



Point Loma Nazarene University, Spring 2025

Calculus II with Python Lab

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

Professor: Kyle Havens		Course: Math 1074 (Lab: 1074L)	Section: 1	Units: 3 (+1)
Office: RS 210	Phone: (619) 849-2200	Days: Monday, Wednesday, Friday	Class Time: 12:15-1:10pm	
Email: kylehavens@pointloma.edu		Location: RS 395 (Lab: RS 365)	Monday Lab: 8:30-9:35am	

PLNU Mission – Teach, Shape, 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: A continuation of Calculus I supported by the use of computer graphics and a symbolic computer algebra system. Methods of integration, sequences, series, elementary differential equations, polar coordinates and parametric equations.

Required Materials:

1. Textbook – *Calculus*, 9th Edition by Stewart, James (ISBN: 9781337624183)
 - This text is also a required material in Math 1073 (Calculus I) and Math 2074 (Calculus III).
2. Graphing Calculator (TI-84+ recommended)
3. A laptop with access to Google Colab for the Monday Python Lab.

Office Hours: Located in Rohr Science 210. Professor Havens has open office hours at the following times:

• Mondays: 10:00-11:55am • Tuesdays & Thursdays: 12:30-2:30pm • Wednesdays & Fridays: 10:55-11:55am.

Student Learning Outcomes: Upon completion of this course, students will be able to:

1. Demonstrate facility with analytical concepts.
2. Demonstrate facility with algebraic structures.
3. Use technology to solve problems.
4. Speak about their work with precision, clarity and organization.
5. Write about their work with precision, clarity and organization.
6. Collaborate effectively in teams.
7. Identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand.
8. Gather relevant information, examine information and form a conclusion based on that information.
9. Understand and create arguments supported by quantitative evidence, and they can clearly communicate those arguments in a variety of formats.

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

25%	Final Exam	Cumulative. You must get a “D” on the final exam to pass.
40%	Exam Average	The average score of your three in-class exams
10%	Lab Assignments	Average score of your Python labs with application questions.
13%	Written Homework	Traditional written homework from the textbook.
12%	Class Activities	Based on completion of group activities and attendance.

Good Attendance: A student with no more than one unexcused absence is defined to have “good attendance.”

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.

[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

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

Wednesday, May 7th from 10:30am to 1:00pm

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 will be three midterm exams during the semester covering roughly four weeks of content each. See the course schedule for more information. Graphing calculators are allowed on the exam, 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 me **before** missing an exam if you have a critical emergency. No make-up exams are allowed without prior consent. 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 $13.\bar{3}\%$ of your total grade. If you have good attendance, I will adjust the weighted scale of the exams in your favor, 20% for the highest exam and $7.\bar{6}\%$ for the lowest. Practice questions will be posted on Canvas in advance of the exam designed to help you identify topics that you need to study further.

Lab Assignments: Each Python lab assignment is a write up that outlines your completion of the lab within Google Collab. You must submit these as PDF files. The labs are **individual assignments**. Collaboration between students is encouraged but copying the lab reports of others is not tolerated. Even if you work together, you should be using your own words, your own code, and your own screencaps of written work. If you submit the same workbook or have the same write-up as another student you will get a zero and will face repercussions with academic affairs. Up to one lab assignment will be accepted late with a 10% penalty. Please bring your laptop to class on those days.

Written Homework: Written homework problems are assigned from the textbook and will be submitted to Canvas. The problems are to be done by hand and are assigned from your textbook. The due dates will be posted in Canvas, but typically you will have at least one week to complete the assignments from a chapter after it is covered in class. Each written problem set will consist of anywhere from five to twenty questions. A random sample 5-10 questions will be graded for correctness by a student grader, and the rest will be graded for completion. Late homework is not accepted without a well-documented emergency. Please be sure that written assignments are legible and organized. 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 an online source or another student's homework is considered plagiarism and will not be tolerated. A maximum of two written homework assignments can be turned in late subject to a 10% penalty as long as they are submitted before the corresponding exam.

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 integrated discussion. You will receive activity credit for your attendance by using the sign-in sheet. Each class we will work on a class activity directly related to the chapters of study. You are to work on them 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. There will also be a **problem of the day** (POTD). One written homework problem will be selected for each class period. Prior to class, you will attempt to solve the problem of the day. To get credit for the problem of the day, you must explain the step-by-step approach you took in attempting to solve the problem using complete sentences. If you are unsuccessful, you must describe which step you got stuck. We will discuss these problems in class. Provide a screenshot of your work.

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 15 weeks. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their coursework. For this course, students will spend 150 estimated total hours meeting the course learning outcomes.

Artificial Intelligence Policy: You are allowed to use Artificial Intelligence (AI) tools (e.g. ChatGPT, Gemini Pro 1.5, GrammarlyGo, Perplexity, etc.) to generate ideas, but you are **not allowed** to use AI tools to generate content (math, text, video, audio, images) that will end up in any work submitted to be graded for this course. If you have any doubts about using AI, please gain permission from the instructor.

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 (EAC@pointloma.edu or 619-849-2486). 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 allowed accommodations. The EAC makes accommodations available to professors at the student's request. 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. Accommodations are not retroactive so 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 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. 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 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 special accommodations.

Sources of Help: If you find yourself struggling, consider asking for help using any of the following:

1. Your Professor. If you have questions, email me, ask in class, or come to my office hours.
2. Other classmates. Form study groups and work together both in and out of class.
3. Tutoring. Available in Rohr Science through the Tutoring Center whose hours will be posted on Canvas.
4. Online resources. Accessible on Canvas, or find them yourself via YouTube, Khan Academy, etc.
5. Practice exam questions. Look at them ahead of time and use them to assess your understanding.

Additional Course Information: Additional PLNU policies and practices that apply to this course can be found at the link below. The link includes PLNU's statement on spiritual care, state authorization, copyright policy, recording notification, academic honesty policy, language and belonging, sexual misconduct and discrimination, attendance and participation policy, course modality definitions, LomaBooks, use of technology, and the Loma Writing Center.

<https://docs.google.com/document/d/18i1pUoY0iCfB8w7JKxVvACQW309X-JRB/edit?usp=sharing&ouid=116164865489739533893&rtpof=true&sd=true>

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

Week of	Monday	Wednesday	Friday	Due Soon	✓
1/13/2025	Lab: Course Introduction Class: Review Calculus I	Review: Limits, Derivs <i>Work on Class Activity Review</i>	Ch7.1: Integration by Parts <i>Start Class Activity 7A</i>	Quiz, Materials CAReview	
1/20/2025	<i>No Class</i> <i>MLKJ Day</i>	Lab #1: Intro Python <i>Work on Lab #1</i>	Ch7.1-7.2: Trig. Integrals <i>Continue Class Activity 7A</i>	Lab #1 WHW5.	
1/27/2025	Lab #2: Calculus in Python Class: Trig. Integrals	Ch7.3: Trig. Substitution <i>Begin Class Activity 7B</i>	Ch7.3: Trig. Substitution <i>Continue Class Activity 7B</i>	CA7A, Lab #2 WHW7.1-7.2	
2/3/2025	Lab #3: Integrals in Python Class: Partial Fraction Dec.	Ch7.4: Partial Fraction Dec. <i>Finish Class Activity 7B</i>	Ch7.8: Improper Integrals <i>Begin Class Activity 7C</i>	CA7B, Lab #3 WHW7.3	
2/10/2025	Lab #4: More Integrals Class: Improper Integrals	Ch7.5-6: Strategy and CAS <i>Continue Class Activity 7C</i>	Ch7: Review <i>Finish Class Activity 7C</i>	CA7C, Lab #4 WHW7.4,7.8	
2/17/2025	Lab: Exam #1 Class: Volumes by Rev.	Ch8.1: Arc Length <i>Continue Class Activity Ch.8</i>	Ch8.2: Surface Area by Rev. <i>Continue Class Activity Ch.8</i>	CA8 WHW7.5-6	
2/24/2025	Lab #5: Applications Class: Assorted Applications	Ch10.1: Parametric Curves <i>Begin Class Activity 10A</i>	Ch10.2: Parametric Calculus <i>Finish Class Activity 10A</i>	CA10A, Lab #5 WHW 8.1-8.3	
3/3/2025	Lab #6: Parametric/Polar Class: Polar Coordinates	Ch10.4: Polar Calculus <i>Finish Class Activity 10B</i>	Ch11.1: Infinite Sequences <i>Start Class Activity 11A</i>	CA10B WHW10.1-2	
3/10/2025	<i>No Class</i> <i>Spring Break</i>				
3/17/2025	<i>No Class</i> <i>Professor Out of Town</i>	Ch11.2: Infinite Series <i>Continue Class Activity 11A</i>	Ch11.2: Convergent Series <i>Finish Class Activity 11A</i>	CA11A, Lab #6 WHW10.3-4	
3/24/2025	Lab: Exam #2 Class: Series Testing	Ch11.3: Integral Test <i>Begin Class Activity 11B</i>	Ch11.4: Comparison Test <i>Finish Class Activity 11B</i>	CA11B WHW11.1-2	
3/31/2025	Lab #7: Sequences and Series Class: Alternating Series	Ch11.5-6: Ratio Test <i>Start Class Activity 11C</i>	Ch11.7: Series Strategy <i>Continue Class Activity 11C</i>	Lab #7 WHW11.3-4	
4/7/2025	Lab #8: Series Testing Class: Power Series	Ch11.8-9: Power Functions <i>Continue Class Activity 11C</i>	Ch11.1-9: Review <i>Finish Class Activity 11C</i>	CA11C WHW11.5-7	
4/14/2025	Lab: Exam #3 Class: Maclaurin Series	Ch11.10: Taylor Series <i>Continue Class Activity 11D</i>	<i>No Class</i> <i>Easter Break</i>	Lab #8 WHW11.8-9	
4/21/2025	<i>No Class</i> <i>Easter Break</i>	Ch11.10: More Taylor Series <i>Continue Class Activity 11D</i>	Ch11.11: Applications <i>Finish Class Activity 11D</i>	CA11D WHW11.10	
4/28/2025	Lab #9: Normal Distribution Class: More Series Topics	Ch9.1: Introductory Differential Equations	Ch7-11: Review for the Final Exam	Lab #9 WHW11.11	
5/5/2025	<i>Finals Week</i>	Final Exam 10:30am-1:00pm	<i>Finals Week</i>	WHW9.1	