POINT LOMA NAZARENE UNIVERSITY	**Department of Mathematical, Computer, and Information Sciences** **MTH 2023 Fundamentals of Elementary Mathematics II** **3 Units (Tuesdays and Thursdays, 2:30-3:45pm, LBRT 202)**
Spring 2023	

Instructor contact information
Instructor: Dr. Catherine Crockett
Office Phone: 619-849-2723 **Office: RS 222**
Email: catherinecrockett@pointloma.edu
Office hours: MF 1- 3, TTH 10-11:30, W 1- 2:30 or by appointment (email me to set up time)

PLNU Mission

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 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.

COURSE DESCRIPTION

A continuation of Mathematics 2013 focusing on additional knowledge necessary for a California multiple-subject teaching credential (K-8). Topics covered in this course include data analysis and statistics, probability, combinations and permutations, simulations as well as standard and non-standard measurement. Planar and three dimensional geometry and geometric constructions are studied, including an algebraic approach to geometry. This class is highly interactive and emphasizes group work and cooperative learning.

Prerequisite: MTH 1013 or equivalent, MTH2013 (3 Units) Fundamentals of Elementary Mathematics I.

COURSE 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.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

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.

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.

COURSE CREDIT HOUR INFORMATION

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 fifteen weeks. Specific details about how the class meets the credit hour requirement can be provided upon request. (Based on 37.5 hours of student engagement per credit hour.)

ASSESSMENT AND GRADING

Graded Components

- **Video Notes** - Each section will have videos to watch and you should take notes. Your notes will be submitted in Canvas to provide evidence you are keeping up. Up to a maximum of one set of video notes will be accepted up to 3 days late provided that consent is received from the professor before it is due. Video notes that are submitted late without prior consent will be recorded with a score of zero. If you submit plausible notes for 90% or more of the assignments, you will receive full credit. If you submit plausible notes for 80% to 90%, you will receive half credit. If more than 20% of your video notes are either not present or not plausible, then you will receive no credit for video notes. Your video notes are due at 11:59 pm on Wednesday evening.
- **Video Warm Up Exercises** – These problems will be a check for your understanding of the basic information in the videos. Work the problems carefully, take a photograph of them and submit them online by Wednesday at 11:59 pm (the same time that your video notes are due).

- **Written Homework** – You may work with other people on your homework, but each individual will be responsible for writing up the entire homework assignment and turning it in. The homework is due at the start of class on Thursday.
- **Mid-Semester Examination and the Final Examination:** There will be one Mid-Semester Examination and a comprehensive Final Examination. The Mid-Term 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. 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 the 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.
- **Late work will not be accepted** without prior consent or a well-documented emergency. Homework assignments that are submitted late without prior consent will be recorded with a score of zero. If more than half of the homework assignments (written or online) are submitted on time, then the lowest homework score will be dropped from the calculations of the homework grade (written or online).
- Homework assignments that are submitted late without prior consent will be recorded with a score of zero. If more than half of the homework assignments are submitted on time, then the lowest homework score will be dropped from the calculations of the homework grade.
- **The examination schedule** is included in the daily schedule. This instructor does not intend to accept excuses such as poor communication with parents, benefactors, surf team sponsors and/or travel agents.
- The examination schedule is included in the daily schedule. This instructor does not intend to accept excuses such as poor communication with parents, benefactors, surf team sponsors and/or travel agents.
- **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.

Grade components

Grading Distribution	**Percent**
Mid Semester Exam	25
Final Exam	35
Videos and Notes	7
Video Warm Up Exercises	8
Written Homework	25
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:

Grade Scale					
Standard Grade Scale Based on Percentages					
	A	**B**	**C**	**D**	**F**
+		87.5- 90	77.5-80	67.5-70	
	92.5 -100	82.5-87.5	72.5-77.5	62.5 -67.5	0-60
_	90-92.5	80-82.5	70-72.5	60-62.5	

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.

INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.

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.

PLNU 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.

PLNU ACADEMIC HONESTY POLICY

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.

PLNU ACADEMIC ACCOMMODATIONS POLICY

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 (Links to an external site.) 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.

PLNU ATTENDANCE AND PARTICIPATION POLICY

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 the Undergraduate Academic Catalog Class Attendance.

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 Student Life and Formation

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* Links to an external site. 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

WK	TUESDAY: Problem Session for Homework	WEDNESDAY: Video Notes and Warm Up Due	THURSDAY: Class Meeting + Homework Due
1	1/10 Monday schedule- no problem session	1/11	1/12 Introduction to class 9.1: Determining Probabilities 9.2: Multistage Experiments and Modeling Games
2	1/17 9.1: Determining Probabilities 9.2: Multistage Experiments and Modeling Games	1/18 9.3: Simulations and Applications in Probability 9.4: Permutations and Combinations in Probability	1/19 9.3: Simulations and Applications in Probability 9.4: Permutations and Combinations in Probability **Due: Written Homework Sections 9. 1 & 9.2**
3	1/24 9.3: Simulations and Applications in Probability 9.4: Permutations and Combinations in Probability	1/25 10.1: Designing Experiments/ Collecting Data 10.2: Displaying Data: Part 1 10.3: Displaying Data: Part 2	1/26 10.1: Designing Experiments/ Collecting Data 10.2: Displaying Data: Part 1 10.3: Displaying Data: Part 2 **Due: Written Homework Sections 9. 3 & 9.4**
4	1/31 10.1: Designing Experiments/ Collecting Data 10.2: Displaying Data: Part 1 10.3: Displaying Data: Part 2	2/1 10.4: Measures of Central Tendency and Variation 10.5: Abuses of Statistics	2/2 10.4: Measures of Central Tendency and Variation 10.5: Abuses of Statistics **Due: Written Homework Sections 10.1, 10.2 & 10.3**
5	2/7 10.4: Measures of Central Tendency and Variation 10.5: Abuses of Statistics	2/8 11.1: Basic Notions 11.2: Curves, Polygons, and Symmetry	2/9 11.1: Basic Notions 11.2: Curves, Polygons, and Symmetry **Due: Written Homework Sections 10.4 & 10.5**
6	2/14 11.1: Basic Notions 11.2: Curves, Polygons, and Symmetry	2/15 11.3: More About Angles 11.4: Geometry in Three Dimensions	2/16 11.3: More About Angles 11.4: Geometry in Three Dimensions **Due: Written Homework Sections 11.1 & 11.2**
7	2/21 11.3: More About Angles 11.4: Geometry in Three Dimensions	2/22 Exam Questions	2/23 Review **Due: Written Homework Sections 11.3 & 11.4**
8	2/28 Review	3/1 No videos- study for exam	3/2 Mid-term Exam **Due: Chapters 9, 10 & 11 Reviews**
Spring Break 3/6 to 3/10			
9	3/14 Go over Exam	3/15 12.1: Congruence Through Constructions 12.2: Additional Congruence Theorems	3/16 12.1: Congruence Through Constructions 12.2: Additional Congruence Theorems

10	3/21 Congruence Theorems	3/22 12.3: Additional Constructions 12.4: Similar Triangles and Other Similar Figures	3/23 12.3: Additional Constructions 12.4: Similar Triangles and Other Similar Figures **Due: Written Homework Sections 12.1 & 12.2**
11	3/28 12.3: Additional Constructions 12.4: Similar Triangles and Other Similar Figures	3/29 13.1: Translations and Rotations 13.2: Reflections and Glide Reflections	3/30 13.1: Translations and Rotations 13.2: Reflections and Glide Reflections **Due: Written Homework Sections 12.3 & 12.4**
12	4/4 13.1: Translations and Rotations 13.2: Reflections and Glide Reflections	4/5 No videos	4/6 Easter Break
13	4/11 No meeting.	4/12 13.3: Dilations 13.4: Tessellations of the Plane	4/13 13.3: Dilations 13.4: Tessellations of the Plane **Due: Written Homework Sections 13.1& 13.2**
14	4/18 13.3: Dilations 13.4: Tessellations of the Plane	4/19 14.1: Linear Measure 14.2: Areas of Polygons and Circles 14.3: The Pythagorean Theorem, Distance Formulas, and Equation of a Circle	4/20 14.1: Linear Measure 14.2: Areas of Polygons and Circles 14.3: The Pythagorean Theorem, Distance Formulas, and Equation of a Circle **Due: Written Homework Sections 13.3& 13.4**
15	4/25 14.1: Linear Measure 14.2: Areas of Polygons and Circles 14.3: The Pythagorean Theorem, Distance Formulas, and Equation of a Circle	4/26 14.4: Surface Area 14.5: Volume, Mass, and Temperature	4/27 14.4: Surface Area 14.5: Volume, Mass, and Temperature **Due: Written Homework Sections 14.1, 14.2 & 14.3**
Finals	5/2 **Final Exam 4:30- 7:00** **Due: Written Homework Sections 14.4 & 14.5** **Review Chapters 12, 13, & 14**	5/4	5/5