February 9, 2011

MEMORANDUM

TO: Steve Halperin
    Dean, College of Computer, Mathematical and Natural Sciences

FROM: Elizabeth Beise
      Associate Provost for Academic Planning and Programs

SUBJECT: Proposal to Modify the Computer Science PhD and MS Programs by Adding a Bioinformatics Area of Study (PCC log no. 10026).

On February 4, 2011, the Senate PCC committee approved your proposal to modify the Computer Science PhD and MS programs by adding a bioinformatics area of study. A copy of the approved agreement is attached.

The change is effective Fall 2011. The College should ensure that the change is fully described in the Graduate Catalog and in all relevant descriptive materials, and that all advisors are informed.

MDC/

Enclosure

cc: David Salness, Chair, Senate PCC Committee
    Sarah Bauder, Office of Student Financial Aid
    Reka Montfort, University Senate
    Erin Howard, Data Administration
    Donna Williams, Institutional Research & Planning
    Anne Turkos, University Archives
    Linda Yokoi, Office of the Registrar
    Thomas Castonguay, Graduate School
    Paul Smith, College of Computer, Mathematical and Natural Sciences
    Larry Davis, Computer Science
THE UNIVERSITY OF MARYLAND, COLLEGE PARK
PROGRAM/CURRICULUM/UNIT PROPOSAL

• Please email the rest of the proposal as an MS Word attachment to pcc-submissions@umd.edu.

• Please submit the signed form to the Office of the Associate Provost for Academic Planning and Programs, 1119 Main Administration Building, Campus.

College/School:
Please also add College/School Unit Code-First 8 digits:
Unit Codes can be found at: https://hvpprod.umd.edu/Hlml_Reports/units.htm

Department/Program:
Please also add Department/Program Unit Code-Last 7 digits:

Type of Action (choose one):

☐ Curriculum change (including informal specializations)  ☐ New academic degree/award program
☐ Renaming of program or formal Area of Concentration  ☐ New Professional Studies award iteration
☐ Addition/deletion of formal Area of Concentration  ☐ New Minor
☐ Suspend/delete program  ☐ Other

Italics indicate that the proposed program action must be presented to the full University Senate for consideration.

Summary of Proposed Action:

See attached

APPROVAL SIGNATURES - Please print name, sign, and date. Use additional lines for multi-unit programs.

1. Department Committee Chair  A. Udaya Shankar / Oct 7, 2010
2. Department Chair  Larry Davis / Oct 7, 2010
3. College/School PCC Chair  Paul Smith / Nov 15, 2010
4. Dean  Paul Smith / Nov 15, 2010
5. Dean of the Graduate School (if required)  / Nov 15, 2010
6. Chair, Senate PCC  / Mar 1, 2011
7. University Senate Chair (if required)  / Mar 1, 2011
8. Senior Vice President for Academic Affairs & Provost  / Mar 1, 2011
Adding Bioinformatics as an Area of Study

October 6, 2010
Dept: CMSC

Background

Graduate program coursework is organized into areas, each with associated faculty, courses, and comprehensive exams. There are currently seven areas:

- Artificial Intelligence
- Computer Systems
- Database Systems
- Software Engineering/Programming Languages/HCI
- Scientific Computing
- Algorithms and Computation Theory
- Visual and Geometric Computing

The proposed change is to add Bioinformatics as an area, so there would be a total of eight areas for graduate coursework. In recent years, courses in this discipline have been offered as part of the Artificial Intelligence or Algorithms and Computation Theory areas. The change reflects the increasing importance of Bioinformatics within the field of Computer Science, as also reflected by the fact that there are now four members of the faculty specializing in this area.

Proposed Change

The proposed change is to add “Bioinformatics” as an area, so there would be a total of eight areas for graduate coursework.
The Computer Science Department has a field committee structure that reflects different topics in the discipline, and this request is to expand the number of topics in the list from seven to eight. Distribution requirements are part of the qualifying coursework requirement. For PhD students, their completion of qualifying coursework over a set of such topics, together with requirements on grades, serves the function of qualifying exams. The new field being added to the list, “Bioinformatics,” was in a fledging state at the time the field committee structure was created, but it is now a highly visible and important subdiscipline of Computer Science.

The information below, which describes the requirements in detail, comes from our policy manual for current students.

**PhD Qualifying Coursework**

You must take 7 600-800 level courses spread over at least 5 areas, with no more than 3 in any one area. You must obtain at least 5 A's and 2 B's (A includes A- and A+, B includes B- and B+). You are expected to complete this within the first four semesters of starting your PhD program and you must do it within five semesters. Extensions past the fifth semester will only be granted in highly exceptional cases. You may substitute a course in another department with appropriate approval. All courses must use homework, exams, and, when appropriate, projects as the basis for grading.

You must take a 1-credit course on *How to Conduct Research*, to be offered on a regular basis.

You are required to take two additional 3-credit 600-800 level courses, with the approval of your advisor. You must receive a grade of B or higher. There is no time limit on taking these courses. The courses may be seminar courses, including those offered outside of the CS Department.

**M.S. Qualifying Coursework**

Graduate credits: You must complete at least 30 credit hours of approved course work, with a B average. These courses must be at the 400-level or higher, with at least 18 credit hours at the 600-800 level. At least 21 credit hours must be in computer science courses.

Qualifying Coursework: You must complete at least four computer science courses at the 600-800 level in four out of the seven areas. For these four courses, you must have at least a B average.

M.S. without Thesis:

For an M.S. degree without thesis, you must complete MS Comps in each of the four areas used to satisfy the qualifying coursework requirement. You must complete four courses with at least B comp grades, and at least two of them with A comp grades. You must complete your four comps before the semester in which you apply for graduation.
You must also complete a scholarly paper acceptable to a professor (who need not be your advisor) in an area approved by that professor. The paper must include an abstract and references to the relevant literature. You must electronically submit by the appropriate deadline one copy of the scholarly paper to the Computer Science Graduate Office.

M.S. with Thesis:

For an M.S. degree with thesis, you must complete six hours of CMSC 799 (Master's Thesis Research) and prepare a thesis. The thesis must present an independent accomplishment in a research, development, or application area of computer science. You may count the course credit for CMSC 799 toward the MS graduate credits requirement.

Courses to be included in the area of Bioinformatics

Once the addition of the area is approved, the department plans to submit two course proposals, for CMSC701 and 702, to VPAC. These courses have been approved by the department and the material has been taught for several years in a variety of special topics courses.