LA5582/3581 Lab Manual

Get to know the Hardware and Software Environment

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Learning Outcome

Students will achieve the following learning outcomes after finishing this exercise and assignment.

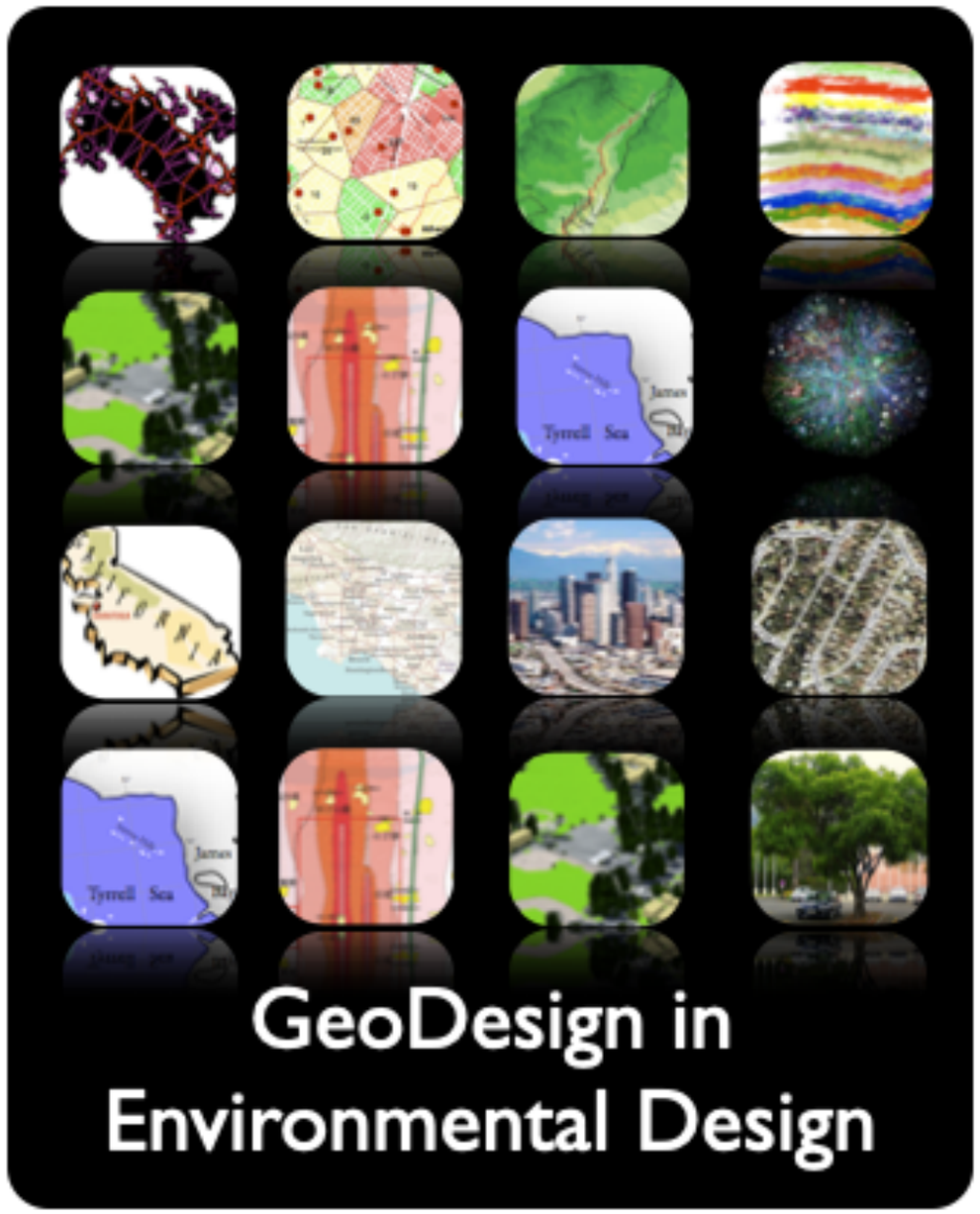
1. Understand the hardware and software environmental required for GIS and Geodesign.
2. Able to browse, load and modify symbols of geospatial data to represent inventories of landscape and social systems.
3. Able to apply mapping tools to solve basic landscape analysis problems.

Landscape Problem: Park Poverty
Spatial Problem: Location, Association
Carl Steinitz Geodesign Model: Representation and Evaluation

GIS Procedure: Data Input -> Data Representation->Visual Analysis->Data Output
GIS Models: Graphic Interface, Map Symbology, Labeling, Data Classification
Data Sources: USGS Census, LA County Enterprise GIS, etc.

Lab Purpose

Welcome to LA 5582/3581L Laboratory Sections. This is your very first laboratory exercise in LA5582/3581L. It is designed to help you get familiar with the hardware and software environment in the ENV GIS laboratory as well as provide you rough ideas about conducting digital mapping to understand the spatial distribution pattern of landscape inventory. In this lab, you will learn some basics about hardware environment of the ENV GIS lab. You will also get to know software settings available in the lab workstations (including cyber labs) and your own laptop computer including operation systems, GIS platforms that you will use for GIS exercises and projects, and other tools that are available for you to compose answers for your assignment. At the end, you will be given an assignment to map basic park location population inventory in Los Angeles to understand how environmental amenities are distributing in the county. In summary, it is the warm-up exercise for your GIS journey.



Lab Topics

1. WORKSTATION LOG-IN TO VIRTUAL GIS LAB
2. OBTAIN YOUR LAB MANUAL AND VIDEO FROM THE BLACKBOARD
3. AN INTRODUCTION OF ESRI ARCGIS DESKTOP PACKAGES
4. SCREEN CAPTURE TOOLS
5. ARCMAP INTERFACE AND FUNDAMENTAL DATA BROWSING FUNCTIONS
6. FUNDAMENTAL DATA BROWSING FUNCTIONS
7. SIMPLE SYMBOLIZATION AND LABELING FUNCTIONS
8. ASSIGNMENT

Database

Lab2 Geodabase

This geodatabase contains data mainly from the United State Census Bureau and LA County Enterprise GIS.

This database contains the following data layers:

LA_Parks: Park location polygon layer defining the location of local and regional parks in LA county.

LA_Waterbody: Major waterbodies such as lakes and reservoirs in LA County.

LA_River: Major hydrological system, e.g., rivers, streams and creeks in LA County.

LA_Population: Population data in Census Block level for LA County in 2010.

LA_Community: Major City/Community boundaries in LA County. LA City is divided into small districts. Other small cities or unincorporated areas are by their own community boundaries.

LA_County: LA County boundary

LA_COVID_CSA: COVID19 data by community from LA County Department of Public Works. The data contains both case rate and death rate of COIVID19 pandemic by January 23rd, 2021 in Los Angeles County.

Assignment

The County of Los Angeles has made a decision to improve the quality of life of its local residents through enhancing the physical environment of communities with poor access to environmental amenities, such as parks and other open space. Funding will be available to design green infrastructure and build parks in communities with highest need for more and best parks, which can be measured by the number of population without good access to environment amenities. As a landscape architect, you are hired to help the County to determine which cities/ communities should be given highest priority for the funding. Severn layers of GIS data, i.e., county boundary, community boundaries, Population data at block level (census 2010), urban parks, river corridors, water bodies, and Covid cases, are provided for your analysis.

In this very first exercise, you are going to conduct a simple mapping exercise to answer three basic questions to gain full points (10 points):

Where parks are distributed in communities in Los Angeles County?

Please apply the mapping skills and functions introduced in the above exercise and generate maps (please show both regional map and zoom-in capture of specific communities) showing the boundary of communities and location of parks (please show them in green) and answer the question with both your maps and your written discussion (first discuss the regional pattern of the park distribution, then nominate three specific communities that you found with no parks or minimum park size). Use labeling to provide necessary labels for your communities and parks. Use fast capture or the snapping tool to capture the screen of your map.

Where population is clustered in communities in Los Angeles County?

Please apply the basic mapping skills and functions introduced in the above exercise and generate maps (please show both regional map and zoom-in capture of specific communities) showing the boundary of communities

and the clusters of census blocks with high population density (use hue value for high density) and answer the questions with your maps and your written discussion (first discuss the regional pattern of the population distribution, then nominate three communities that you found with high population density). Use labeling to provide necessary labels for your communities. Use fast capture or the snapping to capture the screen of your map.

Which community is among the most park poor situation based on population and park metric?

Identify a community with both low park availability and high population density and discuss possible reasons why the neighborhood is in a park poor situation. Use fast capture or the snapping to capture the screen of your maps (provide both regional and close-up community map).

Extra Credit:

The Covid19 pandemic has been affecting the entire global population since 2019. By the end of January 2021, more than 1 million people in the County of Los Angeles has been tested positive with Coronavirus disease. Conduct mapping exercises to answer the following question to gain extra credit (5 points).

Which community is among the most COVID19-impacted?

Identify a community with high COVID19 case rate (No. of case per 1000,000 residents) and death rate (No. of deaths per 100,000 residents) and high population density and discuss possible reasons why the community is in such a situation. Use fast capture or the snapping to capture the screen of your maps (provide both regional and close-up community map)

Report Format

Develop a layout to demonstrate your maps and discussion as answers to the questions. Record the major steps of your analysis with captured images and description on ONE or more “11 by 17” layout (You can edit the layout in word, Photoshop, illustrator or any graphic software that you are familiar with) and generate a PDF for submission. The structure of your layout should be succinct and straightforward. Please provide data sources and reference where necessary. All data from the class can be cited as “Data Source: LA5582/3581 Class Geodatabase 2021” Submit your assignment through BlackBoard under the

assignment folder.

Should you have any questions about this assignment,
email your instructor at wli@cpp.edu.

Grading Matrix

Your assignment will be graded with the following matrix:

Critical thinking demonstrated through written discussion.	10%
Level of understanding of the natural, social and cultural process, and other disciplinary knowledge involved in the project.	10%
Completeness of assignments.	20%
Clarity and accuracy of solutions.	30%
Individual progress and growth.	5%
Effectiveness of Graphic representations and communication and and professional appearance of submission.	20%
Academic Integrity, e.g., citations, references, data sources etc.	5%
Total	100%
Extra credit (5 points) to be added on top of the full possible 10 points.	150%
Timeliness of assignment completion.	2 points deduction each day late
All points will be deducted if there is serious plagiarism found, e.g., copy part of or entire version of others' work	

Assessment Rubric

Student Learning Outcome	Assessment Criteria (Formative)	Points (10)		Rating and Assessment Description		
			0%	50% (Needs Improvement)	75% (Developing)	100% (Exemplary)
SLO1 Critical Thinking	Critical thinking demonstrated through written discussion in the assignment.	1	No Discussion provided at all.	Outline major project process,	Outline major project process, explain why such process is relevant to solve the assignment problem,	Outline major project process, explain why such process is relevant to solve the assignment problem, and provide crucial discussion on issues related to the assignment.
SLO3 Natural Processes and/ or SLO4 Cultural Processes	Discuss the natural, social and cultural process, and other disciplinary knowledge involved in the project through in assignment submission.	1	No Discussion provided at all.	Provide a brief discussion to link natural and/or cultural processes to the assignment project and/or point out how the assignment may or may not help the understanding of such processes	Provide a clear discussion to link natural and/or cultural processes to the assignment project and/or point out how the assignment may or may not help the understanding of such processes	Provide an in-depth discussion to link natural and/or cultural processes to the assignment project and/or point out how the assignment may or may not help understanding such processes
SLO5 Disciplinary Knowledge	Able to apply mapping tools to solve basic landscape analysis problems through completion of the entire assignment.	2	No Discussion provided at all.	Complete some components of the assignment and demonstrate preliminary ability to resolve design and planning problem involved in the assignment.	Complete most components of the assignment and demonstrate good ability to resolve design and planning problem involved in the assignment.	Complete all components of the assignment and demonstrate strong ability to resolve design and planning problem involved in the assignment.
SLO6 Digital Skills	Be familiar with the hardware and software environmental required for GIS and Geodesign. Able to browse, load and modify symbols of geospatial data to represent inventories of landscape and social systems and show clarity and accuracy of solutions to the assignment.	3	No data and maps presented.	Solutions to assignment problems are partially accurate as demonstrated in both graphics and narratives.	Solutions to assignment problems are accurate as demonstrated in both graphics and narratives.	Solutions to assignment problems are both clear and accurate as demonstrated in both graphics and narratives.
SLO7 Professional Responsibility	Demonstrate academic Integrity, e.g., citations, references, data sources etc.	1	No citation, reference and data source provided	Data sources, citations, and references are partially provided in improper formats.	Data sources, citations, and references are partially provided in proper formats.	All data sources, citations, and references are properly provided
SLO9 Communication	Demonstrate effective graphic representations and communication and and professional appearance of submission.	2	No data and maps presented.	Lack of proper design and arrangement of graphic components. Maps come without standard map components.	Some graphic components are shown in proper colors, line weights, and layout order. Maps come with part of the standard map components.	All graphic components are shown in proper colors, line weights, and layout order. Maps come with all standard map components.