Foundations of Elementary Mathematics I

Point Loma Nazarene University, Fall 2022

Instructor: Kyle Havens	**Course:** Math 2013	**Sections:** 1	**Units:** 3
Office: Rohr Science 276	**Classroom:** LS 201	**Time:** 2:30-3:45pm	
Email: kylehavens@pointloma.edu	**Days:** Tuesday/Thursday	**Canvas:** canvas.pointloma.edu	

Required Materials:

1. *A Problem Solving Approach to Mathematics for Elementary School Teachers*, 12th Edition by Billstein, Libeskind, and Lott (ISBN: 9780321987297)
2. A calculator, a compass, a protractor, a ruler, and access to Canvas. Many of these tools are much more important for the second semester of this course.

Prerequisite: Math 1013 (algebra) or equivalent.

University 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.

Office Hours: Monday/Wednesday: 7:30-8:15am @ RS276, before 1pm and after 5:15pm Tuesday/Thursday @ LS201.

Class Schedule: See the last page of this document.

Course Description: 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.

Student Learning Outcomes:

1. Students will be able to demonstrate a facility with operations on the integers.
2. Students will be able to demonstrate a facility with operations on the rational numbers.
3. Students will be able to apply concepts from number theory to solve problems.

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.

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).

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.

Class Performance: Your final grade in my class will be calculated by the following system.

35%	Final Exam	Cumulative. You must get a "D" on the final exam to pass.
27%	Mid-term Exam	Covers roughly the first half of course material.
10%	Online Homework	On Canvas, designed to help you identify topics of concern.
20%	Written Homework	Traditional homework from the textbook or assigned in class.
5%	Review Exercises	A minimum of five correct questions constitutes full credit.
3%	Participation	Based on work on activities and attendance.

Letter Grade: The letter grade you receive will be based on your total score from the above system.

Above 92%: A	82-87%: B	70-77%: C
90-91%: A-	80-81%: B-	68-69%: C-
88-89%: B+	78-79%: C+	60-67%: D

The grade you receive at the end of the semester will be the grade you earned based on the above grading system. All requests for an opportunity to improve your grade due to personal circumstances will be denied. Borderline grades may be rounded up if the student has good attendance (no more than one unexcused absence).

Final Exam: The final exam is cumulative and will be held at the following time in the liberty station conference room:

Tuesday, December 13th from 4:30pm to 7:00pm

Final Exam: 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.

Online Homework: Your online homework can be accessed in Canvas. You will have two attempts at each assignment. These problems were imported from another platform and still have a few mistakes within them which I have done my best to correct. Since it is not perfect, you need to simply achieve an 80% on each online assignment to get full credit. It will be automatically graded by the computer, so this 80% allowance is designed to account for those errors.

Written Homework/Classwork: All written work is due at the start of class on the posted date which can always be found on Canvas alongside the problem numbers. 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 detailed explanation or thorough work is worth much more than a correct 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: Much like the online homework, these have been imported into Canvas for your convenience. 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.

Exams: There will be one midterm exam and a comprehensive final exam. 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. A score of zero will be assigned for an examination that is missed without prior consent or a well-documented emergency beyond your control.

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 Academic Policies for further information about class attendance.

Asynchronous Attendance/Participation Definition: Some days we will have an online lab instead of in-person class. A day of attendance in asynchronous content is determined as contributing a substantive note, assignment, or submission by the posted due date. Failure to meet these standards will result in an absence for that day. Instructors will determine how many asynchronous attendance days are required each week.

Use of Technology: In order to be successful in the online or hybrid environment, you'll need to meet the minimum technology and system requirements; please refer to the Technology and System Requirements information. Additionally, students are required to have headphone speakers, microphone, or webcams compatible with their computer available to use. Please note that any course with online proctored exams require a computer with a camera (tablets are not compatible) to complete exams online. Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

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.

Spiritual Care: Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith. If students have questions, a desire to meet with the chaplain or have prayer requests you can contact the Office of Spiritual Development.

Copyright Policy: 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.

State Authorization: State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on State Authorization to view which states allow online (distance education) outside of California.

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 Policies for definitions of kinds of academic dishonesty and for further policy information.

Academic Accommodations: PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. 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 issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

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 and/or if they do not wish to utilize some or all of the elements of their AP in that course. 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.

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. 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 an estimated 115 total hours meeting the course learning outcomes. The time estimations are provided in the Canvas modules.

Sources of Help:

1. 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.
3. Tutoring. Available in Rohr Science or through the Tutoring Center. Their hours will be on Canvas.
4. Online resources. Posted on Canvas, or find them yourself via YouTube, Khan Academy, etc.
5. Practice exams. Look at them ahead of time and use them to gauge your understanding.

Syllabus is Subject to Change: This syllabus and schedule are subject to change due to unforeseen circumstances. If you are absent from class, it is your responsibility to check any announcements made while you were absent.

Course Schedule: Changes may occur due to unforeseen circumstances.

Week of	***Tuesday***	***Thursday***
8/29/2022	*No Class* Abnormal First Week	**Course Introduction and** **Begin Chapter 2**
9/5/2022	***Competency Test***	**Chapter 2** - Intro to Logic and Sets
9/12/2022	*Open Lab Day*	**Chapters 2 and 3** - Sets Logic and Intro to Numeration Systems
9/19/2022	**Chapter 3** - Numeration Systems and Arithmetic	**Chapter 3** - Alternative Algorithms and Mental Math
9/26/2022	*Open Lab Day*	**Chapters 3 and 4** - Estimation and Number Theory
10/3/2022	**Chapter 4** - Prime, Composite, and Commonality	**Chapters 2-4** Review for Midterm
10/10/2022	***Exam #1***	**Chapter 5** - Negative Numbers and Integers
10/17/2022	**Chapter 5** - Arithmetic with Integers	*No Class* Fall Break
10/24/2022	*Open Lab Day*	**Chapter 6** - Rational Numbers and Fractions
10/31/2022	**Chapter 6** - Adding and Subtracting Rational Numbers	**Chapter 6** - Multiplying and Dividing Rational Numbers
11/7/2022	*Open Lab Day*	**Chapter 6** - Proportional Reasoning
11/14/2022	**Chapter 7** - Introduction to Decimal Numbers and Operations	**Chapter 7** - Operations on Decimals and Repeating
11/21/2022	**Chapter 7 and 8** - Percents and Interest and Real Numbers	*No Class* Thanksgiving
11/28/2022	*Open Lab Day*	**Chapter 8** - Variables and and Equations
12/5/2022	**Chapter 8** - Functions and the Cartesian Coordinate System	**Chapters 2-8** Review for Final
12/12/2022	***Final Exam (12/13)*** **Tuesday** 4:30pm-7pm	*Finals Week*