

GEODESIGN (GEOD)

GEOD 600: 3D Modeling for Geodesign

Geodesign is a planning and design process that is based on physical and biological information, references social and economic information and is holistic and interdisciplinary. Allied design professionals need to communicate, analyze, and model the impacts of change in the built environment. In this introductory course, students will begin to apply state-of-the-art 3D geospatial modeling technology to solving real-world urban planning and design problems. Various geodesign techniques, digital technologies and scenario management tools will be introduced and applied.

Credits: 3

College: Jefferson Coll of Architecture & Built Environment

Prerequisites: GEOD 610 or LARC 310 [Min Grade: B]

Schedule Type: Hybrid, Lecture, Lecture/Studio Combination, On-Line, Studio

GEOD 602: Geodesign Studio

In this intermediate design studio, students will form collaborative teams and apply geospatial analysis techniques and information modeling to a more complex urban design problem. Students will work cooperatively with the community client/partner throughout the design process. Community members will be instructed how to use one or more geospatial tools in the decision-making process.

Credits: 6

College: Jefferson Coll of Architecture & Built Environment

Prerequisites: GEOD 600 and (GEOD 615 or LARC 515) [Min Grade: B]

Schedule Type: By Appointment - 1 student, Lecture, Lecture/Studio Combination, Studio

GEOD 603: La Tech: Advanced Grading

This Advanced Grading course augments what the students have learned in their first Grading course, plus covers in more depth other sustainable aspects of landform manipulation for design and stormwater management. Computer applications will be used as a learning tool. Field trips to sites that are particularly appropriate for observing, measuring, and experiencing the sculptural qualities and capabilities of landform are also an integral component of this course.

Credits: 3

College: Jefferson Coll of Architecture & Built Environment

Prerequisites: LARC 207 [Min Grade: D]

Schedule Type: Lab, Lecture

GEOD 604: Hydrology

Hydrology examines sustainable water resource issues as they relate to landscape planning and site planning and design within the urban or urbanizing context. This includes the theory and techniques associated with soil and water conservation comprehension of the why, when and where that leads to sustainable planning or design strategies. Topics include surface water hydrology, stormwater runoff estimation, sustainable stormwater management techniques, watershed planning, flood routing and impact mitigation, and erosion and sedimentation control tools and regulations.

Credits: 3

College: Jefferson Coll of Architecture & Built Environment

Schedule Type: Lecture

GEOD 605: Geodesign Appl Research Stud.

In this culminating studio, students will work individually or in small groups on an applied research project that was developed through a previous GeoDesign design studio, a technology course, or from an outside source. The applied research outcomes will then be used and tested as part of a community outreach planning and/or design project.

Credits: 6

College: Jefferson Coll of Architecture & Built Environment

Prerequisites: GEOD 602 and GEOD 616 [Min Grade: B]

Schedule Type: By Appointment, Lecture, Studio

GEOD 606: History of Landscape Arch 1

This survey course covers significant examples of landscapes and landscape design from the eastern, central Asian, and western regions of the world, produced from ancient times through the 19th centuries. Students will be introduced to the cultural and social history of each epoch as a means of critically analyzing key historical works of landscape design and addressing the ideas and concepts imbedded in the term landscape.

Credits: 3

College: Jefferson Coll of Architecture & Built Environment

Schedule Type: Lecture

GEOD 607: Geodesign Explorations

In this seminar/lab course, students learn to explore cutting-edge geospatial techniques, applications, and data sources and determine whether these approaches are appropriate, useful and cost-effective in a production environment. For example, LiDAR-enabled spatial robotics allows for mobile spatial data collection within buildings, but is this an appropriate technique to build a 3D contextual basemap? And how can this technology be applied to exterior urban spaces

Credits: 3

College: Jefferson Coll of Architecture & Built Environment

Prerequisites: GEOD 602 or GEOD 617 [Min Grade: B]

Schedule Type: By Appointment - 1 student, Lab, Lecture, Lecture/Lab

GEOD 608: History of Landscape Arch 2

This course is the third of a four-term sequence of history/ theory courses. It surveys key examples of landscape architecture from the mid-19th century to the present time. Students strengthen their vocabulary for analyzing and evaluating the designed landscape. Students are also introduced to the influential personalities, projects, events, concepts and thoughts that were pivotal in the philosophical and ethical development of the profession of landscape architecture.

Credits: 3

College: Jefferson Coll of Architecture & Built Environment

Schedule Type: Lecture

GEOD 610: Introduction to GIS

This course introduces students to Geographic Information Systems (GIS) and is a prerequisite for those accepted in the MS in Geospatial Technology for Geodesign program who do not have acceptable prior GIS training or professional experience. GIS is a computer-based tool that uses spatial (geographic) data to analyze and help solve real-world problems. Specific GIS methods and topics covered include digital cartography, geoprocessing techniques, demographics analysis, site selection, raster analysis, 3D GIS, land use scenario development, and environmental applications.

Credits: 3

College: Jefferson Coll of Architecture & Built Environment

Schedule Type: Hybrid, Lab, Lecture, Lecture/Lab

GEOD 612: Local Flora**Credits:** 3**College:** Jefferson Coll of Architecture & Built Environment**Schedule Type:** Lab, Lecture**GEOD 613: Sustainable Planting Design****Credits:** 3**College:** Jefferson Coll of Architecture & Built Environment**Schedule Type:** Lab, Lecture**GEOD 614: Construction Docs****Credits:** 4**College:** Jefferson Coll of Architecture & Built Environment**Schedule Type:** Lab, Lecture**GEOD 615: Adv GIS:Urbn Spctl Anlytcs 1**

This advanced GIS course will cover topics in geospatial technology as related to the allied design disciplines: landscape architecture, architecture, urban design, planning and geodesign. The course prepares students to apply GIS within practical design processes such as site preparation and analysis; modeling terrains and hydrologic processes; integration of sustainable design criteria; and modeling the built environment in 3D. While this course will cover a broad suite of tools within the Esri ArcGIS platform, it will place heavy emphasis on raster-based GIS processes. This course will also feature workshops and/or presentations by professionals who use geospatial technology in various design disciplines.

Credits: 3**College:** Jefferson Coll of Architecture & Built Environment**Prerequisites:** GEOD 610 or LARC 310 [Min Grade: B]**Schedule Type:** Lab, Lecture, Lecture/Lab, On-Line**GEOD 616: Information Modeling**

Geospatial data will be used as the basis for advanced information modeling which is an integrated process for digitally exploring, defining, representing, analyzing and visualizing a project's physical and cultural characteristics during design and management. The scales of building, campus, neighborhood, and city will be studied. Principles of spatial modeling, integrated project delivery and lean design will be discussed in relation to this process.

Credits: 3**College:** Jefferson Coll of Architecture & Built Environment**Prerequisites:** GEOD 600 [Min Grade: B]**Schedule Type:** Hybrid, Lab, Lecture**GEOD 617: Adv GIS: Urb Sprial Anlytcs II**

This advanced GIS course will focus on analysis and modeling of urban structure and dynamics. The focus of this course is on preparing students to apply GIS processes within practical situations such as market research, real estate development, transportation modeling, and socio-economic analysis. While this course will cover a broad suite of tools within the Esri ArcGIS platform, it will place heavy emphasis on the real world context of data collection, cleaning and preparation for urban analytics. Exercises will include simulating and modeling urban transportation systems, analyzing and modeling urban growth, and predicting urban changes and impacts. This course will also feature workshops and/or presentations by professionals who use geospatial technology in various design disciplines.

Credits: 3**College:** Jefferson Coll of Architecture & Built Environment**Prerequisites:** GEOD 610 or LARC 310 [Min Grade: B]**Schedule Type:** By Appointment - 1 student, By Appointment, Lab, Lecture**GEOD 618: LA Technology: Grading**

This course focuses on the principles and techniques of landform manipulation for design and drainage. Students develop an understanding of contours, contour manipulation, and site-construction methodologies. Topics include topographic and grading problems in landscape engineering: drainage plans, grading plans, spot elevations, road alignment, sections and profiles and cut-and-fill calculations.

Credits: 3**College:** Jefferson Coll of Architecture & Built Environment**Schedule Type:** Lab, Lecture, Lecture/Lab**GEOD 619: Plant Community Ecology**

This course investigates how interactions within plant species, between species, and between species and their environment influences plant community structure. Questions explored include: How many species are in a given habitat type? Why these species and not others? How do they interact with each other plants? What controls their abundances in natural and urban landscapes? Students will learn how plant distributions are influenced by environmental conditions with a particular emphasis on the urban environs. In-the-field exercises constitute a significant portion of this course.

Credits: 3**College:** Jefferson Coll of Architecture & Built Environment**Schedule Type:** Lab, Lecture, Lecture/Lab**GEOD 620: Soils****Credits:** 3**College:** Jefferson Coll of Architecture & Built Environment**Schedule Type:** Lab, Lecture**GEOD 621: Environmental Policy****Credits:** 3**College:** Jefferson Coll of Architecture & Built Environment**Schedule Type:** Lecture**GEOD 625: Inter GIS Tech for Design &Dev**

This course introduces students to online geospatial technology tools applicable in various fields including planning, landscape architecture and real estate development. Software utilized in this course aids professionals in site analysis, land planning, urban design, real estate development, market research and feasibility analyses. Emphasis is placed on the ArcGIS Online platform, an instrument used to evaluate site potential, analyze geographic datasets, host and share impactful and informative applications. Students will utilize tools and data pertaining to landscape planning, the dynamics of neighborhood change and spatial growth modeling.

Credits: 3**College:** Jefferson Coll of Architecture & Built Environment**Schedule Type:** By Appointment - 2 students, By Appointment - 3 students, Lecture