USC University of Southern California

PROGRESSIVE MASTER'S DEGREE
PROGRAM COURSE PLAN

USC SCHOOL	Dornsife
ACADEMIC DEPARTMENT	Spatial Sciences Institute
GRADUATE PROGRAM	Spatial Data Science
POST CODE	1717
TERM EFFECTIVE DATE	Spring 2021

PROGRAM DESCRIPTION
A brief description of the graduate program.

The Master of Science in Spatial Data Science is a cross-disciplinary degree program offered jointly by the Viterbi School of Engineering Department of Computer Science Data Informatics Program and the Dornsife College of Letters, Arts and Sciences Spatial Sciences Institute. The core and elective courses provide a foundation in data science and the spatial sciences to prepare students to function as spatial data science professionals, capable of drawing upon engineering, computer science, and spatial sciences principles to solve data-intensive, large-scale, location-based problems. Throughout the curriculum, students are introduced to geospatial data accessibility, spatial decision support systems, and geospatial problem-solving environments which are revolutionizing most industries and disciplines, including health care, marketing, social services, human security, education, environmental sustainability and transportation.

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.

Geodesign	Human Security and Geospatial Intelligence
Computer Science	Data Science
Economics	Mathematics
Business Administration	Computer Engineering and Computer Science

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
SSCI 301L	Maps and Spatial Reasoning	Recommended	4
SSCI 382L	Geographic Information Science: Spatial Analytics	Recommended	4
CSCI 103L	Introduction to Programming	Recommended	4
EE 457	Computer Systems Organization	Recommended	4
SSCI 381	Statistics for Spatial Sciences	Recommended	4

UNDERGRADUATE COURSES USED TO REDUCE GRADUATE LEVEL UNITS

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
SSCI 301L	Maps and Spatial Reasoning	4
SSCI 382L	Geographic Information Science: Spatial Analytics	4

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
SSCI 575	Spatial Data Science	4
SSCI 581*	Concepts for Spatial Thinking	4
SSCI 586	GIS Programming and Customization	4
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

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.

2	**TOTAL ELECTIVE COURSES REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE**
8	**TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE**

TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

32	**TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE**
4	**TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)**
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 who complete SSCI 301L: Maps and Spatial Reasoning and SSCI 382L: Geographic Information Science: Spatial Analytics may be waived from SSCI 581: Concepts for Spatial Thinking, thereby reducing the total number of units from 32 to 28.

In addition to the required courses listed above, students must choose one SSCI elective (4 units) and one DSCI elective (4 units) from the following list:

SSCI 583: Spatial Analysis and Modeling (4 units)
SSCI 582: Spatial Databases (4 units)
SSCI 591: Web and Mobile GIS (4 units)

CSCI 587: Geospatial Information Management (4 units)
DSCI 551 Foundations of Data Management (4 units)
DSCI 552 Machine Learning for Data Science (4 units)
DSCI 553 Foundations and Applications of Data Mining (4 units)
DSCI 554 Data Visualization (4 units)
DSCI 555 Interaction Design and Usability Testing (4 units)
DSCI 560 Data Science Professional Practicum (4 units)

Steven Finkel	4.8.2021
Name of Authorizing Master's Program Dean	**Date Approved**

College Dean of Graduate and Professional Education
Authorizing Dean's Title