Shared Syllabus for Problem Solving

Section and Instructor Information			
1)	Kyle Havens RS 210 (849-2219)		
Section, Meeting Days, Time			
1)	Wed.	4:00 pm – 5:45 pm	Zoom Class
	Tues.	4:00 pm – 4:45 pm	Zoom OH
	Thur.	4:00 pm – 4:45 pm	Zoom OH
Office Hours			
Tuesday and Thursday	Professor Havens will be available for Zoom on Tuesdays and Thursdays from 4:00 to 4:45 pm.		
Other	Please contact Professor Havens if you'd like to make an appointment for Zoom office hours but cannot make our scheduled time. Give 24-hour notice.		

Online Text

Excursions in Mathematics
10^{th} Edition
Peter Tannenbaum
PEARSON
ISBN: 978-0-321-82573-5

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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 becomes an expression of faith. Being of Wesleyan heritage, we aspire 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.
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Course Description

A general education course whose major goal is to develop the ability to solve non-routine problems through dynamic processes of inquiry and exploration, logical reasoning, making and testing conjectures and investigating implications of conclusions. A study of quantitative reasoning with emphasis on active problem solving and developing connections with other disciplines. Not applicable toward a major in Mathematics.
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Course Learning Outcomes

GE Learning Outcome: Students will be able to solve problems that are quantitative in nature:

- Students will be able to formulate a mathematical model from a verbal description of a problem.
- Students will be able to solve non-routine problems using logic and quantitative techniques.
- Students will be able to construct solutions to problems using computational techniques

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Required Material

- Calculator: A scientific calculator is required. During examinations, you may not use your cell phone as a calculator.
- Pearson Access Code.

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Foundational Explorations Mission

This is a PLNU Foundational Explorations course (a general education course).
PLNU provides a foundational course of study in the liberal arts informed by the life, death, and resurrection of Jesus Christ. In keeping with the Wesleyan tradition, the curriculum equips students with a broad range of knowledge and skills within and across disciplines to enrich major study, lifelong learning, and vocational service as Christ-like participants in the world's diverse societies and cultures. This course is one of the components of the General Education Program at Point Loma Nazarene University, in support of the general education learning outcome: Quantitative Reasoning: Students will be able to solve problems that are quantitative in nature. The purpose of general education is to provide a common educational experience, to develop essential skills, and to provide a broad cultural background for personal and professional growth.
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Course Credit Hours 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 5 weeks. Specific details about how the class meets the credit hour is provided below.

Online Quizzes	12.00
Online Homework	25.00
Reading Text	25
Watching Videos	24
Group Project	6.00
Budget Project	4.00
Chapter Post Test Reviews	16.00
Midterms	2.50
Final Exam	2.50
TOTAL	117

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Course Philosophy

The general method of the course is to involve students in "dynamic processes of inquiry and exploration, logical reasoning, making and testing conjectures, and investigating implications of conclusions" [Catalog]. Specifically, the focus is on the processes and tools of quantitative problem solving. Learning what they are and developing ability to use them.

"Today's world is more mathematical than yesterday's, and tomorrow's world will be more mathematical than today's."
"...mathematics...serves as a key to opportunity and careers."[Everybody Counts, p.45, p.3]

"To participate rationally in a world where discussions about everything from finance to the environment, from personal health to politics, are increasingly informed by mathematics, one must understand mathematical methods and concepts, their assumptions and implications." [50 Hours, p.35]

In view of these statements and many other similar ones from national reports, this quantitative experience (MTH 303) has been included as part of the PLNU general education curriculum. Thus, all students will study "major concepts, methods, and applications of quantitative reasoning with emphases on active problem solving" [Catalog].
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Course Approach
The ability to solve problems requires resourcefulness, flexibility, and efficiency in dealing with new obstacles. Research on teaching and learning problem solving suggests that certain factors are critical to successful problem solving, including resources, heuristics, control, and belief systems [Schoenfeld, 1985].

Resources refer to whatever information problem solvers understand (or misunderstand) that might be brought to bear on a problem. Heuristic refers to strategies and techniques problem solvers have (or lack) for making progress when working on non-routine problems. Control refers to the way problem solvers use (or fail to use) the information at their disposal. Belief systems refer to the problem solver's "world view" of the problem domain, which determines the ways they use the knowledge in the first three categories.

The approach in MTH 303 develops and uses these factors to increase your problem-solving ability. Classroom techniques used include: the teacher as role model, whole-class problem solving with teacher as control, small-group problem solving with teacher as coach

In addition, you are assigned readings and problems that will help you identify and make progress in the four areas discussed above.
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Course Methods
Use of groups: There is almost a century of research showing that academic achievement, productivity, and self-esteem improve dramatically when students work together in groups. This method emphasizes teamwork, cooperation and support by others, rather than isolation and competition in learning.

Role of the classroom instructor: There will be less direct "lecturing" in class than usual, with many questions "answered" by another question to help you work through your own questions and difficulties. You are expected to learn problem solving through active involvement - reading, writing, and explaining to others what you are thinking and doing.

This may require some adjustment in the way you think about teaching and learning. Initially, you may wish for more direct information and answers, but your patience and effort will be rewarded with a deeper understanding and increasing independence in problem solving, as well as confidence in your ability to tackle new problems.

Grading Distribution

Grade Distribution	
Midterm Exam	30%
Final Exam	35%
Online Homework	10%
Group Project	5%
Individual Budget Assignment	5%
Class Activities + Video Notes	15%
Total	100%

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Grading Scale
A passing grade requires getting at least 60% in one of the two tests or on the final exam. Grades are based on the number of points accumulated throughout the course. Approximate minimal percentages required to obtain a given grade are:

Grading Scale in Percentages				
	A	B	C	D
+		(87.5, 90]	(77.5, 80]	(67.5, 70]
	(92.5, 100]	(82.5, 87.5]	(72.5, 77.5]	(62.5, 67.5]
−	(90, 92.5]	(80, 82.5]	(70, 72.5]	[60, 62.5]

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Grade components
The grade components are examinations, online homework, class activities, projects, class participation, and the final examination.
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Other factors that affect grades
Late work: All assignments are to be submitted by the date posted on the schedule and set on Canvas. Late work need not be accepted. Class activities are not accepted late. Online homework is accepted late with a 10% penalty per day late. Make-up tests will be given only by prior arrangement with the instructor for reasons of documented emergency. All work must be submitted by the 13th of June.

Incomplete grade: Incompletes will only be assigned in extremely unusual circumstances. You may request a grade of I (incomplete) only if you are having a passing grade an at least 70% of the course work is completed.

Questions on assignments, tests, and exams: Written test/exam questions and problems must be formulated carefully in terms of words and symbols used in the course. Credit is determined by the degree to which answers and solutions respond to the specific question or problem stated. Maximize your credit by learning the language and symbols of the course.

Tests and Final Examination: Tests and the final exam will include problems and questions over material assigned in the text, readings and handouts, as well as material presented in class. 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.

Honorlock will be used on the exams which are administer via Canvas. The questions are to be solved on paper and uploaded to Canvas by the end of your exam. Your camera must be turned on during the exam and must include your face and your workspace.

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 final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor.

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Attendance
Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, the faculty member will issue a written warning of 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.

In some courses, a portion of the credit hour content will be delivered asynchronously and attendance will be determined by submitting the assignments by the posted due dates. See Academic Policies in the Undergraduate Academic Catalog. If absences exceed these limits but are due to university excused health issues, an exception will be granted.

Asynchronous Attendance/Participation Definition
A day of attendance in asynchronous content is determined as contributing a substantive note, assignment, discussion, 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.
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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.
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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.
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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 http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#Academic_Honesty for definitions of kinds of academic dishonesty and for further policy information.

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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.

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.

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THE FINAL EXAM IS A COMPREHENSIVE EXAMINATION

Successful completion of this class requires taking the final examination on its scheduled day.

The final exam date, time and place 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.

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Course Schedule

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
5/12/2025	5/13/2025	5/14/2025	5/15/2025	5/16/2025	5/17/2025
Mandatory Zoom	*Online Vids 1.4-1.6*	**Mandatory**	*Online Vids 2.1-2.2*	*Online Vids 2.3-2.4*	*Catch Up On Lecture Videos & Homework*
Online Vids 1.1-1.3	*Work On OHW*	**Zoom Meeting**	Optional Zoom OH	*Work on OHW*	
✓ Register MyLab ✓	✓ Video Notes ✓	✓ Class Activity #1 ✓	✓ OHW 1.1-1.5 ✓	✓ Video Notes ✓	✓ OHW 1.6-2.4 ✓
5/19/2025	5/20/2025	5/21/2025	5/22/2025	5/23/2025	5/24/2025
Online Vids 4.1-4.3	*Online Vids 4.4-4.6*	**Mandatory**	*Online Vids 5.1-5.2*	*Online Vids 5.3-5.4*	*Finish Up HW*
Work On OHW	Optional Zoom OH	**Zoom Meeting**	Optional Zoom OH	*Work on OHW*	
✓ Video Notes ✓	✓ OHW 4.1-4.2 ✓	✓ Class Activity #2 ✓	✓ OHW 4.3-4.5 ✓	✓ Video Notes ✓	✓ OHW 4.6-5.2 ✓
5/26/2025	5/27/2025	5/28/2025	5/29/2025	5/30/2025	5/31/2025
No Class	*Study Ch1-5*	**Midterm Exam**	*Online Vids 6.1-6.4*	*Online Vids 6.3-6.5*	*Finish Up HW*
	Optional Zoom OH		Optional Zoom OH	*Work on OHW*	
Memorial Day	✓ OHW 5.3-5.4 ✓	**In Zoom**	✓ Video Notes ✓	✓ Group Project ✓	✓ OHW 6.1-6.5✓
6/2/2025	6/3/2025	6/4/2025	6/5/2025	6/6/2025	6/7/2025
Online Vids 7.1-7.3	*Online Vids 8.1-8.3*	**Mandatory**	*Online Vids 8.4-8.5*	*Online Vids 10.1-10.3*	*Finish Up HW*
Work On OHW	Optional Zoom OH	**Zoom Meeting**	Optional Zoom OH	*Work on OHW*	
✓ Video Notes ✓	✓ OHW 7.1-7.3 ✓	✓ Class Activity #3 ✓	✓ OHW 8.1-8.2 ✓	✓ Video Notes ✓	✓ OHW 8.3-8.5 ✓
6/9/2025	6/10/2025	6/11/2025	6/12/2025	6/13/2025	*No Class*
Online Vids 10.4-10.5	*Study Ch6-10*	**Mandatory**	**Final Exam**	*No New Assignments*	
Work On OHW	Optional Zoom OH	**Zoom Meeting**			*You Finished!*
✓ Video Notes ✓	✓ OHW 10.1-10.5 ✓	✓ Class Activity #4 ✓	**In Zoom**	✓ Budget Project ✓	

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References

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