Point Loma Nazarene University, Fall 2026

Calculus III

Department of Mathematical, Information, and Computer Science – School of STEM

Professor: Kyle Havens	**Course:** Math 2074	**Section:** 1	**Units:** 4
Office: Rohr Science 288	**Days:** Monday, Wednesday, Friday	**Class Time:** 8:30-9:35am	
Phone: (619) 849-3362	**Email:** kylehavens@pointloma.edu	**Classroom:** RS 265	

Final Exam: The final exam is cumulative and will be held at the following time in our classroom:

Wednesday, December 16th from 7:30am to 10:00am.

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.

Prerequisite: Math 1074 (or equivalent) with a grade of C- or higher.

Office Hours: Located in Rohr Science. Professor Havens has open office hours at the following times:

Monday	Tuesday	Wednesday	Thursday	Friday
7:30-8:15am	2:00-2:45pm	11:00am-12:15pm	2:00-2:45pm	11:00am-12:15pm
9:45-11:00am			*4:45-5:45pm	

*Times marked by an asterisk are by appointment only and may be on Zoom. Please book a 20-minute appointment with Professor Havens at least 24-hours in advance.

Student Learning Outcomes: Upon completion of this course:

1. Students will be able to demonstrate facility with analytical concepts.
2. Students will be able to demonstrate facility with algebraic structures.
3. Students will be able to apply their mathematical knowledge to solve problems.
4. Students will be able to use technology to solve problems.
5. Students will be able to speak about their work with precision, clarity and organization.
6. Students will be able to write about their work with precision, clarity and organization.
7. Students will collaborate effectively in teams.
8. Students will be able to identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand.
9. 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 Materials: Textbook – *Calculus*, 9th Edition by Stewart, James (ISBN: 9781337624183).

Class Performance: Your final grade in this course is calculated by the following system. Details on next page.

30%	Final Exam	The final is cumulative. You must get a "D" on the final to pass.
45%	Exam Average	Based on three in-class exams. See the good attendance policy.
12%	Class Activities	In-class group activities graded on completeness and correctness.
10%	Written Homework	Traditional homework from the book. Problems graded randomly.
3%	Participation & Vocation	Based on participation in the classroom and vocational assignments.

Letter Grade: The letter grade you receive in this course is based on the final percentage score you earned in the previously described weighted grading system. Requests for an opportunity to improve your grade due to personal circumstances will be denied. Borderline grades may be rounded up if student has good attendance. Incompletes are only assigned in extremely unusual circumstances.

[92%,100%]: A	[82%,88%): B	[70%,78%): C
[90%,92%): A-	[80%,82%): B-	[68%,70%): C-
[88%,90%): B+	[78%,80%): C+	[60%,68%): D

A Comment on Visualization: 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." (Quote by Deborah Hughes Hallet, Visualization and Calculus Reform, in the collection Visualization in Teaching and Learning Mathematics, edited by Zimmerman and Cunningham, MAA Notes \#19)

Good Attendance: A student with no more than one unexcused absence is defined to have "good attendance." An excused absence must be discussed with Professor Havens before the absence.

Final Exam: Successful completion of this class requires taking the final examination on its scheduled day. The final examination schedule is posted on the Traditional Undergraduate Records: Final Exam 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.

Exams: There are three examinations during the semester covering roughly four weeks of content each. See the course schedule for exam dates. Graphing calculators are allowed on exams, but CAS calculators such as the TI-Nspire are not allowed. You may be provided with a formula sheet with relevant information pertaining to each exam. No other notes are allowed. Contact Professor Havens **before** missing an exam if you have a critical emergency. No make-up exams are allowed without prior consent. Exams must be made up within then week or will be scheduled during the department make-up on the morning of Saturday, December 12th. If you do not inform me that you will be missing an exam beforehand, you will get a zero on that exam. Exams are weighted equally at 15% of your total grade. If you have good attendance, I will adjust the weighted scale of the exams in your favor; 23% for the highest exam and 7% for the lowest. Practice questions will be posted on Canvas prior to the exam designed to help you identify topics that you need to study further.

Written Homework: Written homework problems are assigned from the textbook and are submitted to Canvas. The problems are to be done by hand with pencil and paper or stylus and tablet. The due dates are posted in Canvas. Typically, homework is due by the end of each week and you should have at least one week to work on homework related to a topic as it is covered during class time. Each problem set will consist of anywhere from five to twenty questions. A random sample approximately five questions will be graded for correctness by a student grader, and the rest will be graded based on completion. Written assignments uploaded to Canvas should be well organized and submitted as a single PDF file. You are responsible for ensuring your submissions can be viewed by the grader. If your submission is illegible or causes an error it will receive a zero. I encourage you to work together on your homework, but directly copying a solutions manual or another student's homework is considered plagiarism and will not be tolerated. Copying solutions from AI or from a computer algebra system is also considered academic plagiarism.

Class Activities: Mathematics requires active participation. Participation means asking questions, taking notes, making conjectures and checking them, providing solutions to problems, and sharing ideas with classmates. I will act as the expert facilitator during class time, with a mixture of lecture, group problem solving, use of technology, and guided activities. You will receive credit for your participation during class time by using the sign-in sheet. A student who is present but not engaged with their classmates during the activities may lose participation points. You are to work on the assignments in your groups and submit them to Canvas by the last day of lecture on the subject. These may be fully graded or you may get credit for completion, depending on the activity.

Late Work: A maximum of one assignment from each category (written homework, class activities, vocation) can be turned in late subject to a 10% penalty as long as the assignment is submitted before the corresponding exam. Other late work (which includes blank, illegible, or erroneous files) is not accepted. If you have a documented emergency that might require you to submit any additional late work, contact me before the assignment deadline regarding your emergency.

Artificial Intelligence Policy: The use of Artificial Intelligence (AI) tools (e.g., ChatGPT, Gemini Pro, GrammarlyGo, Perplexity, etc.) is prohibited in the course for any aspect of your work, including idea generation, drafting, editing, or final submissions. This course is designed to assess your independent critical thinking, writing, and research skills without the assistance of AI technologies. Any reliance on AI tools in this course is subjective to an academic honesty violation.

PLNU Academic Accommodations Policy: PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities in accordance with the Americans with Disabilities Act (ADA). Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center, by email or phone at 619-849-2533. Once a student's eligibility for an accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines approved accommodations. Professors are able to view a student's approved accommodations through Accommodate.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their approved accommodations in that particular course. Accommodations are not retroactive; as such, clarifying with the professor at the outset is one of the best ways to promote positive academic outcomes.

Students who need accommodations for a disability-related need should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. In accordance with ADA, accommodations cannot constitute a fundamental alteration to course outcomes; therefore, planning ahead is vital in establishing appropriate accommodations for equal access to this course. It is the student's responsibility to make the first contact with the EAC. Students cannot assume that because they had accommodations in the past, their eligibility at PLNU is automatic. All determinations at PLNU must go through the EAC eligibility process. This is to protect the privacy of students with disabilities who may not want to disclose this information and are not asking for any accommodations.

LomaBooks Instructions for Students: This course is part of our course material delivery program, LomaBooks. The bookstore will provide each student with a convenient package containing all required physical materials; all digitally delivered materials will be integrated into Canvas.

You should have received an email from the bookstore confirming the list of materials that will be provided for each of your courses and asking you to select how you would like to receive any printed components (in-store pick up or home delivery). If you have not done so already, please confirm your fulfillment preference so the bookstore can prepare your LomaBooks materials.

Additional Course Information: Additional PLNU policies and practices that apply to this course can be found at the following link:
https://docs.google.com/document/d/1SoL5YMfCv_5cobhBwrDjbcZJzNKKTCfM/edit?usp=sharing&ouid=104297418648613020764&rtpof=true&sd=true

Course Schedule: This course syllabus and schedule are subject to change due to unforeseen circumstances.

Week of	Monday	Wednesday	Friday
8/31/2026	**Course Introduction** **12.1:** 3D Coordinates	**12.1-12.2:** Three-Dimensional Coordinates and Vectors	**12.2-12.3:** Vectors and Dot Products
9/7/2026	*NO CLASS* Labor Day	**12.4-5:** Cross Products and Equations of Lines	**12.5:** Equations of Lines, Planes & Surfaces
9/14/2026	**12.6:** Cylinders and Quadric Surfaces	**13.1:** Vector Functions and Space Curves	**13.2:** Derivatives and Integrals of Vector Functions
9/21/2026	**13.3:** Arc Length and Curvature	**13.4:** Motion in Space Velocity and Acceleration	**Ch12-13:** Catch Up and Review for Exam
9/28/2026	***Exam #1***	**14.1:** Functions of Several Variables	**14.2:** Limits and Continuity with Multivariate Functions
10/5/2026	**14.3:** Partial Derivatives	**14.4:** Tangent Planes and Linear Approximation	**14.5:** The Chain Rule in Multivariables
10/12/2026	**14.6:** Directional Derivatives and the Gradient Vector	**14.7:** Minimum & Maximum Values in Multivariables	**14.8:** The Method of Lagrange Multipliers
10/19/2026	**15.1:** Double Integrals over Rectangles	**Ch14:** Catch Up and Review for Exam	*NO CLASS* Fall Break
10/26/2026	***Exam #2***	**15.2:** Double Integrals over General Regions	**15.3:** Integrals in Polar Coordinates
11/2/2026	**15.4:** Applications of Double Integrals	**15.5:** Surface Area in Multivariables	**15.6:** Triple Integrals in Rectangular Coordinates
11/9/2026	**15.7-9:** Other Coordinates Cylindrical, Spherical, Jacobian	**16.1:** Intro to Vector Fields	**16.2:** Lines Integrals within Vector Fields
11/16/2026	**16.3:** The Fundamental Theorems - Line Integrals	**16.5:** Curl and Divergence	**Ch15-16:** Catch Up and Review for Exam
11/23/2026	***Exam #3***	*NO CLASS* Thanksgiving Break	
11/30/2026	**16.4:** The Fundamental Theorems - Green's Theorem	**16.6-7:** Parametric Surfaces and Surface Integrals	**16.8-9:** The Fundamental Theorems - Stokes' & Divergence
12/7/2026	**Ch12-16:** Catch Up and Review for Final	**Ch12-16:** Catch Up and Review for Final	*OPTIONAL* Office Hours
12/14/2026	*NO CLASS* Finals Week	***Final Exam*** Wednesday @ 7:30-10:00am	*NO CLASS* Finals Week