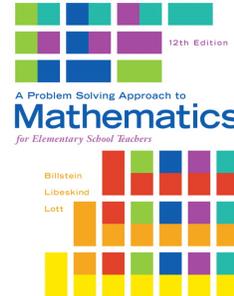


MTH223 (3 units)

Fundamentals of Elementary Mathematics II

Thursday 2:30-3:45 (Required), Tuesday 2:30-3:45 (Optional) LBRT 201

Instructor: Greg Crow, Ph.D.
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 Phone: 619.849.2604
 Office: RS 252/(Science Trailer 1)
 Office Hours: Current Weekly Hours Posed in Canvas



Text Books: Billstein, Libeskind, and Lott
A Problem Solving Approach to Mathematics for Elementary School Teachers, 12th Edition with Access via Canvas

Needed Supplies: Access to a computer, a calculator, a compass, a protractor, and a ruler.

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:

MTH223 (3 Units) Fundamentals of Elementary Mathematics II

A continuation of Mathematics 213 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(s): MTH 213.

Learning Outcomes

- Students will be able to construct geometric figures using a compass and straight edge.
- Students will be able to compute area and volume.
- Students will be able to distinguish between the appropriate uses of probability and statistics to solve problems.

Content:

MTH213 and MTH223 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 MTH213 and MTH223 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

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 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 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 [the catalog](#) for definitions of kinds of academic dishonesty and for further policy information.

Final Exam: Tuesday April 30th, 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 MTH223 Spring 2019

Week	Before class (Due at 11:59 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 Jan 7	Nothing	No Open Lab	Introduction to Chapter 9	None
2 Jan 14	9.1-9.2 online problems	Open Lab	9.1-9.2 Activities 9.3-9.4 Intro	9.1B: 2, 7, 8, 10, 11 9.2B: 2, 5, 6, 11, 19
3 Jan 21	9.3-9.4 online problems	Open Lab	9.3-9.4 Activities 10.1-10.3 Intro	9.3B: 1, 4, 7, 8, 12, 13, 16, 17, 20, 21, 24 9.4B: 2, 3, 6, 7, 10, 12
4 Jan 28	10.1-10.3 online problems	Open Lab	10.1-10.3 Activities 10.4-10.5 Intro	10.1B: 1, 4, 5, 7, 11 10.2B: 2, 4, 5, 12, 15 10.3B: 1, 3, 6, 9, 11
5 Feb 4	10.4-10.5 online problems	Open Lab	10.4-10.5 Activities 11.1-11.2 Intro	10.4B: 1 (a,b), 2, 5, 7, 9, 15, 16 10.5B: 2, 5, 6, 16, 17
6 Feb 11	11.1-11.2 online problems	Open Lab	11.1-11.2 Activities 11.3-11.4 Intro	11.1B: 5, 9, 12, 14, 16, 17 11.2B: 1, 2, 8, 9, 11, 12 (a,b,c,d)
7 Feb 18	11.3-11.4 online problems	Open Lab	11.3-11.4 Activities Exam information	11.3B: 2, 9, 10, 11, 14, 17 11.4B: 2, 8, 15 (b,d), 16, 17
8 Feb 25	Exam review problems	Open Lab - come with questions to help study for the exam.	Exam	None
Mar 4	Spring Break			

Week	Before class (Due at 11:59 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.
9 Mar 11	12.1-12.2 online problems	Open Lab – Test returned	12.1-12.2 Activities 12.2-12.3 Intro	12.1B: 11, 15, 16, 18, 20 12.2B: 3, 4, 11, 14, 15, 22 (a,b)
10 Mar 18	12.3-12.4 online problems	Open Lab	12.3-12.4 Activities Intro to project	12.3B: 6, 7, 8, 18, 19 (a,b), 20 12.4B: 6, 7, 8 (a,b), 12, 15, 16
11 Mar 25	13.1-13.2 online problems	Open Lab	13.1-13.2 Activities 13.3-13.4 Intro	13.1B: 1, 3, 5, 7, 8, 15 13.2B: 1, 3, 7, 8, 11
12 Apr 1	13.3-13.4 online problems PRINT	Open Lab	13.3-13.4 Activities 14.1-14.3 Intro	13.3B: 1, 3, 4, 6 (a,b), 7, 8 13.4B: 1, 2, 3, 4, 7, 8
13 Apr 8	14.1-14.3 online problems PRINT	Open Lab	14.1-14.3 Activities 14.4-14.5 Intro	14.1B: 3, 8, 10, 17, 21, 22 14.2B: 2, 5, 6, 11, 16 14.3B: 2 (a,b,c,d), 6, 8, 9, 12
14 Apr 15	Work on project	Easter Break – No Open Lab	Easter Break – No Class	Upload completed project into Canvas. The project is due online by noon on Thursday April 25.
15 Apr 22	14.4-14.5 online problems PRINT	Open Lab	14.4-14.5 Activities Discussion of the final	14.4B: 1, 2, 7, 12, 15 14.5B: 3, 4, 5, 11, 13, 15
Finals April 29	Review for the Final Exam Monday April 29 th 6:30-7:30 p.m.		Final Exam Tuesday April 30 th 4:30-7:00 p.m.	