Fall 2015- Math 424

MWF 8:30 to 9:35 in RS 13

Instructor: Dr. Catherine Crockett   **email:** catherinecrockett@pointloma.edu

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Office hours: M&W 1-3:00, T& Th 8:30-9:30, F 1-2   or by appointment

Text: *Analysis with an Introduction to Proofs*.   By Steven Lay

Important Dates: **Mid Term Exam: Wednesday, October 21**

                    Final Exam: Friday, December 18 7:30 to 10:00 (in class- portion)

Course Description:
Real numbers, topology of Euclidean n-space, continuity, differentiation and integration theory.
Corequisite(s): MTH 233 and MTH 242 and Junior standing.

Learning Outcomes:
        1. Students will be able to demonstrate facility with analytical concepts.
        2. Students will be able to write and understand proofs.
        3. Students will be able to communicate effectively orally and in writing.

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

        Homework (20%),

        Proof of the week (20%)

        Mid Term (25%)

        Final exam (35%)

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)	

    *You will be able to view your grades in CANVAS.

Grading Standards:

- **Late Work:** A written assignment is considered late if it is not received at the beginning of class on the due date. Late work need not be accepted or may be assessed a penalty. Homework will typically be collected on Fridays. Make-up tests will only be given for documented emergencies.
- **Accuracy:** Solutions on written assignments and examination questions must be formulated carefully in terms of words and symbols. Credit is determined based on the degree to which a solutions responds to the specific stated problem.
- **Formatting:** Collected assignments must be written in a format that is suitable for grading. The work must be legible, organization must be clear and the complete solution (not just answers) must be submitted. Please note:
- The **final exam** is comprehensive and will come in two parts. The first part will be a few problems which you are required to work independently (they will be due the day of the in-class portion of the final). The in-class portion of the final will be Friday, December 18

Attendance:

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 in which a student is registered is considered essential to optimum academic achievement. Therefore, regular attendance and participation in each course are minimal requirements to be met. There are no allowed or excused absences except as approved in writing by the Provost for specific students participating in certain university-sanctioned activities. Excused absences still count toward the 10%-20% limits, but allow students to make up work, quizzes, or tests missed as a result of a university-sanctioned activity. Activities of a unique nature, such as labs or other activities identified clearly on the syllabus, cannot be made up except in rare instances when instructors have given advanced, written approval for doing so. Whenever the number of accumulated absences in a class, for any cause, exceeds ten (10) percent of the total number of class meetings, the faculty member should send an e-mail to the student and the Vice Provost for Academic Administration (VPAA) warning of attendance jeopardy. If more than twenty (20) percent of the total number of class meetings is reported as missed, the faculty member or VPAA may initiate the student's de-enrollment from the course without further advanced notice to the student. If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of W or WF consistent with university policy in the Grading section of the catalog. There are no refunds for courses where a de-enrollment was processed. For more details see the PLNU catalog: http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#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.

Academic Accommodations:

While all students are expected to meet the minimum academic standards for completion of their courses as established by the instructors, students with special needs may require academic accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation with the Disability Resource Center (DRC), located in the Bond Academic Center. Once the student files documentation, the Disability Resource Center contacts the student's instructors and provides written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. This policy assists the university in its commitment to full compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities (ADA) Act of 1990, and ADA Amendments Act of 2008, all of which prohibit discrimination against students with special needs and guarantees all qualified students equal access to the benefits of PLNU programs and activities. For more details see the PLNU catalog:
http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#Academic_Accommodations

Students with learning disabilities who may need accommodations should discuss options with the instructor during the first two weeks of class.

Academic Honesty:

The Point Loma Nazarene University community holds the highest standards of honesty and integrity in all aspects of university life. Any violation of the university's commitment is a serious affront to the very nature of Point Loma's mission and purpose. Violations of academic honesty include cheating, plagiarism, falsification, aiding academic dishonesty, and malicious interference. The details of PLNU's meaning of each of these words can be found in the PLNU catalog at: http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#Academic_Honesty

A student remains responsible for the academic honesty of work submitted in PLNU courses and the consequences of academic dishonesty beyond receipt of the final grade in the class and beyond the awarding of the diploma. Ignorance of these catalog policies will not be considered a valid excuse or defense. Students may not withdraw from a course as a response to a consequence.

A student who is caught cheating on any item of work will receive a zero on that item and may receive an "F" for the semester. See the PLNU Catalog for a further explanation of the PLNU procedures for academic dishonesty (http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#Academic_Honesty).

Final Exam: Date and Time

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. 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 change the exam date and time for that particular student.

Copyright Protected Materials:

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:

Proofs: Learn by doing! You have had a brief introduction to proof writing in MTH242. In this course, you will reinforce these skills while learning new concepts. You will be most successful if you participate in the in-class proof writing activities, stay current with the homework and re-write proofs that have been returned to you containing errors.

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

week	Monday	Tuesday	Wednesday	Thursday	Friday
1 8/31-9/4	8/31 No class	9/1 First day of class- Monday schedule 1.1: Logical connectives 1.2: Quantifiers	9/2 1.3: Tech. of Proofs (part 1)	9/3	9/4 1.4: Tech. of proofs (part 2)
2 9/7-9/11	9/7 No Class Labor Day	9/8	9/9 2.1: Basic Set Operations	9/10	9/11 2.2: Relations
3 9/14 -9/18	9/14 Review	9/15	9/16 2.3: Functions	9/17	9/18 2.4: Cardinality
4 9/21-9/25	9/21 2.4: Cardinality	9/22	9/23 3.1: Natural numbers and induction	9/24	9/25 Proof writing workshop
5 9/28-10/2	9/28 3.2: Ordered fields	9/29	9/30 3.3: Completeness Axiom	10/1	10/2 3.3: Completeness Axiom
6 10/5 – 10/9	10/5 3.4: Topology of the real numbers	10/6	10/7 3.4: Topology of the real numbers	10/8	10/9 3.5: Compact sets
7 10/12-10/16	10/12 3.5 Compact sets	10/13	10/14 4.1: Convergence	10/15	10/16 4.2: Limit Theorems

8 10/19- 10/23	10/19 Proof writing workshop	10/20	10/21 **Midterm Exam**	10/22	10/23 No class Fall Break Day
9 10/26- 10/30	10/26 4.3: Sequences	10/27	10/28 5.1: Limits of Functions	10/29	10/30 5.2: Continuous Functions
10 11/2- 11/6	11/2 5.3: Properties of Continuous functions	11/3	11/4 5.4: Uniform continuity	11/5	11/6 6.1: The Derivative
11 11/9- 11/13	11/9 6.2: MVT	11/10	11/11 6.3: L'Hospital's Rule	11/12	11/13 6.4: Taylor's theorem
12 11/16- 11/20	11/16 7.1: The Riemann Integral	11/17	11/18 7.2: Prop. Of the Riemann Integral	11/19	11/20 7.3: FTC
13 11/23- 11/27	11/23 8.1: Convergence of Infinite series	11/24	11/25 No class Thanksgiving Break	11/26 No class Thanksgiving Break	11/27 No class Thanksgiving Break
14 11/30- 12/4	11/30 8.2: Convergence Tests	12/1	12/2 8.3: Power Series	12/3	12/4 9.1: Pointwise and Uniform Convergence
15 12/7- 12/11	12/7 9.2: Applications of Uniform Convergence	12/8	12/9 9.3: Uniform Convergence of Power series	12/10	12/11 Last day of class Review
Finals week 12/14- 12/18	12/14	12/15	12/16	12/17	12/18 Final Exam 7:30-10:00