

### Major Course Requirements

A minimum of 68 hours (at least 29.5 upper-division hours)

► **Required Core Courses (46 hours):**

MATH 131+132	Calculus I,II	4+4
MATH 265	Elementary Linear Algebra	4
MATH 267	Multivariable Calculus	5
MATH 269	Elementary Differential Equations	4
MATH 275	Logic and Sets	4
MATH 290	Sophomore Seminar	.5
MATH 331	Theory of Probability and Statistics	4
MATH 351	Introduction to Abstract Algebra I	4
MATH 385	Mathematical Modeling	4
MATH 390	Junior Seminar	.5
MATH 421	Elementary Real Analysis I	4
MATH 490	Senior Seminar	1

At least one of the following courses: 3  
 MATH 352 Introduction to Abstract Algebra II (3)  
 MATH 422 Elementary Real Analysis II (3)

► **Required Core Electives (15 hours):**

At least 15 hours from the following: 15  
 Additional MATH courses  
 (Including at least 9 upper-division hours)

► **Required Cognate Courses (7-9 hours):**

INFS 115	Introduction to Programming	4
At least one of the following courses: 3-5		
CHEM 451	Thermodynamics (3)	
FIN 341	Finance (5)	
INFS 470	Business Analytics (3)	
PHYS 265	Calculus Applications for Physics (3)	
STAT 322	Statistical Methods (3)	

All core and cognate courses should be chosen in consultation with the major advisor. Students should consider the recommendations described below:

*Pure Mathematics*  
 MATH 352, 422, 425, and 465.

*Applied Mathematics*  
 STAT 322 and INFS 470.

Students interested in applied mathematics should earn a minor in an applied field. Consult with your advisor for choices.

*Mathematics Education*  
 MATH 341, 354, 451, and PHYS 265.

*Actuarial Certification*  
 STAT 322 and INFS 470.

### Student Learning Outcomes

**Students can:**

- Demonstrate proficiency in the basic mathematics and problem solving skills of the standard core of undergraduate mathematics.
- Apply mathematical principles to new situations, within mathematics as well as in other settings.
- Explain the role of proof, evaluate the validity of a proof, and create and write valid proofs.
- Communicate mathematics in written and oral form to peers as well as to people with less mathematical background.
- Perform as an effective member of a team to do mathematics.
- Display familiarity with various technologies commonly used for mathematical investigations.

### Occupational Information

**What can I do with this major?**

A focus on Pure Mathematics provides a theoretical background for graduate studies in mathematics and related areas, such as statistics, computer science, and physics. This focus will allow for research as well as teaching in higher education.

A focus on Applied Mathematics or Statistics can lead to mathematics-related careers in medicine, government, business, and industry. Graduate study opportunities can lead to specialties in actuarial science, operations research, and applied statistics (A minor is highly recommended. Consult with your advisor for choices).

A focus on Mathematics Education will lead to a California Teaching Credential in secondary school mathematics. The mathematics portion of the California Subject Exam for Teachers (CSET) is usually taken during the senior year. (Students who wish to complete their secondary teaching credential at PUC should consult the Credential Analyst in the Education Department).

**Actuarial Certification:** Actuaries help businesses assess the risk of certain events occurring and to formulate policies that minimize the cost of that risk. Using their broad knowledge of statistics, finance, and business, actuaries help design insurance policies, pension plans, and other financial strategies. (Students with interest in the national exams for actuarial certification should confer with departmental faculty.)

**Public Sector vs. Denominational**

Non-teaching jobs are most available in the public sector. There is a strong demand for math teachers in Adventist academies.

**Job Outlook**

In addition to high school teaching, there are many opportunities for mathematics-related careers in medicine, government, business, and industry.

### General Education Requirements

To view general education requirements for this major, please refer to page A-01, Summary of General Education Requirements: B.S. Degree.

### How to Construct Your Own Program

1. Counsel with your advisor.
2. Consider your aptitudes, interests, and available courses.
3. Schedule major courses and cognates first.
4. Fill the rest of your schedule with G.E. requirements.
5. For the freshman year include English, Religion, and PE courses. Also include Basic Algebra I+II unless waived by previous work.

### What the Degree Includes

- A total of 192 quarter hours including:
1. A minimum of 60 upper division hours.
  2. General Education requirements.
  3. Major requirements.
  4. Minimum 2.0 GPA, overall and major.

### Teaching Credential

Students desiring to enter a program of studies leading to a California teaching credential in mathematics should take the B.S. degree in Mathematics and complete the recommended courses for the Mathematics Education focus. For more information, please consult the Secondary Teaching Credential as outlined on page EDUC-06.

### For More Information

Mathematics and Physics Department  
 Pacific Union College  
 One Angwin Avenue  
 Angwin, CA 94508  
 (707) 965-7269

E-mail: [math@puc.edu](mailto:math@puc.edu)  
 Website: [www.puc.edu/mathematics](http://www.puc.edu/mathematics)

### Sample Four-Year Program

This sample curriculum is designed to show you how a program may be constructed and to help you select a proper sequence of courses in the major. It is not likely that these courses can always be taken in the order given. Your advisor will help you design a personalized program of studies.

<b>First Year</b>	<b>F</b>	<b>W</b>	<b>S</b>
Calculus I,II	4	4	-
Elementary Linear Algebra	-	-	4
College English I,II	4	4	-
Introduction to Programming	-	-	4
Religion Courses	3	3	3
General Education/Electives	5	5	5
	<b>16</b>	<b>16</b>	<b>16</b>
<b>Second Year</b>	<b>F</b>	<b>W</b>	<b>S</b>
Multivariable Calculus	5	-	-
Elementary Differential Equations	-	4	-
Logic and Sets	-	-	4
Introduction to Statistics	4	-	-
Sophomore Seminar	-	.5	-
Religion Course	-	3	-
General Education/Electives	7	9	12
	<b>16</b>	<b>16.5</b>	<b>16</b>
<b>Third and Fourth Years</b>	<b>F</b>	<b>W</b>	<b>S</b>
Intro to Abstract Algebra I (odd)*	4	-	-
Elementary Real Analysis I (even)*	4	-	-
Theory of Probability and Statistics	4	-	-
Mathematical Modeling (even)	-	-	4
At least one of the following:	-	-	-
Intro to Abstract Algebra II (odd)*	-	3	-
Elementary Real Analysis II (even) *	-	3	-
Non-math Course from Cognate List	4	-	-
Junior Seminar	-	-	.5
Senior Seminar	-	-	1
Additional Math Electives	-	3-9	3-9
Upper-Division Religion Courses	3	3	3
Senior Assessment Seminar	-	-	.2
General Education/Electives	13	11-17	12-18
	<b>32</b>	<b>32</b>	<b>32.7</b>

\* Courses marked (even) or (odd) are taught in alternate years only. 2020-2021 is odd, 2021-2022 is even.