

MATH 459 Senior Seminar

1. Catalog Description

MATH 459 Senior Seminar (4)

Written and oral analyses and presentations by students on topics from advanced mathematics and mathematical modeling. 4 seminars. Prerequisite: MATH 306, and completion of at least two additional upper-division courses in the math major, or consent of instructor.

2. Required Background or Experience

Math 306, and completion of at least two additional upper-division courses in the math major.

3. Learning Objectives

Students will:

- a. Integrate knowledge learned in upper-division mathematics courses to solve problems in advanced mathematics from multiple viewpoints.
- b. Apply accumulated skills and knowledge in a capstone experience in the major.
- c. Construct and analyze mathematical models of problems accessible to mathematical reasoning.
- d. Present written and oral solutions of problems for critique by students and instructor in the classroom.
- e. Develop and reinforce mathematical skills and concepts through exposure to and analysis of open-ended problems.
- f. Learn of ideas and topics for senior project.

4. Text and References

Text to be chosen by the instructor.

The instructor may also use models which do not necessarily come from a textbook.

Some possible sources are:

1. UMAP Modules (COMAP Inc., 271 Lincoln St., Suite 4, Lexington, MA 02173).
2. Models created by the instructor.
3. MAA TEAM Project VHS tapes available from the MAA, Washington D.C.

5. Minimum Student Materials

Paper, pencils and notebook.

6. Minimum University Facilities

Classroom with ample chalkboard space for class use, library facilities.

7. Content and Method

The course will be conducted in a seminar format with topics selected by the instructor or by the student with the instructor's approval.

8. Methods of Assessment

The instructor will assess student performance on the basis of:

- a. The mathematical quality of the student's written and oral presentations.
- b. The quality and extent of participation in the discussions as observed by the instructor.

Both of these assessment methods will be used to determine the extent to which students have achieved all of the course learning outcomes listed in section 3.