



Certificate Program in Geographic Information Systems

The Geographic Information Systems (GIS) Certificate is offered by the Department of Geosciences and Environment to students with up-to-date theory and technology in spatial analysis in urban planning, political science, and environmental studies. It provides students a post-baccalaureate alternative for acquiring a recognized certification for GIS competency.

The GIS certificate program puts stronger emphasis on applications of the GIS technology in three focus areas: urban planning, political science, and environmental studies.

The application of this technology has expanded to multiple disciplines and various public and private agencies have incorporated its applications in their day-to-day operation.

Admission Requirements

A bachelor's degree in any field with a minimum 2.5 GPA.

Certificate Requirements

A total of 16 units in the following courses is required for the certificate.



California State University, Los Angeles
College of Extended Studies and
International Programs

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5151 State University Drive
Los Angeles, CA 90032-8619
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Certificate Program in

Geographic Information Systems

Required Courses

GEOG 369	Fundamentals of Geographic Information Systems	(4)
GEOG 463	Applications in Urban Planning	(4)
GEOG 464	Applications in Political Science (also listed as POLS 464)	(4)
GEOG 465	Applications in Environmental Studies	(4)

Course Descriptions

GEOG 369 Fundamentals of Geographic Information Systems (4)

This course introduces students to the elements and capabilities of a functioning GIS for solving spatial problems. Students will acquire the needed skills for future GIS application courses. This includes a basic knowledge of the software for preparing datasets, creating maps, and performing spatial analysis. They will acquire the foundational skills needed to perform complex analyses and utilize visualization tools to communicate spatial information, methodological techniques, and analytical outputs.

This course will prepare students from various social and natural science disciplines to take our GIS application courses.

Learning outcomes:

- *Define and use different coordinate systems*
- *Acquire and process spatial and attribute data for solving spatial problems*
- *Apply GIS software for performing spatial analysis based on both vector and raster models*
- *Create GIS and cartographic outputs for presentation and dissemination*

GEOG 463 Applications in Urban Planning (4)

Prerequisite GEOG 369

This course is designed to familiarize students with some of the GIS applications in this profession, hence increasing their employment potential.

Learning outcomes:

Overall, this course is designed to introduce students to GIS applications in urban planning, including land use and transportation planning, demographic analysis, development assessment and various forms of location allocation analysis. The class will use hands-on exercises that will introduce students to a range of real-world applications.

GEOG 464 Applications in Political Science (4) (also listed as POLS 464)

Prerequisite: Introductory Statistics, e.g., GEOG 282, POLS 281, or consent of instructor.

Focuses on the application of Geographic Information Systems in politics and policy to see the effects of public decisions in areas such as political behavior, redistricting, and service delivery.

Learning outcomes:

- *Understanding major features of GIS and how they are used in political science*
- *Comprehension of the principles of GIS application in socio-demographic analysis*
- *Enhancement of analytical skills*

GEOG 465 Applications in Environmental Studies (4)

Prerequisite: GEOG 369

This course is designed to introduce students to GIS applications in environmental studies and resource management. Students will be trained with real-world GIS applications and gain hands-on GIS operation skills and a better understanding on how GIS can be used for environmental studies and natural resource management.

Learning outcomes:

- *Develop a better understanding of GIS technology*
- *Use GIS to identify, explore, understand, and solve environmental problems*
- *Design and implement GIS projects*
- *Gain enhanced spatial analysis and GIS modeling skills*

Program Schedule

(tentative)

Summer Quarter

GEOG 369 Fundamentals of Geographic Information Systems (4)

Fall Quarter

GEOG 369 Fundamentals of Geographic Information Systems (4)

GEOG 463 Applications in Urban Planning (4)

Winter Quarter

GEOG 464 Applications in Political Science (4)

Spring Quarter

GEOG 465 Applications in Environmental Studies (4)

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Visit us at
www.calstatela.edu/extension

