

	Point Loma Nazarene University Mathematical, Information and Computer Sciences Department MTH 2074: Calculus III 4.0 Units; pre-requisite MTH 1074 or equivalent
	Fall 2023 MWF 8:30-9:35

Meetings: Monday, Wednesday & Friday: 8:30-9:35 am	Instructor: Dr. Catherine Crockett
Location: RS 365	Phone: 619.849.2723
Exam dates: 9/22, 10/18, 11/15	Email: catherinecrockett@pointloma.edu
Final Exam: 12/13, 7:30-10:00 am	Office Hours: MTWTF: 11-12, Tue & Thurs 1-3 or by appointment.
More course information in Canvas	Office: RS 222

PLNU Mission

To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

Department Mission

The Mathematical, Information, and Computer Sciences department at Point Loma Nazarene University is committed to maintaining a curriculum that provides its students with the tools to be productive, the passion to continue learning, and Christian perspectives to provide a basis for making sound value judgments.

COURSE DESCRIPTION

Conceptual development of the calculus of functions of more than one variable supported by the use of a symbolic computer algebra system. Limits and continuity, partial derivatives, chain rule, extreme values, Taylor's theorem, multiple integrals, line and surface integrals, Green's Theorem and Stokes' Theorem.

COURSE LEARNING OUTCOMES -

- Students will be able to demonstrate facility with analytical concepts.
- Students will be able to demonstrate facility with algebraic structures.
- Students will be able to apply their mathematical knowledge to solve problems.
- Students will be able to use technology to solve problems.
- Students will be able to speak about their work with precision, clarity and organization.
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- Students will collaborate effectively in teams.
- Students will be able to identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand.
- Students will be able to understand and create arguments supported by quantitative evidence, and they can clearly communicate those arguments in a variety of formats.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

- **Text: Calculus, by James Stewart, 9th ed. or Calculus: Multivariable Calculus**
- Calculator: A scientific calculator (including Ln and Cos in the \$10 to \$20 range).
- A platypus that's house trained and able to walk on a lead preferred.

Comment

We will try and avoid the following pitfall:

At the beginning college level, visualization is a big part of understanding. Consequently, students who are operating with few mental pictures are not really learning mathematics. Their calculus consists of a vast series of algorithms and a complicated cataloging system which tells them which procedure is used when. The effort put into this kind of teaching and learning is largely wasted: memorized algorithms are soon forgotten and, worse still, such courses perpetuate the idea that math involves doing calculations rather than thinking.

(by Deborah Hughes Hallet in Visualization and Calculus Reform, in the collection Visualization in Teaching and Learning Mathematics, edited by Zimmerman and Cunningham (MAA notes \#19))

COURSE CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 4-unit class delivered over fifteen weeks. Specific details about how the class meets the credit hour requirement can be provided upon request. (Based on 37.5 hours of student engagement per credit hour.)

ASSESSMENT AND GRADING

Graded Components

Homework: Homework will be assigned every class meeting. All homework assigned in a week will be due on Wednesday of the following week. No late homework will be accepted except by prior arrangement (with me) or with a documented emergency. The object of the homework is to learn how to do the problems so there should be calculations on your homework using the terminology and methods of the class and not just an answer.

Comments on homework:

- This is the minimum amount of homework that is required but you may need to do several odd numbered problems to make sure you get the answer in the textbook.
- A homework assignment is late if it is not received at the start of class on the due date. No late homework will be accepted except by prior arrangement or with a documented emergency.
- Please be sure that your homework is stapled together, and the problems are in order.
- **Homework will be scored on a combination of completeness and correctness. All work necessary to complete a problem must be shown to earn credit.**
- Start working on your homework early. These problems are difficult and meant to be done a little at a time over the course of a few days.
- When doing homework, please note it is normal to not be able to do every problem correct on the first attempt. Do not be discouraged, instead seek help.
- The two lowest homework scores will be dropped before calculating course grade.

Quizzes: There will be weekly quizzes. Quiz questions will come from the readings and videos assigned before each class session. No late quizzes are accepted except by prior arrangement (with me) or with a documented emergency. The object of the quizzes is to assess what you learned from the videos, readings, and review. There are two attempts for each quiz and the two lowest quiz scores will be dropped before calculating course grade.

Collaborative Work: Each week there will be assignments to be completed in small groups. There is almost a century of research showing that academic achievement, productivity, and self-esteem improve dramatically when students work together in groups. This method emphasizes teamwork, cooperation and support by others, rather than isolation and competition in learning.

Exams: There are three exams. The exams will include problems and questions over material assigned in the text, readings and handouts, as well as material presented in class. If you do not take an exam you will receive a zero for it. Late exams may be taken only by prior arrangement

with me or a well-documented emergency beyond your control. The examination schedule is included in the daily schedule. I do not intend to accept excuses such as poor communication with parents, benefactors, sport team sponsors and/or travel agents.

THE FINAL EXAM IS A COMPREHENSIVE EXAMINATION.

(December 13th, Wednesday, 7:30 – 10:00 am)

Successful completion of this class requires taking the final examination on its scheduled day. The final examination schedule is posted on the [Class Schedules](#) site. If you find yourself scheduled for three (3) or more final examinations on the same day, you are authorized to contact each professor to arrange a different time for one of those exams. However, unless you have three (3) or more exams on the same day, no requests for alternative final examinations will be granted.

Grading Distribution	Percent
Three Examinations at 15% each	45
Final Exam	25
Homework	15
Quizzes	10
Collaborative Work	5
Total	100

Grading Scale

Grades are based on the number of points accumulated throughout the course with the following exception. A student must pass at least one of Exam 1, Exam 2, Exam 3 or the Final Exam in order to pass the class. That is, a score of 60% must be achieved on one of the Exams, or else the final grade will be an F regardless of all other point totals. Approximate minimal percentages required to obtain a given grade are:

Standard Grade Scale Based on Percentages					
	A	B	C	D	F
+		87.5- 90	77.5-80	67.5-70	
	92.5 -100	82.5-87.5	72.5-77.5	62.5 -67.5	0-60
-	90-92.5	80-82.5	70-72.5	60-62.5	

STATE AUTHORIZATION

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on [State Authorization](#) to view which states allow online (distance education) outside of California.

INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course and/or if they do not wish to utilize some or all of the elements of their AP in that course.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Attendance is expected at each class session. In the event of an absence, you are responsible for the material covered in class and the assignments given that day.

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member can file a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. See the Undergraduate Academic Catalog [Class Attendance](#).

CLASS ENROLLMENT

It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

SPIRITUAL CARE

Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith. If students have questions, a desire to meet with the chaplain or have prayer requests you can contact the [Office of Student Life and Formation](#)

SEXUAL MISCONDUCT AND DISCRIMINATION

Point Loma Nazarene University faculty are committed to helping create a safe learning environment for all students. If you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that help and support are available through the Title IX Office at <http://pointloma.edu/Title-IX>. Please be aware that under Title IX of the Education Amendments of 1972, it is required to disclose information about such misconduct to the Title IX Office.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Counseling Services at <mailto:counselingservices@pointloma.edu> or find a list of campus pastors at <http://pointloma.edu/Title-IX>.

Tentative Daily Schedule:

week	Monday	Tuesday	Wednesday	Thursday	Friday
1 8/29- 9/2	8/28 Introduction & Section 12.1	8/29	8/30 Section 12.2 & 12.3	8/31 Syllabus Quiz Quiz 12.3	9/1 Sections 12.3 & 12.4
2 9/5-9/9	9/4 No Class Labor Day	9/5 Quiz 12.5	9/6 Section 12.5 Due: HW #1	9/7 Quiz 12.6	9/8 Section 12.6
3 9/12 - 9/16	9/11 Sections 13.1 & 13.2	9/12 Quiz 13.3	9/13 Sections 13.2 & 13.3 Due: HW #2	9/14 Quiz 13.4	9/15 Section 13.3, 13.4
4 9/19- 9/23	9/18 Section 13. 4	9/19	9/20 Review	9/21	9/22 Exam #1 Due: HW #3
5 9/26- 9/30	9/25 Sections 14.1	9/26 Quiz 14.2	9/27 Section 14.1 & 14.2	9/28 Quiz 14.3	9/29 Section 14.3
6 10/3 – 10/7	10/2 Section 14.4	10/3 Quiz 14.5	10/4 Sections 14.5 Due: HW #4	10/5 Quiz 14.6	10/6 Section 14.5 & 14.6
7 10/10- 10/14	10/9 Sections 14.6 & 14.7	10/10 Quiz 14.7	10/11 Sections 14.7 & 14.8 Due: HW #5	10/12 Quiz 14.8	10/13 Section 14.8
8 10/17- 10/21	10/16 Review	10/17	10/18 Exam #2 Due: HW #6	10/19 Fall Break	10/20 No class Fall Break
9 10/24- 10/28	10/23 Section 15.1 & 15.2	10/24 Quiz 15.3	10/25 Section 15.2 & 15.3	10/26 Quiz 15.4	10/27 Section 15.3 & 15.4
10 10/31- 11/4	10/30 Section 15.4 & 15.5	10/31 Quiz 15.6	11/1 Section 15.5 & 15.6 Due: HW #7	11/2 Quiz 15.7	11/3 Section 15.6 & 15.7
11 11/7- 11/11	11/6 Section 15.7 & 15.8	11/7 Quiz 16.1	11/8 Section 15.8 & 16.1 Due: HW #8	11/9 Quiz 16.2	11/10 Section 16.1 & 16.2
12 11/14- 11/18	11/13 Review	11/14	11/15 Exam #3 Due: HW #9	11/16	11/17 Section 16.3 & 16.4
13 11/21- 11/25	11/20 Section 16.4 & 16.5	11/21	11/22 No class Thanksgiving Break	11/23 No class Thanksgiving Break	11/24 No class Thanksgiving Break
14 11/28- 12/2	11/27 Section 16.5	11/28 Quiz 16.6	11/29 Section 16.6	11/30 Quiz 16.7	12/1 Section 16.7
15 12/5- 12/9	12/4 Section 16.8	12/5 Quiz 16.9	12/6 Section 16.9 Due: HW #10	12/7	12/8 Review Last day of class
Finals week 12/12- 12/16	12/11	12/12	12/13 Final Exam 7:30-10:00 am	12/14	12/15