MA351.01 Spring 20: Calculus III Syllabus

12:00 MWF, Sellinger Hall 221

10:50-12:05 Tues, Knott Hall 007

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Class webpage: math.loyola.edu/~loberbro/ma351/index.html

Piazza: Piazza site

Moodle: moodle.loyola.edu

Office Hours: 9-10, 11-12 MWF. Also by appointment (see my schedule)


I reserve the right to make changes to the syllabus at any time during the term by announcing them in class and on the webpage. You are responsible for knowing not only what is discussed/announced in class but also what is posted on Piazza website.

Prerequisites

Grade of C- or better in MA252 (Calculus II).

Course Description

A continuation of MA252 into multivariable calculus. Topics include vectors, lines, planes, and surfaces in three dimensions; vector functions and their derivatives and integrals; partial derivatives, gradients, directional derivatives, maxima, minima, Lagrange multipliers; multiple integrals, area, volume, surface area, integration in different coordinate systems. Line integrals, Green's theorem, Stokes' theorem and the divergence theorem are also studied if time allows.

Learning Goals

On completion of this course, students should be able to:

- find partial derivatives,
- find maxima/minima of functions of two variables,
- evaluate and apply double and triple integrals, and
- find the equation of a tangent plane.

In addition, this course follows the broader University Learning Aims and the Natural and Applied Sciences Learning Aims.

Text

Required: *Multivariable Calculus*, 8th Edition by James Stewart. The student solutions manual is not required but you may find it useful. We will cover most of Chapters 12-16. The custom text is loose-leaf and only has chapters 12-16.

Calculators

A graphing calculator is not required but may be useful FOR HOMEWORK. You need nothing fancier than a TI-83 or its equivalent. DESMOS.COM is just as useful for homework. There are also decent web-based 3D graphers. MATLAB can be useful for both calculations and graphing. **YOU MAY NOT USE GRAPHING CALCULATORS ON QUIZZES OR EXAMS.**

Grading

Based on:		**Basic Scale:**		
WeBWorK	15%	A	90-100%	I give +/- grades, the cutoffs being at the 7's and 3's, respectively. Thus 80-82.9 = B-, 83-86.9 = B, 87-89.9 = B+.
MATLAB	15%	B	80-89%	
2 Exams*	20% and 23%	C	70-79%	
		D	60-69%	
*The higher of the two exams counts 23%		F	0-59%	
Final Exam	27%			

Homework (WeBWorK)

This course will emphasize problem solving and some applications of mathematics. Homework problems will be assigned from each section that we cover and posted on the homework webpage. Also, you will be asked to do homework on the computer through WeBWorK. *The WeBWorK counts towards your grade. Even though I will not be collecting the homework assigned from the book, it is important for you to be able to do all of the problems and understand the concepts behind them.*

MATLAB

There will be MATLAB assignments throughout the term that will involve writing and/or the use of the computer using MATLAB. Although some of you may have used MATLAB before, **NO PRIOR KNOWLEDGE OF MATLAB IS NEEDED.** Many of the assignments will expose you to plotting in 3D to help develop visualization of 3D curves and surfaces and the multivariable calculus we are learning.

Exams

There will be 2 in-class exams during the term. They are tentatively scheduled on Tuesday, February 18 and Tuesday, March 24. Other information about the exams will be announced in class as each exam approaches.

Final Exam

The final exam is cumulative and is on **Saturday, May 2 at 1 PM.**

Extra Credit:

Do not count on extra credit in this course to boost your grade. I make it a policy to not give extra credit on an individual basis so do not ask for it, especially at the end of the semester.

Honor Code

All students of the University are expected to understand the meaning of the Loyola University Honor Code. Ignorance of the Code is not a valid reason for committing an act of academic dishonesty. The following constitute violations of the Code and are defined in the Community Standards Handbook: cheating, stealing, lying, forgery, plagiarism and the failure to report a violation.

As it pertains to this course: I expect and encourage you to work with others on homework **(by collaborating, not copying!)**. However, you must write and understand the work that you turn in and you may not share written or typed solutions before they are turned in. I will ask you to sign a pledge on exams but not on all assignments although I will expect the same honesty on all of them. Any questions or concerns should be directed immediately to me.

Classroom Etiquette:

When you come to class, I expect you to not only be in attendance physically but also mentally. That means no cell phones, no leaving class during lecture, no extraneous chatter, etc. If you know you must leave class, sit by the door to minimize the disruption. If cell phones and texting become a problem, I will confiscate the phone.

The goals of this course are best accomplished when in a setting of mutual respect. The study of mathematics does not usually lead to much controversy. That being said, we must all work to provide a safe environment that is conducive to learning. All are welcomed and encouraged to

actively participate in the learning of analysis, regardless of gender, race, nationality, native language, sexual orientation, gender identity, political ideology, and especially personal mathematical history. Any student who feels she or he is experiencing a hostile environment should speak to me immediately.

Student Athletes:

If you are a student athlete, please provide me with your travel and game schedule indicating when you will need to miss class to participate in athletic events. While travel for athletics is an excused absence, you will need to make up any missed work. Absences only on the travel letter will be accommodated.

Students Needing Accommodations:

If you are registered with the Disability Support Services Office (DSS) and wish to discuss academic accommodations, please contact me as soon as possible. If you have an accommodation that has not been documented, you may contact the Disability Support Services Office (410-617-2602) for assistance.

Reporting Misconduct and Title IX

Loyola University Maryland is committed to a learning and working environment free from sexual and gender-based misconduct, including sexual harassment, sexual verbal abuse, sexual assault, domestic violence, dating violence, stalking, and sexual exploitation. Reports of such offenses are taken seriously, and Loyola encourages students experiencing sexual misconduct to report the incident in accordance with the University's policy on Reporting Misconduct (PDF) (pages 36-37). Loyola is also committed to an environment free of other forms of harassment and discrimination. For information about policies and reporting resources, please visit harassment and discrimination policy (PDF).

Food and Housing issues

Any student who has difficulty securing their food or housing is urged to contact Christina Spearman, the Dean of Students, at cjspearman1@loyola.edu or 410-617-5171. Loyola may have resources available to help.

GENERAL SUGGESTIONS:

- This course will test your study and time management skills. The **homework/WeBWorK exercises WILL be time consuming** until you get the hang of them, so DO NOT put off the homework until the night before they are due. I cannot and will not give extensions on these due dates.
- Don't use the fact that I don't collect the book homework to not do them. You will need to know that material for the exams and later material!
- Participate in class, ASK QUESTIONS, **stop by my office**. If you get behind or stuck, see me or work with other students RIGHT AWAY.
- This course will be much more enjoyable if you form a study group with others in the class. You may work together on homework but everyone must join in and work.
- READ THE BOOK. Lectures will be much more understandable. It will be important to READ the book, not just look at the highlighted boxes because I will not be able to cover all of the details or show nearly enough examples in class.
- If you think you'll need extra help, get it as soon as possible. Do not wait until right before an exam! There are tutoring services available -- many are FREE.