

PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE

USC SCHOOL	Viterbi School of Engineering
ACADEMIC DEPARTMENT	Computer Science
GRADUATE PROGRAM	Applied Data Science
POST CODE	1711
TERM EFFECTIVE DATE	Fall 2025

PROGRAM DESCRIPTION

A brief description of the graduate program.

This degree is designed for students with a range of backgrounds, but students are expected to have at least a strong math and science background to pursue this degree. Students that do not have much training in computer science will first learn the basics of data science, including data formats, tools and techniques. They learn how to build data processing programs in Python, and they will learn how to apply the latest analytical tools through hands-on homework and projects. Students with a computer science background will be able to jump directly into the more advanced data science courses including data management, machine learning, data mining, and statistics for data science.

COMMON BACHELOR DEGREE PROGRAM PATHWAYS

A list of common bachelor’s degrees that undergraduate students pursue in advance of pursuing a progressive degree option with this graduate program. Some programs are restricted to certain majors while others are open to all students.

Computer Science	Data Science
Math	Business
Economics	Various STEM majors

PREPARATORY UNDERGRADUATE COURSES

A list of courses at the undergraduate level that prepare students for the graduate program. Required coursework is listed first, followed by recommended courses. If not applicable, this section will be blank.

Dept. Prefix - Course #	Course Title	Required or Recommended	Units
MATH 125	Calculus 1	Required	4
	Choose ONE of the Statistics courses below	One of these courses is Required.	
BUAD 310	Applied Business Statistics		4
BUAD 312	Statistics and Data Science for Business		4
MATH 407	Probability Theory		4
EE 364	Intro to Probability and Stats for Electrical Engineering + CS		4
PSYC 274	Statistics		4

UNDERGRADUATE COURSES USED TO REDUCE GRADUATE LEVEL UNITS

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A list of undergraduate level courses that may be used to reduce the number of graduate level units required for the graduate program. If there are none, that is specified instead.

Dept. Prefix - Course #	Course Title	Units
ITP 115	Programming in Python	2
ITP 116	Python for Programmers	2

CORE GRADUATE PROGRAM REQUIREMENTS (# units required)

A list of all required graduate courses for the graduate program. None of these courses may be used toward satisfying undergraduate degree requirements.

If special exceptions for any of these courses are made by the academic department, the course # is marked with an asterisk () and the exception is explained in the "Department Notes" section at the end of this course plan template.*

Dept. Prefix - Course #	Course Title	Units
DSCI 549*	Introduction to Computational Thinking and Data Science	4
DSCI 510*	Principles of Programming for Data Science*	4
DSCI 550*	Data Science at Scale	4
DSCI 551	Foundations of Data Management	4
DSCI 552	Machine Learning for Data Science	4
DSCI 553	Foundations and Applications of Data Mining	4
ELECTIVE*	One elective for non-CS majors.	4
	CS majors and those with programming exp. can waive DSCI 510	
	DSCI 551, DSCI 552, DSCI 553 and 3 Electives are required for CS majors.	

PRE-APPROVED ELECTIVE COURSEWORK

Elective coursework is approved at the discretion of the academic department. Note the following details about the total number and units required of elective coursework.

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20	TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
4	TOTAL ELECTIVE UNITS REQUIRED FOR THE PROGRESSIVE GRADUATE DEGREE

TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

32	TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
8	TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)
24-28	MINIMUM NUMBER OF GRADUATE UNITS THAT MUST BE AT THE 500 LEVEL OR ABOVE

NOTES FROM THE DEPARTMENT

This section highlights any unique considerations, exceptions, or requirements for the graduate program. If a program has specific restrictions (courses, majors, etc.), they are detailed below.

Students pursuing an undergraduate degree in either Computer Science or Data Science only need 24 units to complete the degree. DSCI 551, 552, 553 and 3 elective courses are required for those students. Up to 1 elective may be from the CSCI program. The remaining electives must come from the DSCI program.

Students enrolled in undergraduate degree programs outside of CSCI or DSCI are required to complete 28 units. However, students who have completed ITP 115 or ITP 116 may waive DSCI 510, reducing the total required units to 24.

kelly Goulis

Authorizing Dean’s Name

6/20/2025 | 10:36:34 AM PDT

Date Approved

Senior Associate Dean

Authorizing Dean’s Title

For any questions about PDP, please reach out to Viterbi.pdp@usc.edu