

**Math 274: Calculus III (4.0 units)****Fall 2016****MWF 8:30-9:35 in LA 102**

**Instructor:** Dr. Catherine Crockett  
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**office phone:** 619-849-2723  
**Office** Rohr Science, Room 226  
**Office hours:** MWF 11-12, MW 1-2:30, TTH 2-3:30 or by appointment

**Important Dates:**

- Exam 1: Friday, September 23**
- Exam 2: Wednesday, October 19**
- Exam 3: Monday, November 21 (the Monday before Thanksgiving)**
- Final Exam: Monday, December 12 7:30-10:00**

**Text:** *Multivariable Calculus*, 8<sup>th</sup> edition by James Stewart (or you can use *Calculus*, 8<sup>th</sup> edition by James Stewart)

**Other materials for the course:** A scientific calculator.

### **PLNU Mission**

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#### **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 becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

### **Department Mission**

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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**

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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**

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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.

Students will be able to write about their work with precision, clarity and organization.

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.

### **ASSESSMENT AND GRADING**

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Grades for the course will be based on the following (percentage of the course grade):

Homework (25%),

Labs (5%)

Three exams (15% each; total of 45 %)

Final exam (25%)

**Grading Scale:** Approximate minimal percentages required to obtain a given grade are:

Grades in percentages

|   | A          | B           | C            | D           | F      |
|---|------------|-------------|--------------|-------------|--------|
| + |            | [87.5,90)   | [77.5, 80)   | [67.5, 70)  | [0,60) |
|   | [92.5,100] | [82.5,87.5) | [72.5, 77.5) | [62.5,67.5) |        |
| - | [90, 92.5) | [80, 82.5)  | [70, 72.5)   | [60, 62.5)  |        |

\*\*Please note you will be able to see your grades in CANVAS throughout the semester.

**Homework (25%):** Homework will be assigned every class meeting. All homework assigned in a week will be due **at the start of class** the next Wednesday. 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. Homework will be scored on a combination of completeness (with work shown) and correctness. A random selection (the same for all people) of the problems will be graded on any homework assignment. The two lowest homework scores will be dropped.

**Labs (5%):** Labs are problems that will require the help of the computer to solve. I will randomly assign you to a group every 4 to 8 weeks. Each group will work on the lab, type the write up for the lab (solutions, graphs and explanations) and may be to share & explain their solution to the class. There will be approximately 5 labs and they are due on Friday, at the start of class. A lab is late if it is not received by the due date. No late labs will be accepted.

**Exams (15% each):** There are three in-class exams. 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.

**Final Exam (25%):** The final is comprehensive and is given on Monday, December 12 7:30 to 10:00 a.m. The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor.

**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.

**Side Note:** Turn off any cell phone, pager or things that make noise while you are in class. Also, do not text or work on other classes while in class -to do so is disrespectful to your classmates and me. You may be asked to leave the class for such behavior, resulting in an absence.

### **General Advice:**

You learn mathematics by doing it yourself. You should expect to spend approximately two hours outside of class for every one hour in class working on homework and going over concepts. 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.

For information about the class, homework assignments, handouts or grades, please log onto [canvas.pointloma.edu](http://canvas.pointloma.edu). There you will find all of this class information. Please let me know if you can't access the class information or have any questions.

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| <b>University Policies:</b> |
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**FINAL EXAMINATION POLICY**

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The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. This schedule can be found on the university website and in the course calendar. No requests for early examinations will be approved. Only in the case that a student is required to take three exams during the same day of finals week, is an instructor authorized to consider changing the exam date and time for that particular student.

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**PLNU COPYRIGHT POLICY**

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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.

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**Credit Hour**

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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. Specific details about how the class meets the credit hour requirements can be provided upon request.

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**PLNU ACADEMIC HONESTY POLICY**

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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.

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**PLNU ACADEMIC ACCOMMODATIONS POLICY**

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If you have a diagnosed disability, please contact PLNU's Disability Resource Center (DRC) within the first two weeks of class to demonstrate need and to register for accommodation by phone at 619-849-2486 or by e-mail at [DRC@pointloma.edu](mailto:DRC@pointloma.edu). See [Disability Resource Center](#) for additional information.

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**PLNU ATTENDANCE AND PARTICIPATION POLICY**

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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 [http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#Class Attendance](http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#Class_Attendance) in the Undergraduate Academic Catalog.

### Course Schedule:

Please note this schedule is tentative. Any changes will be announced.

| week                  | Monday                        | Tuesday                                   | Wednesday                               | Thursday                          | Friday   |
|-----------------------|-------------------------------|---|---|-----------------------------------|--|
| 1<br>8/29-<br>9/2     | 8/29<br>No class              | 8/30<br>Introduction<br>& Section<br>12.1 | 8/31<br>Section 12.2 & 12.3             | 9/1                               | 9/2<br>Sections 12.3 & 12.4                      |
| 2<br>9/5-<br>9/9      | 9/5<br>No Class<br>Labor Day  | 9/6                                       | 9/7<br>Section 12.5                     | 9/8                               | 9/9<br>Section 12.6                              |
| 3<br>9/12 -<br>9/16   | 9/12<br>Sections 13.1 & 13.2  | 9/13                                      | 9/14<br>Sections 13.2 & 13.3            | 9/15                              | 9/16<br>Section 13.3, 13.4<br><b>Lab #1 Due</b>  |
| 4<br>9/19-<br>9/23    | 9/19<br>Section 13.4          | 9/20                                      | 9/21<br>Review                          | 9/22                              | 9/23<br><b>Exam #1</b>                           |
| 5<br>9/26-<br>9/30    | 9/26<br>Sections 14.1         | 9/27                                      | 9/28<br>Section 14.1 & 14.2             | 9/29                              | 9/30<br>Section 14.3                             |
| 6<br>10/3 -<br>10/7   | 10/3<br>Section 14.4          | 10/4                                      | 10/5<br>Sections 14.5                   | 10/6                              | 10/7<br>Section 14.5 & 14.6<br><b>Lab #2 Due</b> |
| 7<br>10/10-<br>10/14  | 10/10<br>Sections 14.6 & 14.7 | 10/11                                     | 10/12<br>Sections 14.7 & 14.8           | 10/13                             | 10/14<br>Section 14.8                            |
| 8<br>10/17-<br>10/21  | 10/17<br>Review               | 10/18                                     | 10/19<br><b>Exam #2</b>                 | 10/20                             | 10/21<br>No class<br>Fall Break Day              |
| 9<br>10/24-<br>10/28  | 10/24<br>Section 15.1 & 15.2  | 10/25                                     | 10/26<br>Section 15.2 & 15.3            | 10/27                             | 10/28<br>Section 15.3 & 15.4                     |
| 10<br>10/31-<br>11/4  | 10/31<br>Section 15.4 & 15.5  | 11/1                                      | 11/2<br>Section 15.5 & 15.6             | 11/3                              | 11/4<br>Section 15.6 & 15.7<br><b>Lab #3 Due</b> |
| 11<br>11/7-<br>11/11  | 11/7<br>Section 15.7 & 15.8   | 11/8                                      | 11/9<br>Section 15.8 & 16.1             | 11/10                             | 11/11<br>Section 16.1 & 16.2                     |
| 12<br>11/14-<br>11/18 | 11/14<br>Section 16.3 & 16.4  | 11/15                                     | 11/16<br>Section 16.4 & 16.5            | 11/17                             | 11/18<br>Review<br><b>Lab #4 Due</b>             |
| 13<br>11/21-<br>11/25 | 11/21<br><b>Exam #3</b>       | 11/22                                     | 11/23<br>No class<br>Thanksgiving Break | 11/24<br>No class<br>Thanksgiving | 11/25<br>No class<br>Thanksgiving Break          |

|                                   |  |       |                       | Break |  |
|-----------------------------------|--|-------|-----------------------|-------|--|
| 14<br>11/28-<br>12/2              | 11/28<br>Section 16.5                              | 11/29 | 11/30<br>Section 16.6 | 12/1  | 12/2<br>Section 16.7<br><b>Lab#5 Due</b> |
| 15<br>12/5-<br>12/9               | 12/5<br>Section 16.8                               | 12/6  | 12/7<br>Section 16.9  | 12/8  | 12/9<br>Review<br>Last day of class      |
| Finals<br>week<br>12/12-<br>12/16 | 12/12<br><b>Final Exam</b><br><b>7:30-10:00 am</b> | 12/13 | 12/14                 | 12/15 | 12/16                                    |