MSTU Graduate Council
Graduate Program Review Subcommittee Report
April 24, 2015

Subcommittee Members:
Virginia Dansby, Chair
Carol Boraiko
Lencie Plancher

Graduate Program Review Subcommittee’s Report to Graduate Council on the Mathematics and Science Education (MSE) Ph.D. Program Review and Recommendations

Prepared by Virginia Dansby

The Graduate Program Review Subcommittee has been provided with the following reports:

- The MSE Ph.D. Program Self Study Report, 2014-2015, which was completed and signed by the Angela Barlow, Director of the MSE Ph.D. Program, and Robert Fischer, Dean of the College of Basic and Applied Sciences, on December 14, 2014.
- The External Program Review Narrative, which was completed by Drs. Robert Reyes, University of Missouri, and Dana Zeidler, University of South Florida, on March 9, 2015, following their February 23rd and 24th site visit.
- The Departmental Response to the review which was prepared by Dr. Barlow.

The External Program Review Narrative provided comments on these two strengths:

- Collaborative preparation of manuscripts
- Collaborative preparation of grant proposals.

It provides recommendations in the following five areas:

- Widening Program Perspective
- Faculty Issues
- Programmatic Issues
- Recruitment Issues
- Support Issues

The reviewers also completed a Program Review Summary Sheet for Graduate Programs in which they rated many categories as “good” or “excellent.” They also rated many areas as “minimally acceptable,” but none as “poor.”

Dr. Barlow’s Departmental Response addressed issues raised in the Summary Sheet and the Narrative. She pointed out some inconsistencies and misinformation in the reports, supplied a rationale and information regarding areas where she disagreed with the reviewers’ rating of “minimally acceptable,” and provided information on actions that are being taken to correct some of the areas that the MSE faculty agrees to be strengthened. She also addressed recommendations and included the following list of activities (in priority order) required to implement the recommendations:
Program-level activities

1. Curriculum - Our top priority is curriculum revision in relation to the core knowledge of mathematics and science education as well as the core knowledge within each concentration (biology education, chemistry education, interdisciplinary science education, and mathematics education).

2. Follow-up with graduates – To support continuous program improvement, it is necessary to develop a means for systematically gathering feedback from our graduates.

3. Recruitment – Moving forward, we must develop a plan for recruiting students into the program that focuses beyond our immediate geographic borders.

College/university-level activities

1. Workload – The current workload form does not align with the needs of a doctoral program. Specifically, attention should be given to the workload credit that faculty receive as they work with doctoral students through directed research hours, dissertation hours, formal mentoring, etc.

2. Faculty – Additional faculty are needed to support students in the program. In particular, immediate needs are new hires that should include a chemical educator and at least two mathematics/science educators placed in the College of Education.

3. Secretarial support – The program’s need for secretarial support should be addressed.

The Response also included a table for the program-level activities. See attached.
<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Action</th>
<th>Timeframe</th>
<th>Estimated Cost</th>
<th>Responsible Individual(s)</th>
<th>1-Year Progress</th>
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<td>Curriculum – Core Knowledge of Mathematics and Science Education</td>
<td>Identify the core knowledge of mathematics and science education to be developed in students; develop the necessary course proposals to address this core knowledge; revise the degree plans.</td>
<td>2015 – 2016 academic year</td>
<td>$0</td>
<td>MSE Coordination Committee</td>
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<td>Feedback from Program Graduates</td>
<td>Develop an online survey for graduates to complete; develop a protocol for conducting exit interviews and/or focus groups with students in their last semester of the program</td>
<td>2015 - 2016</td>
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<td>Recruitment</td>
<td>Develop marketing materials, including flyers and video; re-purpose the MSE website as a recruiting tool; utilize conference presentations and colleagues as a means for recruiting</td>
<td>2015 – 2016 and ongoing</td>
<td>- Money for travel to conferences; - Money for creation of professional video</td>
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Graduate Program Review Subcommittee’s Report to Graduate Council on the program reviews and recommendations - Molecular Biosciences (MOBI) Ph.D. Graduate Program  

Prepared by Carol Boraiko  

The Graduate Program Review Subcommittee has been provided with the following reports:  
• The MOBI Self-Assessment Study, prepared by committee members Norma Dunlap, Department of Chemistry; Anthony Farone, Department of Biology; Rebecca Seipelt-Thiemann, Department of Biology; and Director, Elliot Altman, Department of Biology  
• Molecular Biosciences (MOBI) Ph.D. Graduate Program External Review Evaluation Report, submitted on March 10,2015, by P. Shing Ho, Ph.D., Colorado State University, and John H. Nilson, Ph.D., Washington State University  
• The Departmental Response to the External Review prepared by Elliot Altman  

Note. the program review is very rambling, I have copied some and summarized the rest.  

Issue with review – From the dept: I was quite disappointed by the narrow mindedness of the external reviewers. Instead of comparing our program to all of the programs in molecular biosciences across the US, they only compared our program to the programs they are associated with at Colorado State University and Washington State University. Our program is closer to the majority of programs that are implemented throughout the US, which do not use the rigid structures that the programs at Colorado State University and Washington State University employ.  

Significant suggestions recommended by the external reviewers:  
1- Overhaul the curriculum,  
2- Establish an Executive Committee and  
3- Establish an External Advisory Committee.
1- Overhaul the curriculum
   a. If the new laboratory skill courses suggested by the reviewers are implemented, the cost will be $40,000 for supplies

2- Establish an Executive Committee
   a. This task can be completed in one year

3- Establish an External Advisory Committee
   a. This task can be completed in one year

From the Reviewers:
The overall impression from the two-day visit is that MOBI has very successfully completed its 5-year probationary period. It has:

- Garnered significant administrative and financial support from the University to support its faculty, students, and function;
- Is housed in an impressive new science building that both supports the two participating departments and fosters the interdisciplinary nature of the MOBI;
- The program and the sciences are strongly supported by a very good library system that provides both in-house and electronic resources that are important for research and student training;
- Recruited a total of 35 enthusiastic and well-spoken Ph.D. students;
- Supports the training of Ph.D. students by 29 members of the MOBI faculty;
- Started to graduate a reasonable number of Ph.D. students over this 5 year period;

The national average for students graduating from Ph.D. programs in molecular biosciences is 6.7 years. Our first five students graduated in an average of 4.4 years. I think this accomplishment merits the use of a more descriptive adjective than "reasonable".
- Seen a significant increase in external funding, including grants from the NIH and the NSF; and
- Attracted several younger members to its faculty with strong interests in establishing research programs at the Ph.D. level, while maintaining the core teaching mission of the University.

The Departmental Response included a table for the program-level activities. See attached.
Program: Molecular Biology Ph.D. Program

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