Math 242 Spring 2015

Time and Place: WF 11:00-11:50 a.m. RS013

Instructor: Maria Zack, Ph.D.

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Office Number: S222

Office Hours:

Monday	2:00-3:00 p.m.	
Tuesday	6:00-7:00 p.m. by appointment	
Wednesday	7:00-8:30 a.m.	
Thursday	By appointment	
Friday	7:00-8:30 a.m. and 12:00-1:00 p.m.	

These are the hours that I will definitely be available. You can come by my office any time and if I am free I will help you (you can also call me at home if you call **before 8:45 p.m.** 760-753-7861). I keep a sign-up sheet on my office door and you can sign up for any empty time slot (there are slots other than my office hours) if you want to be sure that the time is reserved for you. If you have a question or just want to hang out, come by my office.

Text: *Elementary Number Theory* by Gareth Jones and J. Mary Jones

Content:
This course is an introduction to proofs using the study of the theory of numbers. Topics that will be studied include natural numbers and integers, prime numbers, divisibility, congruences and multiplicative functions. The basic proof techniques examined include inductive proofs, deductive proofs and proofs by contradiction.

Learning Outcomes:
- Students will be able to write proofs.
- Students will be able to demonstrate facility with algebraic structures.
- 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.

A word about proofs:
The best way to learn to write proofs is to practice writing them. There will be a great deal of time in class devoted to the appropriate structure for a mathematical proof. You will be most successful in this course if you participate in all of the in-class proof writing activities, if you stay current with your homework and if you re-write proofs that have been returned to you containing errors (either on homework or exams).

Grading:
The components of the grades:

Homework	260
Projects and Activities (2-3)	120
"Proof of the Week"	120
Exam	200
Final	300
Total Points	1000

Approximate minimal points required to obtain a given grade are:

	A	B	C	D
+		(875, 900)	(775, 800)	(675, 700)
	[925, 1000]	[825, 875]	[725, 775]	[625, 675]
-	[900, 925)	[800, 825)	[700, 725)	[600, 625)

Note that scores of 599 or lower will result in an F.

Homework:
Homework will be assigned each day at the end of class. All homework assigned in a week will be **due in class** the next Friday. No late homework will be accepted except by prior arrangement or with a documented emergency. Homework assignments are posted in Canvas. The object of the homework is to learn how to do the problems so I expect to see calculations on your homework using the terminology and methods of the class and not just the answer. A random selection (the same for all people) of the problems will be graded on any homework assignment.

Projects and Activities:
During the semester you will be assigned 2-3 activities or projects that may require group work outside of class.

Proof of the Week:
There will be five of these proofs assigned throughout the semester. The due dates for the proofs are on the class schedule.

Exams:
There is one in-class exam. If you do not take an exam you will receive a zero for it. Late exams may be taken only by <u>prior arrangement</u> or with a documented emergency.   I must participate in the decision for you to miss an exam; this means that you need to phone me <u>before</u> missing an exam.

Final:
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. The final for MTH242 is cumulative and is given at the assigned final time on **FRIDAY MAY 8, FROM 10:30 A.M. - 1:00 P.M.**

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=14&navoid=1089#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=14&navoid=1089#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=14&navoid=1089#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=14&navoid=1089#Academic_Honesty).

I do encourage working in groups on homework assignments, but each individual is expected to turn in his or her own write-up of the assignment.

Copyright Protected Materials
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.

Monday	Tuesday	Wednesday	Thursday	Friday
12-Jan **NO CLASSES**	13-Jan	14-Jan Four Colors	15-Jan	16-Jan Four Colors Group Work
19-Jan	20-Jan	21-Jan Intro Theorems	22-Jan	23-Jan Intro Theorems Proof of the Week #1
26-Jan **MLK DAY**	27-Jan	28-Jan Intro Theorems	29-Jan	30-Jan Group Proofs
2-Feb	3-Feb	4-Feb Intro Theorems	5-Feb	6-Feb Euclidean Algorithm Project
9-Feb	10-Feb	11-Feb Euclidean Algorithm Discussion	12-Feb	13-Feb Jones Chapter 1
16-Feb	17-Feb	18-Feb Jones Chapter 1 Proof of the Week #2	19-Feb	20-Feb Jones Chapter 1
23-Feb	24-Feb	25-Feb Jones Chapter 2 Proof of the Week #3	26-Feb	27-Feb Induction Exam Review
2-Mar	3-Mar STUDY SESSION	4-Mar **EXAM**	5-Mar	6-Mar Jones Chapter 2
9-Mar **SPRING**	10-Mar **BREAK**	11-Mar **SPRING**	12-Mar **BREAK**	13-Mar **SPRING**
16-Mar	17-Mar	18-Mar Jones Chapter 2 Proof of the Week #4	19-Mar	20-Mar Jones Chapter 3
23-Mar	24-Mar	25-Mar Jones Chapter 3	26-Mar	27-Mar **NO CLASS - Project**
30-Mar	31-Mar	1-Apr **NO CLASS - PROJECT**	2-Apr **EASTER**	3-Apr **EASTER**
6-Apr **EASTER**	7-Apr	8-Apr Jones Chapter 3 Proof of the Week #5	9-Apr	10-Apr Jones Chapter 4
13-Apr	14-Apr	15-Apr Jones Chapter 4	16-Apr	17-Apr **NO CLASS - Project** Lemma 5.1 in Teams
20-Apr	21-Apr	22-Apr Lemma 5.1 in teams	23-Apr	24-Apr Jones Chapter 5
27-Apr	28-Apr	29-Apr Jones Chapter 5	30-Apr	1-May Jones Chapter 11 Final Exam Preparation
4-May	5-May	6-May	7-May STUDY SESSION	8-May **FINAL EXAM** **10:30 AM - 1:00 PM**