MTH2013 (3 units)
Fundamentals of Elementary Mathematics II
Thursday 2:30-3:45 (Required), Tuesday 2:30-3:45 (Optional) LBRT 202

Instructor:	Kyle Havens
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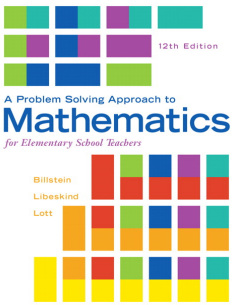
Office Hours:	M/F 9:30am - 12:00pm W 10:30am - 12:00pm T/R 4:00pm - 5:30pm
Text Book:	Billstein, Libeskind, and Lott *A Problem Solving Approach to Mathematics for Elementary School Teachers,* 12th Edition
Needed Supplies:	A calculator, a compass, a protractor, a ruler, and access to a computer.



University Mission:
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.

Catalog Description:
MTH2013 (3 Units) Fundamentals of Elementary Mathematics I
A comprehensive approach to the mathematical knowledge necessary for a California multiple subject teaching credential (K-8). Topics covered in this course include whole numbers, numeration systems, fractions, decimals, ratios, proportions and an introduction to number theory. The integers, rational numbers, irrational numbers and real numbers are studied along with algebraic expressions, inequalities, graphs and polynomials. This class is highly interactive and emphasizes group work and cooperative learning. Not applicable toward a major in Mathematics. Passing an 8th grade mathematics proficiency test is a requirement for the completion of this course.

Prerequisite: MTH 1013 or equivalent.

Learning Outcomes
- Students will be able to demonstrate a facility with operations on the integers.
- Students will be able to demonstrate a facility with operations on the rational numbers.
- Students will be able to apply concepts from number theory to solve problems.

Content:
MTH2013 (and MTH2023 in the spring) include the college-level mathematics and instructional methods needed to teach elementary school mathematics in ways consistent with the recommendations of the Common Core http://www.corestandards.org/Math/. Material is selected for inclusion because teachers need to know it and understand it in order to teach elementary school mathematics effectively. Also, course activities and assignments are designed to assist you in gaining a deeper understanding of mathematics sufficient for effective teaching in elementary and middle school (grades K-8).

Course Design:

- The course is designed to help you acquire knowledge and develop understanding of the conceptual and procedural foundations for teaching elementary school mathematics
- The course is designed to help you develop the ability to teach mathematics developmentally (i.e., basing procedural knowledge on clear connections with prior conceptual knowledge)
- The course is designed to help you acquire knowledge and develop ability to create a problem solving environment in the classroom, to set and achieve teaching goals, to stimulate and manage classroom discourse, to use technology effectively, and to make ongoing instructional decisions
- The course is designed to help you acquire confidence sufficient to teach elementary mathematics positively and enthusiastically

Philosophy and Approach:

Research in learning theory shows that students who learn mathematics effectively must be actively involved in the process, not just passive listeners/observers. In particular, in order to really learn and understand mathematical ideas and processes you must become deeply involved in activities such as exploring, discussing, analyzing, explaining, conjecturing, defending, negotiating, testing, and evaluating. To do this you need good problems to solve, interaction with others on solutions, and opportunities to write your conclusions.

The mathematical experience of the students in MTH2013 and MTH2023 varies widely. This means that different students will need to spend different amounts of time to learn the material. To help assist in this process, the class is designed as a blended class. You will be doing pre-tests, reading and some homework problems (you get two attempts at each problem) online this will allow you spend the amount of time that you need to learn the basics before we engage in activities in class.

Homework:

You will have two types of homework:

Online Homework - this will be due at 11:59 pm the Wednesday before our class face to face meeting. Your online homework will be graded by the computer. You will have two attempts to work each problem. **You must have access to the online homework in Pearson for this material.**

Written Homework - this will be due at the start of class the next Thursday. No late homework will be accepted except by prior arrangement or with a documented emergency. In your written homework I expect to see calculations 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.

Collected assignments must be prepared in a style suitable for grading. The following guidelines are used to determine credit:

- the organization must be easy to follow
- the work must be legible
- complete solutions must be written for problems (not just answers);
- answers must be clearly marked
- use complete sentences to answer questions

Review Exercises for Exams (Quizzes) – these will be due at 11:59am on the exam day. In order to earn the maximum credit for each chapter, a minimum score equivalent to five correct questions must be earned. Earning a score above five correct questions will not raise the credit for that chapter. The percent correct out of five will be averaged for all of the chapters for that exam and then multiplied by half of the Exam Review Exercise points for the semester.

Basic Competency Test:
In order to pass MTH2013 you must pass this test at the 80% level. It will be given the first Tuesday of classes and then retakes can be arranged on a one to one basis with the course professor. No more than a total of three attempts are allowed on this test.

Mid-Semester Examination and the Final Examination:
There will be one Mid-Semester Examination and a comprehensive Final Examination. The Mid-Semester Examination and the Final Examination will include problems and questions over material assigned in the text, readings and handouts, as well as material presented in class. The examination schedule is included in the daily schedule. The instructor will not accept excuses such as poor communication with parents, benefactors, surf team sponsors and/or travel agents. No examination shall be missed without prior consent or a well-documented emergency beyond your control. In such cases, all make-up exams will occur at 8:30 am on the Saturday between classes and Final Exam week. A score of zero will be assigned for an examination that is missed without prior consent or a well-documented emergency beyond your control.

Grade Components:

Grade Component	Percent
Mid-Semester Examination	25
Final Examination	35
Review Exercises for Exams	5
Online Homework	15
Written Homework	20
Total	100

Grading Scale:
Grades are based on the number of points accumulated throughout the course with the following exception. A student must pass at least one of the Mid-Semester Examination or the Final Examination in order to pass the class. That is, a score of 60% must be achieved on one of the Examinations, or else the final grade will be an F regardless of all other point totals. Approximate minimal percentages required to obtain a given grade are:

Grading Scale in percentages	A	B	C	D
+		(87.5, 90.0)	(77.5, 80.0)	(67.5, 70.0)
	[92.5, 100]	[82.5, 87.5]	[72.5, 77.5]	[62.5, 67.5]
–	[90.0, 92.5)	[80.0, 82.5)	[70.0, 72.5)	[60.0, 62.5)

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 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 Attendance Policy in the in the Undergraduate Academic Catalog.

Because this course is a hybrid course, here is how attendance will be calculated:

> **Face-to-face** portion of the class: You must be present on time for the full class for you to be considered present in the face to face meeting.
>
> **Online** portion of the class: You are expected to work on material online every week. In order to earn credit for being "present" in the online portion of the class each week you must complete at least one online homework assignment or exam review assignment (for test weeks) before the due date/time for that week.

If you miss 10% of the classes, you will receive a warning. If you miss 20% of the classes, you will be automatically de-enrolled.

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 standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center. (DRC@pointloma.edu or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses.

If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

Academic Honesty:
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 Honesty for definitions of kinds of academic dishonesty and for further policy information.

Final Exam: Thursday December 19th, 2019 4:30 – 7:00 pm
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.

The Final Exam is a comprehensive examination.

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.

Credit Hour:
In the interest of providing sufficient time to accomplish the stated course learning outcomes, this class meets the PLNU credit hour policy for a 3 unit class delivered over 15 weeks. Specific details about how the class meets the credit hour requirements can be provided upon request.

Weekly Schedule for MTH2013 Fall 2019

Week	Before class (Due at 11:59 pm on Wednesday)	Tuesday	In Class –Thursday	After Class – Written Homework (Due at the start of class the following Thursday). **All homework is drawn from the B list of problems for each section. Be careful that you <u>do the B problems</u> and not the A problems.**
1 Sep 2	Nothing (1st Week)		Introduction to Chapter 9	None
2 Sep 9	Read 2.2 2.2 online problems	Basic Competency Test	2.2 Activities 2.3–3-1 Intro.	2-2B: 3, 5(a,b), 11, 14, 15 (Pg. 65)
3 Sep 16	Read 2.3–3.1 2.3–3.1 online problems	Open Lab	2.3–3.1 Activities 3.2–3.3 Intro	2-3B: 5, 8, 9, 10, 12 (Pg. 76) 3-1B: 10, 14,15, 19(a,b), 20 (Pg. 97)
4 Sep 23	Read 3.2–3.3 3.2–3.3 online problems	Open Lab	3.2–3.3 Activities 3.4–3.5 Intro	3-2B: 2, 6(a,b), 10, 18, 19, 26 (Pg. 111) 3-3B: 8, 9, 12, 14, 15 (Pg. 128)
5 Sep 30	Read 3.4–3.5 3.4–3.5 online problems	Open Lab	3.4–3.5 Activities 4.1–4.3 Intro	3-4B: 1, 6, 10, 11, 12(a,b,c), 16, 17 (Pg. 146) 3-5B: 1 (a,b,c), 2, 6, 13, 15 (Pg. 165)
6 Oct 7	Read 4.1–4.3 4.1–4.3 online problems	Open Lab	4.1–4.3 Activities 5.1–5.2 Intro	4-1B: 8, 10(a,b,c), 13(a,b), 14, 15 (Pg. 186) 4-2B: 2, 4, 13 (Pg. 200) Mathematical Connections 4.2: 10, 15 (Pg. 201) (Hint: pay attention to the fact that these two problems need answers that should be written in sentences.) 4-3B: 2(b,c), 3(c,d), 4, 14, 16 (Pg. 213)
7 Oct 14	**Review Exercises for Exams (Quizzes) for Ch. 2–4**	Open Lab - come with questions. **Review**	Exam	None
8 Oct 21	Read 5.1–5.2 5.1–5.2 online problems	Open Lab	5.1–5.2 Activities 6.1–6.2 Intro	5-1B: 4, 5, 9, 16, 27, 29 (Pg. 235) 5-2B: 5, 8, 11, 13, 18(a,b,c,h,i,j), 26 (Pg. 250)
9 Oct 28	Read 6.1–6.2 6.1–6.2 online problems	Open Lab	6.1–6.2 Activities 6.3–6.4 Intro	6-1B: 1, 4, 7, 14, 18, 19, 21 (Pg. 271) 6-2B: 1 (a,b,c), 2, 5, 6, 11, 12, 17 (Pg. 286)

Week	Before class (Due at 11:59 pm on Wednesday)	Tuesday	In Class –Thursday	After Class – Written Homework (Due at the start of class the following Thursday). **All homework is drawn from the B list of problems for each section. Be careful that you <u>do the B problems</u> and not the A problems.**
11 Nov 4	Read 6.3–6.4 6.3–6.4 online problems	Open Lab	6.3–6.4 Activities 7.1–7.2 Intro	6-3B: 2, 3(a,b,c), 5, 6, 12, 14, 18 (Pg. 308) 6-4B: 2, 3, 8, 10, 14, 20 (Pg. 321)
12 Nov 4	Read 7.1–7.2 7.1–7.2 online problems	Open Lab	7.1–7.2 Activities 7.3–7.4 Intro	7-1B: 1(c,d), 2(a,b), 10, 13, 14, 16 (Pg. 338) 7-2B: 8, 10, 13, 14, 16, 25, 27 (Pg. 354)
13 Nov 4	Read 7.3–7.4 7.3–7.4 online problems	Open Lab	7.3–7.4Activities 8.1 Intro	7-3B: 6(a,b,c,d), 7 (a,b,c), 9, 10, 13, 21 (Pg. 364) 7-4B: 3(a,b,c), 4(c,d), 7, 12, 17, 19, 26 (Pg. 380)
14 Nov 4	Read 8.1 8.1 online problems	Open Lab	8.1 Activities 8.2–8.3 Intro	8-1B: 2, 3, 4, 9, 13, 14 (Pg. 398)
15 Dec 2	Read 8.2–8.3 8.2–8.3 online problems	Open Lab	8.2–8.3 Activities 8.4–8.5 Intro	8-2B: 1, 2, 3, 5, 8(c,d,e), 9 (Pg. 408) Mathematical Connections 8-2: 3 (Pg. 410) (Hint: write the sentence as an algebraic equation and then simplify) 8-3B: 2(a,b,c), 3, 5, 8 (Pg. 419)
16 Dec 9	Read 8.4–8.5 8.4–8.5 online problems	Open Lab	8.4–8.5 Activities Discussion of the final	8-4B: 1, 2, 3, 6, 9, 11, 18 (Pg. 437) 8-5B: 2, 3, 6(a,b),9, 11(b,c), 16 (Pg. 459)
Finals Dec 16	**Review Exercises for Exams (Quizzes) for Ch. 5–8** **Review** for the Final Exam Wednesday December 18th 7:00-8:00 p.m.		**Final Exam** Thursday December 19th 4:30-7:00 p.m.	

Some Tips About This Class:

- Reading mathematics is a fairly slow process and will require you to read things more than once. Do not get behind; you want to be working on class material most days.
- Read with a pencil in hand. Be sure to fill in details and check the author's computations. It will probably help your studying if you write these calculations in a notebook.
- Read the material and work the online problems with the text before attempting quizzes and written homework.
- Work lots of problems. Part of becoming good at mathematics is practice.
- Work in groups. You learn a lot if you have to explain your solution to someone else (we will be doing this in class).
- Stay current with your assignments (cramming won't help)
- If you have a question, ***ASK***.