

Marshall University
Math 411: Mathematical Modeling

Semester and Year	Spring 2014
Course Title	Mathematical Modeling
Course Number	Math 411
Section Number	201
CRN	2253
Days and Time	Tuesday, Thursday 5:00pm - 6:15pm
Location	Smith Hall 516
Credit Hours	3
Prerequisites	Math 231, with a C or better
Instructor	Dr. Anna Mummert
Office	Smith Hall 721
Phone	304 696 3041
E-mail	mummerta@marshall.edu
Office Hours	Monday, Tuesday, Wednesday, Thursday – 3:00pm - 4:00pm other hours by appointment

Course Webpage

All important course information will be posted on our class MUOnline page.

Required Texts

Edward A Bender. *An Introduction to Mathematical Modeling*. 1978. Reprint: Dover Publications, Inc. 2000.

Technology

Cell phones may not be used in class for texting or other social media.

Course Description: From Catalog

MTH 411 - Mathematical Modeling

Students work in teams to construct mathematical models of various real-world situations. Problems to be modeled are drawn from diverse areas of application and use a wide range of undergraduate mathematics. PR: MTH231. 3 hours.

Student Learning Outcomes for this course	How students will practice each outcome in this course	How student achievement of each outcome will be assessed in this course
Students will solve open-ended, real-world problems	group projects	project reports and presentations
Students will work within assigned teams assembled to solve extended problems	group projects	project reports and presentations
Students will attack problems presented imprecisely, as most real-world problems are	group projects	project reports and presentations
Students will translate features of the real-world into mathematical terms without an obvious “chapter topic” for guidance.	group projects	project reports and presentations
Students will gain perspective on interplay of applications, problem-solving, and theory	group projects	project reports and presentations
Students will practice making open-ended problems more tractable by neglecting some aspects and crafting simplifying assumptions about others.	group projects	project reports and presentations

Secondary Learning Outcomes: Students will learn

- informal group dynamics by necessity and osmosis;
- to brainstorm, and to withhold criticism of all brainstormed ideas during this process;
- to winnow the brainstormed ideas only after the brainstorming session has ceased;
- to neglect and to assume in order to simplify a problem for initial attack;
- to trust teammates work and ideas for the common solution;
- to depend on teammates to do their share of the group work;
- that the professor has abdicated the role of intellectual authority figure while the teams are working on a project;
- to write portions of a common report;
- to make oral presentations before their peers for every project;
- that they can do what they never thought possible.

Assessments

Late assignments will only be accepted with an Excused Absence – university-sponsored activity, student illness, immediate family emergency, short-term military obligation, jury duty or court appearance, religious holiday. Please read the university policy on how to secure an Excused Absence. Most excused absences are obtained from the Dean of Student Affairs.

Late assignment must be turned in within 1 week after you return to class.

Attendance

attendance will be taken every day. Missing 0, 1, or 2 days of class will not effect your final grade, however, each day missed after 2 will result in the decrease of your final grade by one-third letter grade.

Projects

Throughout the course you will work on 4 projects, and one warm-up project. You will work in assigned teams for each project; new teams will be assigned for each project. For each project, each team will submit weekly progress reports and one final written report of their solution, and will give an oral presentation of their solution.

Homework assignments will be weekly reports leading up to a final report and presentation for each project. The weekly and final project reports should be submitted electronically through MUOnline. Each group should submit one assignment.

Warm-up Project	Final report due	Tuesday, January 21
	Oral report	Tuesday, January 21
Project 1	Weekly reports due	Thursday, January 30, February 6
	Final report due	Thursday, February 13
	Oral report	Thursday, February 13
Project 2	Weekly reports due	Thursday, February 20, 27, March 6
	Final report due	Thursday, March 13
	Oral report	Thursday, March 13
Project 3	Weekly reports due	Thursday, March 27, April 3
	Final report due	Thursday, April 10
	Oral report	Thursday, April 10
Project 4	Weekly reports due	Thursday, April 17, 24, May 1
	Final report due	Tuesday, May 6
	Oral report	Tuesday, May 6

Final Exam

Tuesday, May 6, 5:00 PM – 7:00 PM. Project 4 presentations will be given during this time.

Grading Policy: Below is a list of assignments and the points available for each assignment. The final points earned and corresponding letter grade is also given.

Each project grade will be determined by the written report and the oral presentation. Group members will have the opportunity to distribute earned points to team members based on whether all members participated equally in the modeling and reporting processes. Ideally, each group member will receive the same grade.

Assignment	Percent of Final Grade	Final Grade, Percent	Letter Grade
Project 1	25%	90 - 100	A
Project 2	25%	80 - 89	B
Project 3	25%	70 - 79	C
Project 4	25%	60 - 69	D
		0 - 59	F

Attendance Policy

Attendance will be taken every day and it will be graded as a homework assignment.

If you are absent with an Excused Absence, then please secure an Excused Absence immediately.

If you are absent for any reason, then it is your responsibility to make up any missed material.

University Schedule

The complete university schedule can be found at
www.marshall.edu/calendar/academic/spring2014.asp

University Policies

By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to

<http://www.marshall.edu/academic-affairs/policies/>

Academic Dishonesty, Excused Absence Policy for Undergraduates, Computing Services Acceptable Use, Inclement Weather, Dead Week, Students with Disabilities, Academic Forgiveness, Academic Probation and Suspension, Academic Rights and Responsibilities of Students, Affirmative Action, and Sexual Harassment.