New Service Learning Course to be offered for the first time Spring 2008

92.318 Mathematics Mentoring

Catalog Description
A two-part service-learning course. The first half of the semester takes place in the classroom, in which students work on a mathematics project. The function of the project is to learn some mathematics and serve as a model for how to approach a research project. The instructor of the course takes the role as mentor that the students take on in the second half. In the second half of the semester, each students work with grade 6-12 students in a local school to develop a project for their school mathematics fairs. As a final product, students will submit two-part report consisting of a poster presentation of their own project and a diary of experiences in mentoring the math fair projects.

Prerequisites
• Completion of all freshman and sophomore math requirements for the student’s major.
• Permission of the instructor.

Background
Since 2003, the UML Department of Mathematical Sciences has participated in Focus on Math, an NSF Math and Science Partnership. A facet of the project has been a series of math fairs in the school districts of the partnership, including Lawrence, MA. During the life of the program, UML students have been hired to help mentor students and in some cases part of their work has been done for credit instead of monetary remuneration. In order to address the issue of sustainability of the project after spring 2008, we are proposing to institutionalize mentoring by students through the proposed course.

Notes
• The term “research” here is used in a somewhat loose sense in that original mathematical research will not be expected. However the topics will be ones that are not in the mainstream mathematics curriculum and students will be directed on how to approach independent learning on the topic.
• Students will need to submit a CORI form at the beginning of the semester in order to work in the schools.
• Project topics will be selected at the first class meeting from a list of topics. The topics will be selected so that grade 6-12 topics can possibly be spun off from them. For example, an undergraduate project on the generalized binomial theorem could be specialized for grade 6-12 to the binomial theorem for positive integers, a study of Pascal’s triangle, or a probability project involving a binomial distribution. If a university student does a modeling project, simpler versions of the model that was used could be studied by grade 6-12 students
• Projects may also be interdisciplinary. For example, a computer science student might do a project on the mathematics of computer graphics. This project might be spun off into grade 6-12 to explore simpler versions for drawing or animation.
• The course will count toward a mathematics minor and will be a free math elective for mathematics majors.

For more information...
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^ http://www.doe.mass.edu/lawsregs/advisory/cori.html