Mission

• We will increase the number of our own university’s STEM graduates by expanding the Merit Program student base to include the large number of students who have not yet declared their major. We will also increase access among students of all STEM majors.

• We will train current and future teachers at the high school and college levels to implement their own Merit-style Programs. We will disseminate these instructional methods in two different ways: a) teacher workshops for current high school and community college teachers, b) supervised teaching in the Merit Program for graduate students interested in pursuing a career in teaching.

• We will develop readily accessible on-line resources and discussion boards for Merit students and for professionals trained by the project. These resources will also include information for prospective students and their parents.

Merit Program Goals

The goals of our Merit Program are:

• To recruit and retain students in STEM disciplines, with special focus placed on the recruitment and retention of underrepresented minorities, women, and students from small and/or rural high schools.

• To bring these students together to build an academic community, to thrive in learning STEM subjects and to meet other students with common academic interests.

• To help students improve their academic performance.

• To help students learn to solve complex problems by understanding the fundamental concepts of science and mathematics, not by simply using algorithms to get correct answers.

• To build self-confidence by providing a challenging yet comfortable environment conducive to learning.

• To demonstrate that working in groups can be a productive and beneficial way of learning.

• To provide an alternative learning environment for students interested in teaching STEM subjects as a career.

• To expose students to the interdisciplinary nature of science by coordinating Merit activities across the three disciplines where possible. For example, explaining to students how a mathematical approach can be used to study a biological problem that is being discussed in Biology Merit or how the chemistry of a molecule can be used to explain its biological behavior. These examples fit well with the Merit educational model.

1st Year Accomplishments

1. Additional Merit Sections
2. Doubled enrollment of General Curriculum Students
3. Higher Total Enrollment (~40% increase)
4. Established Merit Mentoring Program
5. Website created, http://www.merit.uiuc.edu
6. First Year Teacher Workshop: July 30 - August 1, 2008

“Nothing can compare to the benefit of the Merit program. I have had a very positive experience, and that’s why I’m continuing Merit next semester. The TA’s are of superior intelligence and teaching abilities, as well as provide enough time to digest the material. Each teacher has gone above and beyond in assisting every member of the class. I literally feel that without Merit, not only would my grades be suffering, but my dedication to chemistry as well.”
Current Program Success!

As part of our first year grant accomplishments, we recruited more general curriculum students into the Chemistry, Mathematics, and Integrative Biology Merit programs. For some courses, waiting lists had to be established for the fall semester (with anticipation of inviting them for the spring semester). Our success can be seen in the results below.

While workshop problems are based on material covered in lectures, they are designed to stretch each student's abilities to the fullest extent. The facilitator gives few answers on the mechanics of problem solving, but rather encourages the students to “think out loud,” expecting everyone in the group to interact and discuss each student's strategies. Having different groups of students compare their answers further encourages the student-student interaction.

Merit Mentoring Program

As part of the NSF-STEP grant, a Merit Mentoring Program was established in August 2007 to ease the transition for new Merit instructors. Experienced Merit instructors mentored new Merit instructors for the fall semester. This program is meant to support and foster growth in becoming better instructors and reach our Merit Program Goals.

The Merit Mentor will provide to the mentee:
• The wisdom gained from their experience
• Suggestions that have had previous success
• Constructive criticism in order to support growth as an instructor

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<tr>
<th>Mentors</th>
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<tr>
<td>Chemistry</td>
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<td>Fall 2006: 5</td>
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Comment from Mentor:
Question: Has your involvement in the Mentoring Program been of benefit to you both as a Merit TA and as an individual?

“Yes. Helped me reflect on my own TA experiences in order to glean useful advice for my mentee (e.g. How have I dealt with a similar situation in the past?), as well as consider my own current practices in a new light. It was fun and productive to interact with other TAs.”

Comments from Mentees:
Question: Generally, do you feel that the services your mentor provided have been useful to you? Explain.

“Absolutely. My worksheets got better and better, and I always had a source of advice for dealing with problems (without us all having to go to the Director). It is only good sense to get help from an old hand instead of solving problems anew. I hope we always have the funding for this!”

“Yes. When I was getting used to the program, he helped me understand the goals better. He also showed me new ways of teaching the material. Overall I feel a lot better in any new teaching environment when I have someone to talk to about it.”

“Yes. I do think it was useful. The beginning of the semester was a scary and stressful time and having Kelli there to help me be more confident in teaching was nice.”