



Mathematics in the Life Sciences

University of Missouri

JENNIFER FELLABAUM, JENI HART, AND RAINER GLASER
UNIVERSITY OF MISSOURI

ASQ ADVANCING THE STEM AGENDA IN EDUCATION, THE
WORKPLACE AND SOCIETY
SESSION 2-2
JULY 20, 2011

This program is funded by the National Science Foundation.

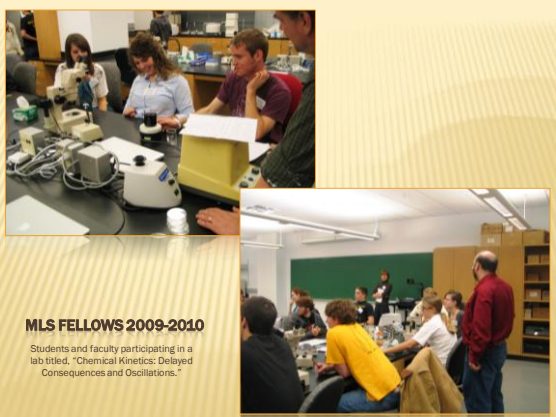


Mathematics in the Life Sciences

University of Missouri

Two-part goal:

- + 1) recruit mathematically talented students into STEM fields, particularly underrepresented students who show potential for college success, and,
- + 2) integrate mathematics more thoroughly into STEM curriculum with particular emphasis in the life sciences.



MLS FELLOWS 2009-2010
Students and faculty participating in a lab titled, "Chemical Kinetics: Delayed Consequences and Oscillations."



Mathematics in the Life Sciences


University of Missouri

Proactive recruiting combined with support provided by the MLS program could greatly increase:

- + (a) # of students who begin with the intent of seeking a conceptually interdisciplinary STEM education, and/or
- + (b) # of students who decide early on in their undergraduate career to add a second major or a minor.



MLS FELLOWS 2009-2010
Students and faculty participating in a mathematics-related lecture on chemical kinetics.



Mathematics in the Life Sciences

University of Missouri

- ✕ Potential Student Benefits Include:
 - + Participation in the MLS FIG during the first year;
 - + A faculty-guided research project during the summer and into the second year;
 - + Multiple faculty mentors from a variety of disciplines;
 - + Need-based scholarships for all four years.

MLS FELLOWS 2009-2010

Students and faculty enjoying pizza and conversation outside the classroom.



Mathematics in the Life Sciences
 University of Missouri
Current status of the program


- + 2009 and 2010 Fellows
- + Outreach activities
- + Curriculum development


Mathematics in the Life Sciences
 University of Missouri
Year Two External Evaluation - Strengths


- ✗ Impressive level of core faculty and personnel commitment and involvement
- ✗ Ongoing process of developing MLS courses
- ✗ English course excellent example of working towards interdisciplinarity
- ✗ Students are very capable academically and actively engaged
- ✗ Research apprenticeships


Mathematics in the Life Sciences
 University of Missouri
Year Two External Evaluation – Areas for growth

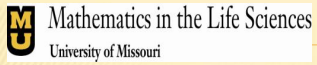
- ✗ Incorporation of more problem-based/inquiry-based learning
- ✗ Systematically identify and assess student learning goals for each course
- ✗ Identify themes/threads across courses to continue working towards conceptual interdisciplinarity
- ✗ Continue developing partnerships with high schools


Mathematics in the Life Sciences
 University of Missouri
✗ Recommendations for Best Practices:

- + Focus on integrating mathematics more thoroughly into the introductory STEM curriculum.
- + Attract, retain, and graduate mathematically-talented students who may not otherwise have chosen STEM majors.
- + Develop partnerships with K-12 schools and programs.


Mathematics in the Life Sciences
 University of Missouri
✗ Recommendations for Best Practices:

- + Foster connections with campus offices.
- + Make use of previously established programs.
- + Develop a clear evaluation plan (logic model).
- + Identify marketing opportunities available on- and off-campus.



- ✦ Recommendations for Best Practices:
 - + Revisit goals often.
 - + Identify ways to sustain program.
 - + Incorporate time for social activities.
 - + Establish a curriculum that works for your students/program.



For more information please visit us
on the web at

Mizzoumls.missouri.edu