIZIONS TO THE MAJORS IN COMPUTER SCIENCE

IT IS HEREBY PROPOSED THAT THE FOLLOWING BE ADOPTED:

1. That the proposed revisions to the B.A. in Computer Science (CSI), the B.S. in Computer Science (CSCOMB) and the B.S. in Computer Science and Applied Mathematics (CSMAT) be approved by the University Senate.

2. That this proposal be forwarded to the Interim President George M. Philip for approval.

3. That the revisions take effect for students admitted to the University for Fall 2008.

Rationale:
Revision and improved descriptions of the three CS Major Programs. The new catalog language for the major programs in Computer Science begins with clear statements of the department's policies for prerequisite grades (implicit in course descriptions and University academic regulations) and the department's grade expectations. The requirements are broken out into academic categories to make them easier to understand and administer. Graduate course equivalences and advice for taking graduate courses are given. The academic changes are:

- Replacement of I-Csi 402 (systems programming) required for all BA students with the option for them to take 402 or a departmentally approved course with intensive software development such as 418 (software engineering). 402 remains required in the two BS major programs.

- Replacement of I-Csi 311 (programming language principles, which stresses theory, functional and logic programming and formalized semantics) required for all BA students with the option for them to use the proposed I-Csi 405 course (object oriented programming) instead. I-Csi 311 remains required in the two BS major programs.

- Replacement of I-Csi 401 (numerical methods) required for all student in the BS
program in Computer Science with an additional upper level elective choice, while leaving 401 required for the majors in Computer Science and Applied Mathematics. Two of the three electives must be in computer science.

- Allows A-Mat 214 (calculus 3) as an alternative to any 300 or higher level A-Mat course for the one mathematics elective in the BS in Computer Science. (Computer Science and Applied Mathematics majors must take A-Mat 214.) Note 214 is a 3rd semester mathematics course and it has 4 credits. This facilitates students switching between the two BS majors as their interests evolve and it formalizes dept. policy.

- Broadens (to include engineering, following dept. policy), clarifies the two science course sequence requirement in the BS in Computer Science Major, and expresses it to encourage the choice of biology by listing it first.

- Allows and advertises advanced placement credits, and/or up to 3 credits of major electives to be granted from specific 400 level honors, internship, independent study or research project courses upon special departmental approval based on high academic quality measures.

**Bulletin Description of programs:**

1. **Degree Requirements for the Majors in Computer Science**

   **1. Grade Expectations and Prerequisites**

   A C or S or better grade in courses I-Csi 310, 210 and 333 or their transfer equivalents is a prerequisite for certain succeeding courses that are required in one or more of the programs below. See the course descriptions for details. In unusual situations, such prerequisites might be waived by the department on recommendation of the succeeding course instructor. Students who do not achieve B or better grades in I-Csi 201, 310 and 333 are strongly advised to consider other majors besides Computer Science because such students often fail upper level Computer Science courses required for graduation.

   **2. Bachelor of Arts in Computer Science (CSI)**

   General Program B. A. A minimum of 41 credits as below plus the completion of an approved minor whose courses do not overlap with any of the courses used to complete this major. (See your advisor to find an addition or substitution in case your minor requires a course from those below.)

   - **Computer Systems and Science Core (18 cr.)**: I-Csi 201, 210, 310, 333 and 404.
   - **Programming Principles and Practice (3 cr.)**: One of I-Csi 311 or 405.
   - **Intensive Software Development (3 cr.)**: One of I-Csi 402 or 418 or other course with intensive software development as approved by the department.
3. Bachelor of Science in Computer Science (CSCOMB)

General Program  B.S. (Combined major and minor sequence). A minimum of 73 credits as follows:

- **Computer Systems and Science Core (24 cr.):** I-Csi 201, 210, 310, 333, 403, 404 and 409.
- **Programming Language Principles (3 cr.):** I-Csi 311.
- **Intensive System Software Development (3 cr):** I-Csi 402.
- **Mathematics (17 cr.):** A-Mat 111 or 112 or 118; 113 or 119; 220; 367; 214 or 3 cr. from any A-Mat course numbered 300 or above.
- **Physics and Laboratory Science (8 cr.):** A-Phy140 or 141; 145; 150 or 151; and 155. Students who took Physics I or II without a laboratory can substitute 1 cr. of other laboratory work for each of the A-Phy 145 and A-Phy 155 requirements.
- **Science Sequence (6 cr.):** One pair of related major biological, physical or engineering science courses (not in mathematics or computer science) as approved by the department. Approved pairs include A-Bio 110 and 111, A-Phy 240 and 250, two courses from A-Phy 415, 353 and 454, or others as advised.
- **Social Aspects of Computing (3 cr.):** I-Csi 300Z.
- **Computer Science Electives (9 cr.):** 6-9 cr. must be from I-Csi courses numbered 300-470 or 500-550 or specially approved. Students in the honors program can also select 487. 0-3 cr. may be in A-Phy 353 or 454 in digital hardware, or A-Phi 432 in advanced logic.

4. Bachelor of Science in Computer Science and Applied Mathematics (CSMAT)

General Program  B.S. (Combined major and minor sequence). A minimum of 66 credits as follows:

- **Computer Systems and Science Core (24 cr.):** I-Csi 201, 210, 310, 333, 403, 404 and 409.
- **Programming Language Principles (3 cr.):** I-Csi 311.
- **Intensive System Software Development (3 cr):** I-Csi 402.
- **Mathematics and Computational Science (30 cr.):** A-Mat 111 or 112 or 118; 113 or 119; 220; 367; 214; I-Csi 401; and 9 additional credits in A-Mat courses numbered 300 or above.
- **Computer Science or Mathematics Electives (6 cr.):** A total of 6 cr. in I-Csi courses numbered 300-470 or 500-550 or specially approved, or A-Phy 353 or
454 in digital hardware, or in A-Phi 432. Students in the honors program can also select 487.

5. Advanced Placement Substitutions and Specially Approved Electives

The Department may grant advanced placement credit substitutions, and/or replacement of up to 3 credits in Computer Science or Mathematics electives by credits in I-CSI487 or I-CSI488 for Honor's majors, or I-CSI 490, 497 or 499. Such permission will be granted on the basis of AP exam level, scores and departmental evaluations, the depth and breadth of the resulting program, and a superior grade record of the individual student.

6. Graduate Course Equivalents

Students admitted into the BS/MS program in Computer Science, and seniors with instructor and departmental approval may substitute the following graduate courses for the indicated undergraduate required subjects. Other graduate courses may be taken for electives by such students. However only admitted BS/MS students can apply credits (up to 12) from such graduate courses to an Albany graduate degree. All qualified B. S. majors are encouraged to enter the BS/MS and/or Honors programs in order to maximize their opportunities, even if they do not intend to complete the M. S. degree at Albany. Non-BS/MS students eventually admitted to the graduate programs will have to make up the graduate credits but not retake the courses.

501 for 401
503 for 403
509 for 409
518 for 418
519 for 311

Consult the Mathematics Department for information about the Combined BS in Computer Science and Applied Mathematics with an MA in Mathematics.