MA 137: Calculus I for the Life Sciences
Sections 001–008 — Fall 2014

Classroom: 118 White Hall Classroom Building

Time: MWF 3:00–3:50 PM

Professor: Dr. David Royster

Office: Patterson Office Tower 759

Office Hours: MWF 1:00 PM – 2:30 PM or by appointment. Often it is best to check with me and we can find a convenient time quickly.

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*

Required software: *LectureTools*, graphing program (such as *WinPlot*, *Grapher*, *Maple*, *Mathematica* or graphing calculator), computer with an up-to-date browser for *Blackboard*.

LectureTools: see separate note

Prerequisites: MA 110, MA 112 or consent of department

Section 001: TTh 9:30 – 10:20 AM CB 335. The teaching assistant is Liam Solus (liam.solus@uky.edu)

Section 002: TTh 9:30 – 10:20 AM CB 335. The teaching assistant is Wesley Hough (wesley.hough@uky.edu)
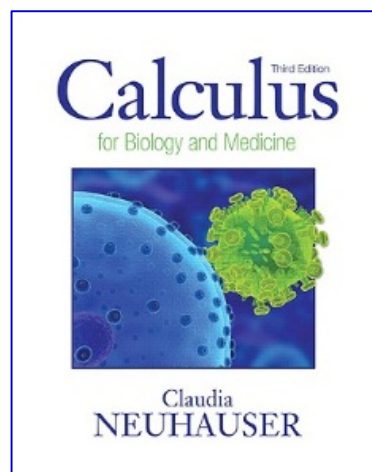
Section 003: TTh 11:00 – 11:50 AM CB 339. The teaching assistant is Liam Solus (liam.solus@uky.edu)

Section 004: TTh 12:30 – 1:20 PM FPAT 265. The teaching assistant is Wesley Hough (wesley.hough@uky.edu)

Section 005: TTh 12:30 – 1:20 PM CB 339. The teaching assistant is Marie Meyer (marie.meyer@uky.edu)

Section 006: TTh 2:00 – 2:50 PM BEB 206. The teaching assistant is Marie Meyer (marie.meyer@uky.edu)

 Section 007: TTh 2:00 – 2:50 PM BLH 263. The teaching assistant is Florian Kohl (florian.kohl@uky.edu)

Section 008: TTh 3:30 – 4:20 PM CB 339. The teaching assistant is Florian Kohl (florian.kohl@uky.edu)

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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.

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Tests: We will have homework, three tests, and a final. The schedule of tests, homework and the final exam is available on BlackBoard.

Exam 1: Tuesday, September 23, 5:00 – 7:00 pm, Worsham Theater
Exam 2: Tuesday, October 21, 5:00 – 7:00 pm, Worsham Theater
Exam 3: Tuesday, November 18, 5:00 – 7:00 pm, Worsham Theater
Final exam: Wednesday, Dec 17, 6:00 – 8:00 pm, Chemistry-Physic Building

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, Class Attendance, Recitation Attendance	100 points
Total	500 points

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

Homework:	100 points
Final Project	100 points
Recitation Attendance:	50 points
Attendance in Lecture:	50 points
Total divided by 3:	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 also will be required to submit a final project by the end of the semester. Project suggestions will be released by October 1, 2014.

Mid-term Grades: Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (http://www.uky.edu/Registrar/AcademicCalendar.htm)

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Web-based Homework:
The bulk of the homework will be completed using the **web-based homework** system, **WeBWorK**, that grades your solutions and records your scores. You find it at https://courses1.webwork.maa.org/webwork2/uky-ma137/ (see below for administrative details on using this website). Each homework set comes as a personal version. When entering answers to the personal version the system will tell you whether your answer is correct or not and will, in the case there are multiple

components of the answer, indicate the first part of the answer that is incorrect. **Only correct solutions to your personal version of the homework assignment give you credit!** Notice that for each web-based homework problem **you may resubmit your answer up until 0400 (AM) of the due date!**

The homework is graded by problem. You do not have to resubmit the entire set each time you work a problem.

You can, at any time, find your current score WeBWorK by clicking Grades in the Main Menu on the left of most pages.

There is a button, Preview Answers, on each problem page which will allow you to see your answer before you submit it. There is also a button, Check Answers, for with which you can check your answers. You will find a button, Email instructor, that causes an email to be sent to your TA and your instructor which mainly serves to tell them that you have a question.

Keep in mind then it is not cheating to give or receive help on web homework.
a) Start to work on an assignment as soon as the corresponding material is discussed in class.
b) Print out copies of your personal version (it is free in the Mathskeller, the student staff will show you how to do so) and put them in a notebook.
c) Get together with classmates to work on the problems via the printouts. Write down the solutions in your notebook and only thereafter enter your solutions on the webpage. Check your answers by entering them into the system, and, if necessary, rework the problem.
d) Work on the problems of your personal version and remember: only correct solutions to your personal version will earn you credit.
e) Bring the notebook with you when you go to office hours.
f) You are encouraged to discuss homework problems and the course material with each other. However, when it comes time for you to write up or enter the solutions, you are expected to do this completely on your own. It would be the best for your understanding if you put aside your notes from the discussions with your classmates and wrote up the solutions entirely from scratch.
g) If necessary, you may take your version of the homework set with you to recitation and seek help.
h) If you feel you have worked a problem correctly and WeBWorK marks it incorrect, please contact your teaching assistant or professor by e-mail.

3. **Late Homework:**
No late submissions of web homework will be accepted. If an emergency or illness takes you away from school, please discuss your situation with your professor and

ask to be excused from an assignment, if appropriate. If you have a scheduled absence (travel or authorized university absence) you must still submit the web homework by the deadline. Please understand that the computer is a harsh taskmaster. When it says it is midnight, it is midnight.

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Using the web homework system WeBWorK:

Please refer to the document *Introduction to WeBWorK for Students* for full instructions. In order to access WeBWorK do the following steps (Students who registered near the beginning of the semester should wait 24 hours after they registered for MA 113):

- Use a web browser Internet Explorer, Firefox, Chrome, Safari or other browser.
- Go to https://courses1.webwork.maa.org/webwork2/uky-ma137/
- Log in using your campus active directory account login (LinkBlue) id. Your initial password is the same your UKID# without the leading 9.
- Follow the instructions in the *Introduction to WeBWorK* to reset your password.

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Excused Absences: Students need to notify the professor of absences prior to class when possible. **Senate Rule** 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Verification of Absences: Students may be asked to verify their absences in order for them to be considered excused. *Senate Rule 5.2.4.2* states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

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Calculators and Laptop Computers:

You may use a graphing calculator on exams and homework. The use of machines with symbolic manipulation capabilities is not allowed during examinations. 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. Check with me if you have any questions as to whether a particular machine may be used on a test. Computers (including laptops, notebooks, iPads, *etc*.) may be used and required during lectures.

Accommodations due to disability: If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, Susan Fogg, Disability Accommodations Consultant, mfogg00@email.uky.edu, (859) 257-2754) for coordination of campus disability services available to students with disabilities.

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

i) **Attendance**: Attendance in MA114 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. 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) 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* 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.