

ASSESSMENT REPORT ON APPLIED MATHEMATICS, ENGINEERING AND PHYSICS (AMEP) DEGREE PROGRAM

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1. Program Overview. AMEP is a very small L&S Bachelor's program which provides students with an in-depth preparation in the physical sciences. The requirements are to complete a coherent and advanced sequence of courses in mathematics, physics and a focus area of engineering. This requirement totals about 80 credits divided approximately 30,30,20 respectively in each area. In order to accomplish this, AMEP majors have different breadth requirements than other L&S students. In addition it is the only L&S major that requires a substantial number of engineering credits. Most AMEP graduates continue to graduate school in physics, engineering or applied mathematics. In fact the major is probably the best undergraduate option available at the UW-Madison for students interested in graduate school in these disciplines. Every year most of our students are granted admission to top graduate schools.

AMEP has no courses or faculty of its own. The program is administered by the Department of Mathematics where the AMEP coordinator is a committee assignment. There is also some staff support from the Undergraduate Program Assistant in the department. Each AMEP student has 3 advisors: a main advisor in Mathematics, a Physics advisor and an advisor in their focus area of Engineering.

Table I. Degrees Conferred in AMEP

| Year | Degrees Conferred | GPA |
|----------|-------------------|-----|
| AY 05-06 | 4 | 3.2 |
| AY 06-07 | 11 | 3.2 |
| AY 07-08 | 3 | 3.6 |

2. Learning Objectives and Goals. This program prepares you to *think like a physical scientist*. This means that you will gain the knowledge to (i) gather and understand scientific evidence and data for a particular problem, (ii) propose physically based mathematical models that describe the processes relevant to that problem, (iii) analyze the models and either use them as predictive tools or to uncover gaps in your understanding of the problem. Form the program you will also gain a broad knowledge in classical and modern physics, in the application of mathematics, and in an area of engineering.

These skills prepare you not only to be a scientist or engineer but also to apply these tools in a broader range of careers. In addition to basic science and engineering, AMEP graduates have been successful in careers in management, law, medicine and finance.

3. Assessment Efforts. The AMEP program faculty are currently discussing an assessment program. Over the past two years the bulk of the effort of the AMEP coordinator was directed at increasing cohesion and a sense of community amongst students and alumni. Through generous alumni donations we now organize every semester a reunion of current students and at least one alumnus who will discuss their experience after receiving the AMEP degree. We have also begun a newsletter, which has both been well received by alumni and serve to give current students examples of outcomes of the AMEP program. It is extremely clear from the alumni profiles in the newsletter that they consider AMEP central and invaluable to their education. (Copies of the newsletter are available at www.math.wisc.edu/~amep.) In fact, one focus of the assessment will consist of alumni interviews. We have also made efforts to improve the information available to students. In this respect we have: (i) Created a new website. (ii) Sent an AMEP student representative to SOAR. (iii) Participated in the majors fair with both faculty and student representatives.