Course Rationale

Students enrolled in a course should have access to the rationale behind the course and have an indication that the teaching/learning procedures employed arise from best practice as described or defined in national reports. The remainder of this section is made up of quotations from this national document.

**SHAPING THE FUTURE**

New Expectations for Undergraduate Education in Science, Mathematics, Engineering, and Technology
A Report on its Review of Undergraduate Education

_by_

The Advisory Committee to the National Science Foundation
Directorate for Education and Human Resources

Too many students leave Science, Mathematics, Education and Technology (SME&T) courses because they find them dull and unwelcoming. Too many new teachers enter school systems under-prepared, without really understanding what science and mathematics are, and lacking the excitement of discovery and the confidence and ability to help children engage SME&T knowledge. Too many graduates go out into the workforce ill-prepared to solve real problems in a cooperative way, lacking the skills and motivation to continue learning.

**Recommendations to SME&T faculty:**

Believe and affirm that every student can learn, and model good practices that increase learning; start with the student’s experience, but have high expectations within a supportive climate; and build inquiry, a sense of wonder and the excitement of discovery, plus communication and teamwork, critical thinking, and life-long learning skills into learning experiences. Develop partnerships and collaborations with colleagues in education, in the K-12 sector, and in the business world, to improve the preparation of teachers and principals.

**Importance of Inquiry:**

Although there is disagreement about the meaning of the term “science literacy” and doubt about whether agreement is possible on a list of facts everyone should know, there is no disagreement that every student should be presented an opportunity to understand what science is, and is not, and to be involved in some way in scientific inquiry, not just a “hands-on” experience. Inquiry, the processes of science (or mathematics or engineering), a knowledge of what SME&T practitioners do, and the excitement of cutting edge research should be built into every course.