UNIVERSITY OF THE INCARNATE WORD
SCHOOL OF GRADUATE STUDIES
MATH 6381
Integration of Mathematics and Science, 9-12

Catalog description:

This is a three-hour course in which national and state standards and learning theory in mathematics and science education are used to support conjectures and conclusions about the benefits and challenges of integrating mathematics and science in the high school classroom. Content topics and the use of student-centered strategies to teach skills and concepts appropriate for Grades 9-12 are considered.

Context:

This course is designed to meet the requirements for the study of the integration of mathematics and science in Grades 9-12 for the Master of Arts in Mathematics Teaching and the Ph.D. concentration in Mathematics Education. It is one half of a two-semester set of courses which deal with the mathematics and pedagogy of Grades 9-12. Each of the two courses may be taken independently of the other. The course may not be repeated for credit. The audience consists of graduate students with experience in the classroom.

Course overview:

Integration of mathematics and science is a problem-solving, inquiry-based course that provides teachers with the knowledge and skills to successfully integrate their teaching of mathematics and science in Grades 9-12. The students will have the opportunity to see how science and mathematics can be merged into specific lessons within a variety of the sciences. The learning experience will include visits to grade-level classes, lectures, discussions, written assignments, group and individual hands-on activities, technology, and alternative assessment strategies.

Course outcomes and assessment:

After completing the course, students will be able to:	As measured by:
Integrate mathematical and science concepts in support of the better understanding of both disciplines at the appropriate grade level	Class and grade level projects Written exams
Demonstrate the elements of lesson planning and classroom operations which will enhance mathematics and science instruction	Class and grade level projects
Compile a portfolio of mathematics and science activities and assessment strategies which will be useful in high school classrooms	Portfolio
Demonstrate an awareness of the historical interface between science and mathematics	Written exams

Approval date: April 1998, amended 2002