

MIU yearly report, Spring 2012

Summary of the project

During 2010-11 the University funded an MIU proposal put forward by the Math Department. The funding was aimed at alleviating heavily overcrowded Math classes, both service classes and classes for the major, as well as providing funds for an overhaul of the Calculus sequence Math 221-222-234. In this report we summarize the activities that took place during the academic year 2012 regarding this project.

Activities during 2012

Review of Calculus content and credits: The Math department undertook a thorough revision of the Calculus content and credit organization of its Math 221-222-234 classes. We discussed this organization with the Undergraduate Program committee at the School of Engineering and sent an invitation to join the discussion to all departments whose majors require one or more semesters of Calculus. We then held meetings with all interested parties to discuss what their priorities were regarding content and credit organization. The School of Engineering and Lillian Tong representing ICBE not only met with us but also surveyed their faculty and gave us very valuable input as to what subjects they consider to be fundamental for their majors. Other departments like Economics, Chemistry, Statistics and Computer Science met with us and gave us their insights, including examples of problems they would like their students to be familiar with.

As a result of these contacts the department redesigned the content and credits of Math 222 and 234, leaving those of Math 221 mainly intact. Math 222 is being changed from a 5cr. to a 4 cr. class with lighter content; Math 234 will become a 4cr. class from a 3cr. one, its content only minimally modified and its practice enhanced. The changes have already been approved and they will be enacted starting Spring 2013. They were forwarded to all departments involved.

Redesign of classes: As part of the redesign of Calculus the MIU funded the creation of departmental on-line textbooks that will be given to students free on-line, or for a low price of around \$14 the hard copy. Part of the benefits from the sale of these books will be reinvested in the class, funding TA-lead study groups during the semester. The textbook for Math 221 is almost ready and those of 222 and 234 are in progress. The changes for Math 221 will be in place starting Fall 2012; Math 222 will follow in spring and Math 234 in Fall 2013. These changes include a common web page (in progress) for all lectures that include on-line problems, on-line pre-lecture quizzes and open-ended group projects. It also includes enhanced TA training. At the moment Prof. Mari-Beffa will be in charge of TA training before classes start, but the department is looking to establish a more comprehensive long-term plan for training that will include a group of 2-3 academic staff members that will be in charge of TA training at WISCEL, Education classes and Calculus, with training happening throughout the first semester.

Overcrowded classes: The department of Mathematics has been unable to help significantly with this problem. When the project was originally submitted the FTE count was around 46 faculty FTEs, at the moment we are down to around 42. We were awarded 3 FTS and L&S was very supportive allowing us to hire a total of 5. We have indeed hired five new faculty members but even with this influx we anticipate to stay at around 46. The enrollment numbers have been steady or have increased further and so it is unclear to us what the situation will be regarding this portion of the project. The Department has indeed made an effort to recruit female faculty – a minority in our field – and one of the five new recruits is a female raising the numbers from 2.25FTE three years ago to 5.25FTE currently. It is our hope that the administration will continue supporting our efforts to bring classes into more manageable sizes, but until then teaching remains compromised in many of them. We have used MIU funds to add TA assistance to critical major preparatory classes that had doubled their sizes within the last few years. This aspect seems to be working well and students express satisfaction with the extra help. But we still have writing intensive classes with enrollments above 40 in each lecture. The number of majors has been steadily increasing from a little below 200+30 AMEP 5 years ago to our current count of 340+50 AMEP+69 certificates. We preview the numbers to increase further.

Plans for 2013

During 2013 we plan to finish the implementation of the Calculus changes and to assess their impact. This includes the establishment of a new part-time Calculus coordinator position at the academic staff level and the drafting of a comprehensive TA training long-term plan that will include, but will not restrict to, Calculus TAs.

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