



GOSHEN COLLEGE
MATHEMATICS DEPARTMENT
MATH 360 BIOMATHEMATICS - FALL 2011

Instructors	David Housman, SC 117, dhousman@goshen.edu, 535-7405, 875-0339 (home) Office hours posted on office door and at www.goshen.edu/~dhousman Jody Saylor, SC 217, jdsaylor@goshen.edu, 535-7306, 537-8388 (home) Office hours posted on office door
Class Time	MWF 12:00-12:50 a.m. in AD 21.
Textbooks	<i>An Invitation to Biomathematics</i> , by Raina Stefanova Robeva, James R. Kirkwood, Robin Lee Davies, Leon Farhy, Boris P. Kovatchev, Martin Straume & Michael L. Johnson, Academic Press, 2008, ISBN: 978-0-12-088771-2. <i>Laboratory Manual of Biomathematics</i> , by Raina Stefanova Robeva & James R. Kirkwood, Academic Press, 2008, ISBN: 978-0-12-374022-9.
On-line	M:\Classes\MATH360\ for some class notes. https://moodle.goshen.edu for grades and some resources.
Technology	Mathematica, MINITAB, and Excel are available on all campus computers. A fully functional version (with some limitations on saving and printing) of Berkeley Madonna can be downloaded from www.berkeleymadonna.com .
Prerequisites	One semester of calculus, one semester of biology, and a basic understanding of statistics. If you do not have this prerequisite, discuss your situation with the instructors.
Description	Mathematical models for understanding biological phenomena such as population growth, drug dosage, epidemics, genetics, and cardiac function. Skills developed include the ability to analyze an unfamiliar problem, determine the type of data needed, select the appropriate mathematical tools to be applied, and evaluate the results.
Grading	Grades will depend upon your performance on assignments (50%), a research project (40%), and class participation (10%). Semester averages will be translated into letter grades in the following manner: 93% to A, 90% to A-, 87% to B+, 83% to B, 80% to B-, 77% to C+, 73% to C, 70% to C-, 67% to D+, 60% to D, and lower to F.
Assignments	Exercises will be assigned during almost every class and will typically be due before the start of the next class (some assignments may have a longer completion time). They should help you synthesize and apply the concepts and techniques introduced in class and the text. Late submission and resubmissions are permitted with a 30% penalty.
Research Project	Groups of one to three students will complete a research project that includes a biological context, review of the relevant literature, data, a mathematical model, analysis of the model fit, and suggestions for future work. An A-level project must be more sophisticated than the core course content in one or more of these areas. The final product will be a paper and a presentation.
Class Participation	Because of the collaborative nature of biomathematics, which will be reflected in this course, it is essential that each person be present for each class meeting. If you must be absent for

any reason, please notify the instructors. You should read assigned material and attempt assigned exercises and labs before class so that you will be fully prepared to engage in discussions, participate in activities, and ask meaningful questions during class time.

**Academic
Resource &
Writing
Center
and
Disabilities**

Goshen College wants to help all students be as academically successful as possible. If you have a disability and require accommodations, please contact Lois Martin, the Director of the Academic Resource & Writing Center early in the semester. In order to receive accommodations, documentation concerning your disability must be on file with the Academic Resource & Writing Center, Good Library 113, x7576, lmartin@goshen.edu. All information will be held in the strictest confidence. The Academic Resource & Writing Center offers tutoring and writing assistance for all students. For further information please see <http://www.goshen.edu/studentlife/asc.php>.

**Collaboration
and
Academic
Integrity**

You are encouraged to use all available resources in order to learn the concepts and techniques discussed in this course. In particular, conversations with other students and the instructors can be an effective learning method. Reading other books and web pages can be another effective learning method. However, copying someone else's work subverts the learning process.

For assignments, you may look at and discuss another student's work, but any written work developed during collaboration with another student (who is not part of the team for a team submission) should be destroyed before writing your own solutions. You should give written acknowledgement to people with whom you have had discussions and to any written materials (other than the text) that were helpful.

Failure to observe the above rules will result in a zero on the assignment. Any violation of academic integrity will be reported to the Academic Dean, who may assign additional penalties.

Observation of the above rules will help you learn the material well and give you the satisfaction of knowing that you have earned your grade.

**Tentative
Schedule**

We will cover chapters 1-4 and laboratories 1-7 before fall break (October 14). After break, we will cover some subset of the remaining chapters and laboratories depending upon student and instructor preferences and student choices of project topics. Project presentations will occur during the final exam period.