

**Math 118 Topics in Mathematics**  
**San Diego State University**  
**Spring 20XX, Section XX: Class Meeting Time and Location**

<b>Instructor:</b> TBD	<b>Email:</b> TBD
<b>Office Location:</b> TBD	<b>Office Hours:</b> TBD
<b>Office Phone:</b> TBD	<b>Course Website:</b> TBD
<b>Email:</b> TBD	

**Text:** The Heart of Mathematics, 3<sup>rd</sup> Ed., by Burger and Starbird

**Prerequisite:** Satisfaction of the ELM requirement (Entry Level Math)

**Course Catalog Description:** Topics selected from algebra, analysis, geometry, logic, probability, or statistics, designed to give student insight into structure of mathematical theories and their applications.

### **Learning Outcomes**

At the end of this course students will be able to:

1. Explain various philosophical concepts and how they relate to mathematical thinking,
2. Develop and demonstrate quantitative estimation skills using algebra, geometry and analysis,
3. Explain the concept of randomness
4. Use and apply probabilistic reasoning to decision making
5. Organize, describe and summarize a set of data
6. Discriminate the difference between cause and effect and correlation
7. Explain the concept of compounding interest and calculate simple interest rates

### **Course Objectives and Expectations on Students**

This course is a 3 unit course designed for students wishing to satisfy SDSU's mathematics requirement for General Education. Most of these students are Liberal Arts majors, i.e., English, Communications, Journalism, History, Art, Music, etc.

The main objective of this course is to provide student basic sense of mathematics and improve students analytic skills and logic thinking. The students are expected to appreciate the usefulness of mathematics and to relate the mathematics to their real life.

### **Scope and Purpose of the Course**

This course is an engaging introduction to mathematical thinking. It will introduce students to the some of the history of math, famous mathematicians and philosophical concepts such as infinity, fourth dimensions, and mathematical beauty. It is intended to help students develop basic mathematical thinking and problem-solving strategies that can be applied to real life decisions. By emphasizing mathematical methods of applications, this course will engage students in logical thinking, problem solving and basic skills of mathematical proof.

We will normally cover six topics: algebra, analysis, geometry, logic, probability, and statistics. Although you will be challenged, the overriding theme of the course is to gain an appreciation for mathematics and to discover the power of mathematical thinking in everyday life.

### **This Course Addresses GE (General Education) Requirement**

This is a GE course. It addresses the GE requirement from three perspectives: (1) construct algebraic formulas and logic, analyze bank interest, and communicate mathematical arguments, (2) apply theoretical probabilistic and statistical calculations to the real world, and (3) illustrate relevance of mathematical concepts across boundaries of various disciplines.

### Assessment and Grading Method and Policy

Weekly Quizzes	30%
Three Exams	45%
Final Exam	25%
Homework	The homework will be assigned each week but not collected.

**Mandatory class attendance:** Attendance to all lectures is mandatory. We will often expand upon the ideas discussed in the book and some of the ideas and problems from the lectures may appear on the Exams. Attendance is extremely important.

**No make-up exams:** There are no make-up exams. If you miss an exam do to an emergency or illness, and you present verifiable documentation explaining the absence (i.e., letter from your doctor with addresses and phone numbers), then the other two exams will count as 45% of your grade. If you miss two exams, then you will need to take the course again.

**Calculators:** Graphing and symbolic manipulating calculators will not be allowed on the quizzes or exams. Inexpensive scientific calculators can be found in the bookstore. Calculators are not allowed to be shared on the quizzes or exams.

**Course Grade:** You will be guaranteed the following grades as given by the percentage score on the homework, midterms, and final exam.

- A >90%
- B 80%
- C 70%
- D 60%
- F <60%

### Learning Resources for This Course

<http://blackboard.sdsu.edu> (Handouts, Announcements, Assignments, Exam scores)

<http://www.wileyplus.com> (Student learning resources)

[www.math.sdsu.edu](http://www.math.sdsu.edu) You can find Tutoring information by clicking on Dept Resources at top.

### Tentative Schedule

WEEKS	TOPICS COVERED
1-3	Algebra
4-5	Analysis
6-8	Geometry
9-11	Logic
12-13	Probability
14-15	Statistics

**FINAL EXAM** FRIDAY, MM/DD/YYYY, 8AM-10AM

**Religious Holidays:** Please notify the instructor if a religious holiday conflicts with scheduled class or class work as soon as possible.