



Calculus I for the Life Sciences

MA 137: 001-004
Spring Semester 2012

Classroom: 114 Whitehall Classroom Building
Time: MWF 11:00-11:50 PM
Professor: Dr. David Royster
Office: Patterson Office Tower 759
Office Hours: MWF 12:30-1:20 PM or by appointment
Office Phone: 859-257-1258
email: david.royster@uky.edu
URL: <http://www.msc.uky.edu/droyster>

Class Homepage: <http://elearning.uky.edu> (Blackboard)

Text: *Calculus for Biology and Medicine, 3ed*, Claudia Neuhauser, Prentice Hall, ISBN: 978-0-321-64468-8.

Prerequisites: MA 110, MA 112 or consent of department

Time and Place of Recitations:

Our class consists of four sections for recitations.

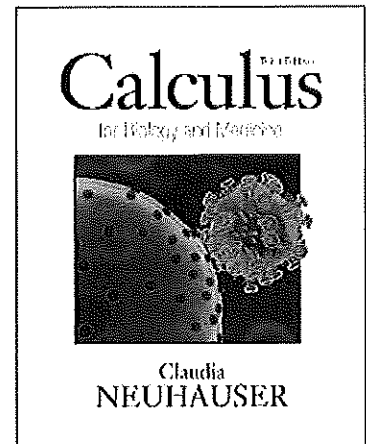
Section 001: TTh 12:30 - 1:20 PM in CP 397. The teaching assistant is John Mosley (john.mosley@uky.edu)

Section 002: TTh 2:00 - 2:50 PM in CB 208. The teaching assistant is John Mosley (john.mosley@uky.edu)

Section 003: TTh 2:00 - 2:50 PM in CP 208. The teaching assistant is Chris Mattingly (chris.mattingly@uky.edu)

Section 004: TTh 3:30 - 4:20 PM in POT 05. The teaching assistant is Chris Mattingly (chris.mattingly@uky.edu)

Objective: Study of the basics of calculus with applications to Biology and Life Sciences. We will learn about derivatives, integrals and the fundamental theorems of calculus. We begin by introducing the notion of a limit. Limits are essential building blocks for defining derivatives and integrals. By the end of the semester you should know precise definitions of the derivative and the integral and the fundamental theorem of calculus, which gives the relation between the derivative and the integral. We will illustrate the methods and ideas of calculus by studying several problems from biology. We will study the interpretation of the derivative as a rate of change, and model growth and declines of populations.



Tests: We will have homework, three tests, a project and a final. The schedule of tests, homework and the final exam (Thursday, May 3, 600-800 PM) is available on BlackBoard.

Grades: You will be able to obtain a maximum of 500 points in this class, divided as follows:

Three 2-hour exams @ 100 points each	300 points
Final exam @ 100 points	100 points
Homework, Quizzes, Attendance	100 points
Total	500 points

The 100 points for homework, quizzes and attendance are computed based on the following components:

Homework and HW Quizzes:	100 points
Recitation Attendance:	50 points
Attendance in Lecture:	50 points
Total divided by 2:	100 points

Your grade will be based on the number of points you earned according to the following scheme:

Total Points	450-500	400-449	350-399	300-349	0-299
Final Grade	A	B	C	D	E

Final Project: You will also be required to submit a final project by the end of the semester. Your project paper will be worth at most 20 points. These points will be added to the raw scores (homework, quizzes, midterms and final grades) that will determine your final letter grade.

Purpose: The purpose of this course is twofold. First, in this course you are introduced, or re-introduced, to the method of *Mathematical Proof*. We will be given a certain set of *AXIOMS* and *UNDEFINED TERMS*. The purpose here is for you to learn how to prove theorems, facts, lemmas, *etc.* in a **formal mathematical system**. This is a system in which all of the axioms and undefined terms are stated at the beginning, and not introduced when people feel that they may be needed. This is an easier way in which to learn how to prove theorems than some other areas offer. In doing this, we will develop as much Geometry as we possibly can.

Class Policies: There are several policies to which you must pay heed.

- i) **Attendance:** Attendance in MA137 is mandatory. Students who have university excused absences or who have university-scheduled class conflicts with uniform



examinations may arrange with their instructor to take the exam at an alternate time. Generally these make-up exams will be scheduled on the day after the regularly scheduled exam. The time and room will be announced later. Work-related conflicts are neither university excused absences nor university-scheduled absences.

- ii) **Academic Honesty:** Cheating or plagiarism is a serious offense and will not be tolerated. It will be thoroughly investigated, and might lead to failure in the course or even to expulsion from the university. See <http://www.uky.edu/StudentAffairs/Code/part2.html> (Sections 6.3.1 and 6.3.2) for information on cheating, plagiarism, and penalties. A summary of recent changes to rules on cheating can be found at the Academic Ombudsman's website: <http://www.uky.edu/ombud>.
- iii) You have a day-by-day course syllabus and homework and test schedule on BlackBoard. You NOW KNOW when we have class and when we do not have class. I expect you to be here on all days that we have class.
- iv) We will not accept late homework. You must discuss any tardiness with your TA.
- v) Be on time to class and remain until dismissed. Do not leave in the middle of class.

Inclement Weather Policy: The University of Kentucky Severe Weather Policy can be found at http://www.uky.edu/PR/News/severe_weather.htm. The UK Infoline at (859) 257-5684, UK TV Cable Channel 16 and 19, or the UK Web site at www.uky.edu are the best places to find the most up-to-date situation. In the event that we have *inclement weather*¹ but the University does not close or cancel classes, and I have to cancel the class, a message to that effect will be left on my voicemail (859-257-1258) and I will email every member of the class (if I have access to email).

If you feel that travel during *inclement weather* would be hazardous, then try to inform me as soon as safely possible. You will be given the opportunity to make up any work missed or due on that day. As always, each student is responsible for any work missed and will be expected to get the notes from another student or from the web.

Departmental Calculator Policy: You may use calculators on the homework and exams. You may not use any machine (carbon-based life form or silicon-based) that has symbolic manipulation capabilities of any sort on any exam. This precludes the use of TI-89, TI-Nspire CAS, HP 48, TI 92, Voyage 200, Casio Classpad or laptop computer. Also, you may not use your cell phone, iPhone, or Blackberry on any exam – even if you forget your regular calculator. If it runs Windows, UNIX, Linux, Ubuntu, MacOS, PalmOS, or any derivatives or associates thereof, you cannot use it on the exams.

¹ Snow, ice storm, high and dangerous winds – not heavy frost.