Pacific Union College

Major in Data Science, B.S.

MATH-03

2024-2025

Major Course Requirements

A minimum of 77 hours (33 upper-division hours)

➤ ***Required Core Courses (65 hours):***

DTSC 101	Intro. to Data Science (+Lab)	4
DTSC 201	Fundamentals of Data Science(+Lab)	4
DTSC 215	Frmwrks & Libs for Data Sci	4
DTSC 420	Machine Learning	3
DTSC 425	Legal and Ethical Aspects of Data	2
DTSC 490	Senior Seminar	1
DTSC 494	Internship	1
INFS 115	Intro to Computer Programming	4
INFS 240	Introduction to GIS	2
INFS 320	Business Intelligence	3
INFS 380	Database Systems	3
MATH 131	Calculus I	4
MATH 132	Calculus II	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 385	Mathematical Modeling	4
SCIE 290	Sophomore Seminar	1
STAT 322	Statistical Methods	3
DTSC 323L	Statistical Methods in Data Sci Lab	1

➤ ***Required Core Electives (12 hours):***

At least 12 hours from the following:
Upper-division MATH courses.
Upper-division INFS courses.

GLBH 422	Metrics Literacy	4

Repeat DTSC 494 for additional credit.

Student Learning Outcomes

Students can:

- Demonstrate a working knowledge of various computational and statistical problem-solving technologies used in Data Science.
- Build and assess statistical and machine learning models.
- Manipulate and analyze data from a variety of sources and formats.
- Perform as an effective member of a problem-solving team.
- Communicate with peers and the public about data-based investigations using oral, written, and visual modes.
- Apply ethical principles to guide professional practice.

Occupational Information

What can I do with this major?

The Data Science major prepares students to be employed to work with and analyze data in a variety of industries including entertainment, healthcare, technology, and political and social science. The degree also provides a background for further graduate study in data science or related fields.

Additional Education Required?

This program is designed as a preparation for entry-level employment, but graduate study in a university would lead to broader employment opportunities.

Public Sector vs. Denominational

The opportunities to gather and analyze data, especially in the fields of healthcare and finance, provide numerous opportunities in the public sector and within the denomination.

Job Outlook

There are many opportunities for data science-related careers as actuaries, operations research analysts, statisticians, mathematicians in business, and industry.

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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.

For More Information

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

Website: 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.

First Year	F	W	S
Essential Algebra & Trig for Scientists	2	-	-
Intro to Data Science	4	-	-
Calculus I,II	-	4	4
College English I,II	4	4	-
Religion Courses	3	3	3
Intro to Computer Programming	-	-	4
General Education/Electives	3	5	5
	16	16	16

Second Year	**F**	**W**	**S**
Elementary Linear Algebra	-	4	-
Introduction to Statistics	4	-	-
Sophomore Seminar	-	1	-
Intro to GIS	2	-	-
Funds of Data Science	-	-	4
Statistical Methods+Lab (odd)*	-	4	-
Frameworks and Libraries for Data Scientists	4	-	-
Religion Courses	-	-	3
General Education/Electives	2	12	8.5
	16	16.5	15.5

Third and Fourth Years	**F**	**W**	**S**
Elementary Differential Equations	4	-	-
Logic and Sets	-	-	4
Multivariable Calculus	-	-	5
Legal and Ethical Aspects of Data	2	-	-
Business Intelligence	-	4	-
Machine Learning (even)*	-	3	-
Database Systems (even)*	-	-	3
Mathematical Modeling (even)*	-	-	4
Internship	1	-	-
Senior Seminar	-	-	1
Upper-Division Major Electives	4	4	4
Upper-Division Religion Courses	3	3	3
Senior Assessment Seminar			0.2
General Education/Electives	22	15	13
	36	29	37.2

* *Courses marked (even) or (odd) are taught in alternate years only. 2024-2025 is odd, 2025-2026 is even.*