

# Mathematical Modeling – Spring 2012

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## Instructor

**Dr. Ben Galluzzo**

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## Meeting Times

**Class:** meets in **MCT 263** from **2<sup>00</sup>-3<sup>15</sup>** on **TR**

**Office Hours:** M: 1-2, MWF: 10<sup>55</sup>-11<sup>55</sup>, W: 8<sup>55</sup>-9<sup>55</sup>; and by appointment.

## Purpose of Course

MAT 326 explores how mathematics is used to interpret and solve real-world problems. In particular, we will use a variety of mathematical techniques to develop, implement and analyze models that describe a wide range of real-world phenomena.

## Materials

**Text:** *Mathematical Modeling with Microsoft Excel*, Neuwirth and Arganbright, ISBN-10: 0-534-42085-0

**Technology:** We will use computers almost every day. Microsoft Excel will be our primary modeling software for in-class demonstrations and work; however, you are welcome to use any software that you are comfortable with. Similarly, take-home projects and presentations should be prepared using word processing software (e.g. Microsoft Word) of your choice.

## Grading

The following activities will be used to determine your overall course grade (specific percentages as listed):

Daily class participation	15%
Math culture activities	15%
Class projects	50%
Final project	20%
<b>Total</b>	<b>100%</b>

A final letter grade will be determined using the following “+/-”grading system:

Grade	A	A-	B+	B	B-	C+	C	D	F
Percent	93-100	90-92	87-89	83-86	80-82	77-79	70-76	60-69	< 60

## Daily class participation

Most days, there will be problems for the class to work on after we set up our basic model. Working through these problems will help you understand the model better and explore its potential for additions and improvements. Much of the class time will be spent working on these problems. At the end of many classes you will submit a copy of your model (or appropriate work as defined in class) to the [d2i](#) drop box. If you miss class, you can still receive full credit for the class work if you complete all the problems and submit a copy of your model (via d2i) by midnight the day it is due. An assignment that is turned in late is eligible to receive partial credit.

## Math culture points

You are able to earn up to 10 math culture points throughout the semester. Below is a list of approved activities and their associated math culture value. Please be aware that this list is not complete; if you have suggestions for additional activities, let me know (and they may count).

Activity	Date(s)	Information	M.C. Value
SU Math Seminar	Thursdays at 3:30	<a href="#">SU Math</a>	1 point (+1 for write-up, max 2 write-ups)
Attend off-campus math talk	ongoing	Other math department websites	2 points (+1 for write-up)
Attend Math Conference	ongoing	<a href="#">SU Math</a>	3 points (+1 for write-up)
Present at a conference	ongoing	<a href="#">SU Math</a>	TBD (up to 6 points)
Volunteer at math event	ongoing	<a href="#">SU Math</a>	TBD based on time
COMAP Mathematical Contest in Modeling	2/9 – 2/13	<a href="#">COMAP</a> math modeling contest	8 points (+2 associated activities)

**Example Activities:** Student Conference at Moravian College (2/19), Math/Computer Day at Ship (3/20), Ship Celebration of Student Research (4/19), MAA EPaDel Conference at Ship (4/21)

## Projects

“In – class” projects are like exams, in that they are scheduled in class and you will have to work without collaboration. However, you will be allowed your book, your notes and of course a computer with Excel. Anything else accessible on the computer is also allowed, such as models from earlier classes and internet references. In-class projects are tentatively scheduled for 2/21 and 4/17. If you miss an in class project because of sudden, unexpected reasons, inform me within 24 hours (email or voice mail). You must also provide written documentation (ie. doctor note, note from parents, etc.). If an in class project is missed without proper documentation, you will receive a score of zero for that project.

“Take – home” projects allow for collaboration with (up to three) fellow classmates; so long as all team members are listed when the final solution is turned in. Late take-home projects will be penalized at 10% per calendar day up to 50% (email them to me as soon as possible).

## Field Trip!

Our class will be traveling to the [Marine Science Consortium](#) (MSC) located in Wallops Island, Virginia from March 2<sup>nd</sup> – 4<sup>th</sup> to collect data, conduct research, and have fun! Information collected at Wallops will be used as the basis for a required “Take-home” project. While this activity is part of our class, it takes place outside of standard classroom hours and has an associated cost (estimated to be \$82 for room, board and transportation per student); as such students who are not able to attend will be provided with an alternative assignment.

## Special Accommodations

If you are a student who has been identified by the Office of Social Equity as requiring special arrangements for test-taking or note-taking, you will be accommodated. Please contact me privately so that we may make these arrangements.

## Expectations

- Attend class every day, and arrive on time.
- When in class, give your full attention to the assigned project.
- Participate in class; ask and answer questions.
- Let me know if you need help.
- Practice academic integrity consistent with Shippensburg University’s academic honesty policy.

***I reserve all rights to make changes (at any time) to this course, even if contrary to the syllabus.***