Calculus for the Life Sciences II
MATH 123
Sections 01 & 02
Loyola Marymount University
Fall 2007

Many people who have never had occasion to learn what mathematics is
confuse it with arithmetic and consider it a dry and arid science. In actual fact it is
the science which demands the utmost imagination.
--Sofya Kovalevskaya, 1890

By registering for this course, you are agreeing to the terms and policies expressed
in this syllabus.

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Office Hours: Mondays 4 – 6 pm; Wednesdays 12:30 – 2 pm; Thursdays 3:30 – 5 pm.
Additional times arranged by appointment.

Meeting times and places:
Section 01:  MWF 9 – 9:50 am  Pereira Hall 208
Section 02:  MWF 10 – 10:50 am  Pereira Hall 208


Prerequisites: Mathematics 122 or the equivalent. Students who received a letter grade
of D in Math 122 are strongly encouraged to retake it before taking Math 123.

Important Dates:
September 3: No Class (Labor Day)
September 28: Midterm Examination I
October 12: Midterm Deficiency Reports Due
October 22: No Class (Fall Break)
November 2: Midterm Examination II
November 2: Last day to withdraw or apply for
           Credit/NoCredit
November 23: No Class (Thanksgiving Break)
December 12: Final Examination Section 01
December 14*: Final Examination Section 02

*If the entire class agrees, we will move this final examination to another date.
Course Format: This course will not consist of the typical 50 minute lecture. On a daily basis, you will be participating in the lecture and in-class group and individual work. You will be asked to present your work at the board to your classmates. Typically, we will not have time to discuss homework problems during class. This course will move extremely quickly. We will need to cover approximately one section during each class meeting. Therefore, it is imperative that you read your textbook, as we will not be able to spend time during class on all of the material in a given section.

Course Description and Goals:
Calculus was discovered by Newton and Leibniz and is one of the greatest accomplishments of the 17th century. Calculus is typically split into two topics: differential and integral. This course consists of an introduction to integral calculus of functions of one variable, applications of integration, an introduction to differential equations, and an introduction to differential calculus of functions of several variables. We will cover various sections of chapters 6 – 11 in the textbook, which include topics such as the Fundamental Theorem of Calculus, integration techniques, Taylor approximations, differential equations, functions of several variables, partial derivatives, and systems of differential equations.

Our course goals include:

- Acquiring facility with various techniques of integration
- Learning to solve applied problems using integration
- Understanding the concepts and techniques of calculus used in constructing and analyzing mathematical models of the real world, including: differential equations and their solutions; optimization; and higher-order approximations

Most importantly, this course seeks to:

- Improve your ability to think logically, analytically and abstractly
- Improve your ability to read, communicate (both orally and in writing), and understand the language of mathematics
- Better acquaint you with the methods of mathematics, as they are actually spoken and practiced by professionals in a wide variety of fields.

Assignments: Mathematics is not a spectator sport: in order to fully understand the material you need to take time to practice with the ideas, think about the concepts, and work through numerous examples and problems. Working problems on your own is the best way to learn and improve your mathematical skills. I encourage you to discuss the homework with me and your classmates, work together on your assignments, and check your solutions, but I expect that you hand in your own work: meaning that you write up your solutions independently and in your own handwriting. Please note that representing another person’s work, including the work of an author of a solutions manual, as your own constitutes a breach of academic integrity.
Homework will be assigned and collected every other class meeting. Homework is due at the beginning of class. Please write your assignments legibly and staple your pages. Write your name on each assignment. Late homework, which means anytime after the lecture begins, will not be accepted under any circumstances. Therefore, if you are late to class, or ill and unable to do the assignment, you will receive no credit for your homework. Calculators and computers may be used on assignments.

Each assignment will consist of 15 – 30 problems. A student grader will score selected exercises from each assignment according to the following four-point scale:

- **4** An entirely correct solution.
- **3.5** A solution containing a minor computational error (e.g. \(2(3) = 5\)) but otherwise correct.
- **3** A solution showing strong evidence of conceptual understanding, but perhaps containing several minor computational errors.
- **2** A solution revealing a lack of conceptual understanding or containing a serious computational error (e.g. \(\sin 0 = 1\) or \((x+y)^2 = x^2 + y^2\)).
- **1** An attempt at a solution that reveals little evidence of conceptual understanding.
- **0** No reasonable attempt made to solve the problem.

You will not know ahead of time which problems will be graded, so you should give your best effort on all of them!

In addition to each homework assignment, I will provide you with a list of suggested problems for each section. If you feel that you need extra practice with the concepts and calculations, you should attempt these problems (all of which will be odd) and compare your solutions with your classmates and the solutions given in the back of your textbook. You should also feel free to ask me to review your solutions and provide you with comments. If you are having difficulty with any topic, please see me for help as soon as possible.

*Your three lowest homework scores will be dropped when computing your final grade.*

**Reading Assignments:** In addition to the traditional homework assignments, you will be assigned reading assignments that will be due prior to the next class meeting. You will be asked to answer questions on the assigned reading which will cover the material for the next day’s class meeting. This will allow us to reduce the amount of lecture time and free up time for questions and practice solving problems. You will submit these problems via e-mail by 5 pm on indicated days.

*Your three lowest reading assignment scores will be dropped when computing your final grade.*
Examinations: The final examination for Section 01 occurs on **Wednesday, December 12, 2007 from 8 - 10 am in Pereira Hall 208.** The final examination for Section 02 occurs on **Friday, December 14, 2007 from 8 – 10 am in Pereira Hall 208.** The final exam will be comprehensive. *You must receive a passing grade on the final examination to guarantee that you pass this class.* There will be two in-class midterm examinations during the semester in addition to the final examination. The midterms will take place on: Friday, September 28, and Friday, November 2. You may not use books, notes or calculators during these examinations. I will arrange a make-up examination only in a verified extraordinary circumstance. In this case, please see me as soon as possible.

*Please contact me during the first week of the semester if you have a conflict with any of these dates!*

Expectations: The author of your textbook and your professor believe that you can think! Therefore, there will not be a worked example in the text or in class that resembles every homework or exam problem. You should expect to spend approximately two hours outside of class for each hour in class on this course. I expect that you attend class, take careful notes, read your textbook, review your class notes, attempt every homework problem, and that you come see me if you run into any difficulties!

Additional Resources: In addition to your classmates and instructor, you can obtain mathematical assistance in the evening help sessions. These sessions are located in University Hall 2727 and take place Monday – Thursday evenings from 7 – 9 pm. Furthermore, the Learning Resource Center (Daum Hall 2nd Floor, x82847) offers individual tutoring for this class.

Students with Disabilities: If you have a disability for which you are or may be requesting an accommodation, please contact me during the first week of the semester. In addition, you should visit the Disability Support Services Office in the Learning Resource Center located in Daum Hall.

Grading Policy: Your final course grade will be computed as follows:

- Assignments: 10%
- Reading Assignments: 5%
- Classroom Participation (including attendance): 5%
- Midterm Examinations: 50% (25% each)
- Final Examination: 30%

I guarantee at least an A- to students scoring 90% or higher, at least a B- to students scoring 80% or higher, at least a C- to students scoring 70% or higher, and at least a D to students scoring 60% or higher. I reserve the right to raise grades higher than this scale dictates, based on considerations such as homework performance, class participation, attendance, and improvement over the semester.
I will not discuss grading issues via e-mail. If you have questions or concerns regarding your grade, please visit my office hours or arrange a time to meet with me.

Academic Integrity: Students are expected to abide by the Loyola Marymount University Honor Code as stated in the current Undergraduate Student Bulletin. Please familiarize yourself with the University’s policy regarding academic dishonesty, which can be found on pages 58 – 60 of the 2007 – 2008 Bulletin. Please note that representing another person’s work, including a classmate, the work of an author of a solutions manual, or information from a website, as your own constitutes a breach of academic integrity. If the instructor concludes that a student has violated the standards for academic integrity established by the University for this course, then she may impose penalties as she deems appropriate to the offense (which can range from receiving no credit for the work in question to expulsion) and shall report the violation to the appropriate parties.

Advice from former students: On previous course evaluations, I have asked students to answer the question: What advice would you give a student to help them succeed in one of my courses? Here are some of their responses:

- I would tell them to do more practice problems.
- The advice I would give is: attend class everyday, ask questions, and always do the homework.
- I’d only advise that they go to class everyday and do the homework.
- Keep up with homework and study throughout the course.
- I would tell them not to slack off on homework and be in class.

Important Note: If necessary, this syllabus and its contents are subject to revision and YOU are responsible for any changes or modifications announced in class.

Special Requests:

- Please do not put your SSN on anything you give me!
- The use of cellular phones, MP3 players, and other electronic equipment is strictly forbidden during class. The distractions they cause disrupt class. Cell phones must be turned OFF (not left on vibrate) and ear pieces must be removed prior to entering our classroom. If your cell phone rings, if you are seen typing a text message, or if you are seen pushing buttons on an iPod, cell phone, etc., you will be asked to leave the classroom immediately and will receive a zero for any work that was to be done in class that day.
- As an LMU Lion, by the Lion’s Code, you are pledged to join the discourse of the academy with honesty of voice and integrity of scholarship and to show respect for staff, professors, and one another.