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Riverside Community College

GIS 101 Fundamentals of Geographic Information Systems

Semester Fall 2023 **Campus** Riverside
Location In-person, LEC QD 26 **Department Website:** [website link]
Day(s) & Time Tuesdays & Thursday, 6:00 PM to 7:25 PM (1.5 hours each)

Instructor Vanessa Arias Casillas (She/Her) **Website:** vanessaariascasillas.wordpress.com/
Office Location BE 220 **Schedule of Office Hours** Appointments Only
Office Phone 909-333-3333 (email preferred) **Email Address** vanessa.casillas@rccemail.edu
A bit about the instructor Vanessa Arias Casillas is currently a Doctoral Candidate in the Information Systems and Technology program at Claremont Graduate University. She has a background in Latino Studies and Business Administration with an emphasis in GIS. Her favorite season is Autumn.

Welcome
Welcome to GIS 101 Fundamentals of Geographic Information Systems, together we will venture off into a journey of learning about the last world of GIS. I cannot wait to share the tools to help you continue your process of making sense of your interest in the world.

Course Description
This course offers a foundational understanding of map creation, spatial data analysis, and the practical use of GIS. Topics covered include distinguishing spatial and non-spatial data, data storage principles, and techniques for data visualization and analysis. The course explores the integration of GIS in different organizations and discusses current trends in the field. Practical applications in diverse fields will be explored to demonstrate the real-world relevance of GIS.

Required Text/materials:
GIS Fundamentals A First Text on Geographic Information Systems, Sixth Edition, by Paul Bolstad.
ISBN-10 1593995520, ISBN-13: 978-1593995522
USB Drive: You may wish to bring a personal portable USB drive (5GB or larger) to class with you. Data storage is very important in this class, and you should consistently back up your work.
Blue light glasses: Zoom fatigue is real.

Books, Readings, and Materials:
Additional course readings and materials will be delivered either in-class or online.

Course Objectives
- Develop a strong understanding of Geographic Information Systems (GIS) concepts and applications.
- Apply GIS techniques to analyze and interpret spatial data effectively.
- Gain proficiency in using GIS software and performing basic GIS tasks.
- Collect, manage, and organize spatial data accurately within a GIS environment.
- Use critical thinking and problem-solving skills to address spatial problems using GIS analysis.
- Design visually appealing and informative maps using GIS software.
- Explore the ethical and societal implications of GIS applications.
- Reflect on personal growth and learning to enhance GIS knowledge and skills.

Prerequisites: None.

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Student Learning Outcomes

- Develop a foundational understanding of Geographic Information Systems (GIS) concepts, principles, and applications.
- Apply coordinate systems, map projections, and data models to accurately represent and analyze spatial data.
- Differentiate and utilize vector and raster data models for effective manipulation and visualization of spatial data.
- Collect and input spatial data using data acquisition techniques such as GPS and remote sensing.
- Manage spatial data effectively, including organization, querying, and retrieval, using GIS database principles.
- Perform basic spatial analysis tasks, such as buffering and overlay, to extract meaningful insights from spatial data.
- Apply cartographic principles to design visually appealing and informative maps using GIS software.
- Apply knowledge and skills gained throughout the course to complete a comprehensive GIS project, solving a real-world problem, or addressing a specific research question.

Assessment Plan *Indicate formative (F) or summative (S)*	**Fink, Bloom, LEAP**	**SLO 1**	**SLO 2**	**SLO 3**	**SLO 4**	**SLO 5**	**SLO 6**	**SLO 7**	**SLO 8**
		SLO 1: Demonstrate knowledge of GIS concepts, principles, and application.	SLO 2: Apply coordinate systems, map projections, and data models in spatial data analysis.	SLO 3: Differentiate and utilize vector and raster data models for spatial data manipulation and visualization.	SLO 4: Collect and input spatial data using GPS and remote sensing techniques.	SLO 5: Manage spatial data using GIS database principles.	SLO 6: Perform basic spatial analysis tasks on spatial data.	SLO 7: Apply cartographic principles to design maps using GIS software.	SLO 8: Apply GIS knowledge and skills in completing a comprehensive project.
Lectures, Readings Formative Individual work	Bloom – Remember/Understand Fink – Foundational Knowledge LEAP – Knowledge of Human Cultures and the Physical and Natural World	x	x	x				x	x
Practical exercises, Assignments Formative Individual or Solo	Bloom – Apply/Analyze/Evaluate Fink – Application and Integration LEAP – Inquiry and Analysis, Problem Solving		x	x		x	x		
Fieldwork, Data collection exercises Formative Group	Bloom – Apply/Analyze Fink – Human Dimension LEAP – Communication				x	x	x	x	
Design projects, Map creation tasks Formative Individual	Bloom – Create/Evaluate Fink – Human Dimension LEAP – Communication				x	x	x	x	x
Final project Summative Group	Bloom – Create/Evaluate Fink – Integration LEAP – Integrative Learning				x	x	x		x

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Teaching Philosophy

I strive to make our geographical information systems class diverse and academically stimulating. I welcome every student's involvement in this wonderful community! Feel free to ask questions, give feedback, offer suggestions, or anything else that'll help you engage with the course material. We'll build a positive and inclusive learning environment together. Just remember to come prepared and on time to class, and let's interact with respect and enthusiasm. Your active participation and attendance in all sessions are expected, so let's make this journey of learning awesome!

Diversity, Equality, Inclusion and Justice

My mission is to cultivate an inclusive and fair educational setting that celebrates diversity and transforms the classroom into a space of meaningful discovery. Creating a psychologically safe and supportive environment is a top priority, where all students' voices are heard, valued, and respected. I am dedicated to teaching inclusive content and embracing diverse perspectives while continuously learning and evolving to empower and uplift every student. To help me accomplish this, please reach out to me if:

- Your name or pronouns are different than what is listed in the records.
- You have experiences that impact your ability to be an active participant in the classroom.
- Something happened in the classroom that made you feel uncomfortable. This could be anyone, including me.

If you would rather tell me anonymously, please use this link [insert Qualtrics survey link]

Important Dates

	Fall 2023
Term Begins	8/21/2023
Term Ends	12/16/2023
Classes not in session (Holidays, Spring Vacation, etc.)	Sep 4, 2023, Nov 10, 2023 Nov 20-26, 2023, Dec 17-Jan 1, 2023
Add Deadline for most classes P/NP Deadline for most classes	9/4/2023
Refund Deadline for most classes Short term classes: 10% of class mtg	9/2/2023
Drop without a "W" for most classes (Day before Census, or 20% for short term classes)	9/4/2023
Drop with a "W" for most classes (75%for short term classes)	11/10/2023
Census Date for most classes	9/5/2023

For more dates: https://www.rcc.edu/academics/dates-and-deadlines.html

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Additional Resources (Input Material)

Resources	Resource Type	Diversity in Scholarship. Pragmatically and Culturally Relevant & Meaningful
"GIS Fundamentals: A First Text on Geographic Information Systems" by Paul Bolstad	Books	A comprehensive introductory textbook on GIS concepts.
"Getting to Know ArcGIS" by Michael Law and Amy Collins	Books	A user-friendly guidebook for learning ArcGIS software.
"The ESRI Guide to GIS Analysis, Volume 1: Geographic Patterns & Relationships" by Andy Mitchell	Books	A practical resource for understanding GIS analysis techniques.
"Spatial Analysis of Urban Heat Island Effect Using Remote Sensing and GIS: A Case Study in Cairo, Egypt" by Ahmed El Kammar and Tarek Selim	Research Articles	A research article investigating the urban heat island phenomenon using GIS techniques in Cairo.
"Exploring the Impact of Green Spaces on Urban Heat Islands: A Systematic Review and Meta-analysis" by Lingyan Huang and Xinyue Ye	Research Articles	A systematic review analyzing the influence of green spaces on urban heat islands.
"Integrating GIS and Participatory Mapping to Assess Indigenous Land Use and Inform Conservation in the Peruvian Amazon" by Sarah Reed et al.	Research Articles	A study exploring the use of GIS and participatory mapping to assess indigenous land use in the Peruvian Amazon.
ESRI's official website (https://www.esri.com/)	Websites	The official website of ESRI, a leading provider of GIS software and solutions.
United Nations Office for Outer Space Affairs - GIS Portal (https://www.unoosa.org/gnss/index.html)	Websites	The GIS portal of the United Nations Office for Outer Space Affairs, providing geospatial resources and information.
National Geographic's Mapping Platform (https://www.nationalgeographic.org/education/mapping/)	Websites	National Geographic's platform offering educational resources and interactive mapping tools.
ESRI's GIS Tutorial Videos (https://www.youtube.com/user/esritvc)	Videos	A collection of tutorial videos by ESRI, demonstrating various GIS techniques and workflows.
"The Power of GIS Mapping" TED Talk by Jack Dangermond	Videos	A TED Talk discussing the transformative power of GIS mapping in understanding the world around us.
"GIS and Conservation" Webinar by NatureServe	Videos	A webinar exploring the application of GIS in conservation efforts and biodiversity mapping.
"The MapScaping Podcast" hosted by Daniel O'Donohue	Podcasts	A podcast featuring discussions on geospatial technologies, mapping, and GIS-related topics.
"The Geomob Podcast" hosted by Ed Freyfogle and Steven Feldman	Podcasts	A podcast highlighting innovative location-based services, mapping applications, and geospatial startups.
"Scene From Above" hosted by Andrew Cutts and Alastair Graham	Podcasts	A podcast delving into the world of Earth observation, remote sensing, and geospatial technology.
GIS Lounge (https://www.gislounge.com/)	News, Blogs, Magazines	An online platform offering news, articles, and resources on GIS topics.
Directions Magazine (https://www.directionsmag.com/)	News, Blogs, Magazines	An industry-focused publication covering trends, insights, and applications of geospatial technologies.
Geoawesomeness (https://geoawesomeness.com/)	News, Blogs, Magazines	A blog providing interesting stories, news, and discussions on the latest in the geospatial field.

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Assessment and Assignment Breakdown

Grading:

A+	100 (4.0)
A	95.00 - 99.99 (3.8)
A-	92.50 - 94.99 (3.7)
B+	82.50 - 92.49 (3.3)
B	75.00 - 82.49 (3.0)
B-	67.50 -- 74.99 (2.7)
C+	57.50 - 67.49 (2.3)
C	50.00 - 57.49 (2.0)
C-	42.50 - 49.99 (1.7)

RCC Grading (https://www.rcc.edu/student-support/academic-policies-procedures.html)

Course Requirements:

In-class Activity	15%	15 points
Homework	15%	15 points
Reading / Discussion	15%	15 points
Reflections	15%	15 points
GIS Project	35%	35 points
Class Participation	10%	10 points
Total	**100%**	**100 points**

In-class Activity (15 points)
In each class, there will be both in-class activities and homework assignments. The in-class activities will start during class time and should ideally be completed in class, but, if necessary, they can be finished outside of class and submitted by the next session.

Homework (15 points)
Similarly, the homework assignments may be initiated in class but should be completed outside of class and submitted by the next session. Collaborative work with fellow students is allowed for these assignments.

Reading / Discussion (15 points)
This assignment is to be completed individually. Each student is required to read the assigned book chapter, article, or any other relevant material and share a thoughtful response on Canvas in the designated Discussion area. This response will serve as the basis for an in-class discourse. The post should consist of approximately 150-250 words and may also include insights gained from the raise questions that may arising of the material, areas, or topics you would like to further explore and links to supplementary resources such as websites or videos.

Reflections (15 points)
This assignment you will keep a personal notebook throughout the course. The notebook serves as a tool for self-reflection, allowing you to record their thoughts, insights, and connections to the course material. Through regular entries, you can track their progress, ponder on their understanding, and identify areas of growth. You can use the additional resources to explore the community of the GIS world and write a reflection on it, the top of the paper should have the name of the resource. Digital (one screenshot for canvas each week) or Paper (one picture for canvas each week) notebook.

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GIS Project (35 points total)
For this task, you are encouraged to consider your personal interests or concerns and explore ways to address them through a GIS project. The deliverable can be in the form of applying GIS analysis to a problem or developing a GIS solution for a specific use-case. The grading for this project is divided as follows:

- Project Proposal and Presentation (5 points)
- Final Presentation (10 points)
- Final Paper (15 points)

This is a group project that requires a minimum of two and a maximum of three members per group. Group members should be decided upon by Week 3, as the Project Proposal and Presentation are due in Week 6. More detailed instructions will be provided in the GIS Project handouts.

Class Participation (10 points)
Active participation in class is essential for the learning process, particularly in a course where the subject matter and technologies are constantly evolving. Your contributions and insights will be evaluated based on their quality and usefulness. Your comments should offer a different and unique, but relevant, perspective, contribute to moving the discussion and analysis forward, and build on the comments of others.

Submission Guidelines:
All assignments must be submitted (uploaded on Canvas) by **6:00 PM** on the day of class. Any assignments submitted after this date / time will be considered late and (0.5) points will be deducted from all late assignments. Assignments more than 48 hours late will not be accepted and will receive (0) points. If you need more time to complete assignments, talk to me, we can work a new due date out.

Writing and Presentation Guidelines:
When working on your assignments, make sure you follow the basic grammar, spelling, and punctuation rules. It's important to clearly state the main points and back them up with specific details, examples, or analysis. Keep things organized in a logical way, and make sure your sentences are complete, clear, and to the point. Assignments that do not meet these guidelines will have (0.5) points deducted. If you have concerns regarding language or writing skills, please visit the Writing and Reading Center (WRC) (https://www.rcc.edu/student-support/wrc.html).

Course Requirement	Bloom's Taxonomy	Fink's Taxonomy	LEAP Essential Learning Outcomes	SLOs
In-class Activity, Homework	Remember, Understand	Foundational Knowledge	Knowledge Acquisition, Intellectual Skills	SLO1, SLO2, SLO3, SLO4, SLO5, SLO6
Reading / Discussion	Apply, Analyze	Application, Integration	Intellectual Skills, Practical Competence	SLO1
Reflection	Apply, Evaluate	Integration, Human Dimension	Intellectual Skills, Personal and Social Responsibility	SLO1
GIS Project	Analyze, Evaluate	Application, Human Dimension	Intellectual Skills, Personal and Social Responsibility	SLO 7, SLO8
Class Participation	Apply, Analyze	Application, Human Dimension	Intellectual Skills, Personal and Social Responsibility	SLO1

Policies and Resources

Regardless of whether you are a first-year student, a classified professional, or a career instructor with years of experience educating generations, we kindly request all members of the RCC community to actively participate in this social agreement. The expectations and guidelines for handling complaints within the Riverside Community College District are outlined in the Board of Policies and Administrative Procedures. You can find detailed information about these procedures at the following link: https://www.rcc.edu/student-support/academic-policies-procedures.html.

Attendance
All students are required to attend every class, regardless of whether they are taking it for credit or as an audit. If a student is unable to attend a class, they must obtain permission for an excused absence from the instructor or teaching assistant prior to the class session. Failure to receive approval for absences or consistently arriving late to three or more classes may result in a reduced grade or involuntary withdrawal from the course. Refunds for withdrawn courses will follow RCC's published Academic Calendar guidelines. If students need to miss a class, it is recommended that they arrange to obtain notes from a fellow student. Additionally, students are strongly encouraged to meet with the teaching assistant to acquire any missing material. It should be noted that any missed opportunities for extra-credit quizzes or papers cannot be made up.

Electronic Devices
During class hours, electronic devices such as laptops, tablets, and smartphones are allowed for specific class-related tasks, including working on exercises, taking notes, or accessing relevant information. However, any other use of electronic devices, such as making phone calls, texting, playing games, using social media, checking email, or browsing the web for non-class activities, is strictly prohibited.

Academic Honesty
All work performed within this class must originate from your own efforts. While you are encouraged to expand upon, respond to, critique, and analyze the ideas put forth by others, it is essential to attribute those ideas to their respective sources. Explicitly acknowledging the contributions of your classmates, professors, and the authors you have studied is mandatory when your work incorporates their ideas. If you are uncertain about distinguishing between others' work and your own, it is advisable to seek guidance from your professor. Examinations must be completed independently, without the use of cell phones, tablets, or computers to search for or retrieve materials. Collaboration on exam answers, unless explicitly authorized by the instructor, can lead to an automatic failing grade and potential expulsion from the Program. To ensure that all quotations and references to other work have been properly cited, we will use a service called Turnitin. The minimum penalty for plagiarism is a zero for the assignment where it occurred; more severe penalties can include failure in the course and expulsion from the program. For further details, please refer to https://www.rcc.edu/student-support/academic-policies-procedures.html.

Accommodations for Students with Disabilities
If you would like to request academic accommodation due to temporary or permanent disability, contact the DRC Team at drc@rcc.edu or (951) 222-8060. Appropriate accommodations are considered after you have conferred with the Disability Resource Center (DRC) and presented the required documentation of your disability to the DRC. https://www.rcc.edu/student-support/disability-resources.html

Mental Health Resources
School provides a setting where challenges to mental well-being can emerge or intensify. Whenever you encounter difficulties, don't hesitate to seek assistance. If you wish to seek out campus resources, here is some basic information: https://www.rcc.edu/student-support/health-wellness.html.

Title IX
If I learn of any potential violation of RCC's gender-based misconduct policy (e.g., rape, sexual assault, dating violence, domestic violence, or stalking) by any means, I am required to notify the RCC's Title IX Coordinator at Danielle.Sanders@rccd.edu or (951) 328-3703. Students can request confidentiality from the institution, which I will communicate to the Title IX Coordinator. If students want to speak with someone confidentially, the following resources are available on and off campus: Community Resources Center (951) 686-7273, SART Services (951) 486-4000, and Corona Regional Medical Center (951) 736- 6241. Speaking with a confidential resource does not preclude students from making a formal report to the Title IX Coordinator if and when they are ready. Confidential resources can walk students through all of their reporting options. They can also provide students with information and assistance in accessing academic, medical, and other support services they may need.

Campus Security
Campus security can be reached 24 hours/day at (951) 222-8171.

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Learning Support Resources

Writing Center
Website: https://www.rcc.edu/services/writingcenter/Pages/default.aspx
Phone: (951) 222-8407
Description: Writing assistance and support services for students to improve their writing skills and receive help with assignments.

Library
Website: https://www.rcc.edu/library/Pages/default.aspx
Phone: (951) 222-8652
Description: Library resources, research assistance, and study spaces available for students to support their academic endeavors.

Computer Lab
Website: https://www.rcc.edu/services/computer-labs/Pages/default.aspx
Phone: (951) 222-8626
Description: Access to computer facilities and technical support for students to complete coursework and utilize software applications.

Personal and Professional Development

Career Center
Website: https://www.rcc.edu/services/career-center/Pages/default.aspx
Phone: (951) 222-8445
Description: Career exploration, job search assistance, and resources to support students in their professional development and transition to the workforce.

College Food Pantry
Website: https://www.rcc.edu/services/food-pantry/Pages/default.aspx
Phone: (951) 222-8746
Description: On-campus food pantry aiding students facing food insecurity, offering access to nutritious food resources.

Health Services
Website: https://www.rcc.edu/services/health-services/Pages/default.aspx
Phone: (951) 222-8151
Description: Health services and wellness programs promoting physical well-being and providing medical support for students.

Mental Health and Counseling
Website: https://www.rcc.edu/services/counseling/Pages/default.aspx
Phone: (951) 222-8440
Description: Counseling and mental health services to support students' emotional well-being, personal growth, and academic success.

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LGBTQ+ Resources
Website: https://www.rcc.edu/services/lgbtq-resources/Pages/default.aspx
Phone: (951) 222-8140
Description: Resources and support services for LGBTQ+ students, promoting inclusivity, awareness, and community engagement.

Affinity Groups – Cultural, Parents, etc.
Website: https://www.rcc.edu/services/clubs/Pages/default.aspx
Phone: (951) 222-8644
Description: Affinity groups and student clubs representing diverse cultures, interests, and communities, fostering a sense of belonging and support.

Domestic Abuse Support Centers/Shelters
Riverside Area Rape Crisis Center
Hotline: (951) 686-7273
Website: https://www.rarcc.org/
Description: Support services, resources, and crisis intervention for individuals impacted by domestic abuse and sexual violence.

STI Testing & Reproductive Health Services
Planned Parenthood - Riverside Health Center
Phone: (800) 576-5544
Website: https://www.plannedparenthood.org/health-center/california/riverside/92506/riverside-health-center-4094-91900
Description: Reproductive health services, including STI testing, family planning, and confidential counseling, provided by Planned Parenthood.

Childcare
Riverside City College Child Development Center
Phone: (951) 222-8023
Website: https://www.rcc.edu/services/child-development-center/Pages/default.aspx
Description: On-campus child development center providing childcare services and early childhood education programs for students with children.

Fitness & Physical Therapy Resources
Riverside City College Athletics Department
Phone: (951) 222-8401
Website: https://rcctigers.com/landing/index
Description: Athletics programs, fitness facilities, and physical therapy resources to support students' fitness goals and overall well-being.

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Schedule for Course:

	Date	Topic	Reading / Discussion	In-class Activity/Homework	Assignment Due
1	8/22/2023	Syllabus		**In-class Activity (1)** Get started with ArcGIS Online **Homework (1)** Introduction to GIS Software Familiarize students with GIS software, its interface, basic functions, and navigation	SLO 1, SLO 2
1	8/24/2023	Introduction to GIS	**Reading / Discussion (1)** 1: Introduction	**In-class Activity (2)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (2)** Map Interpretation Exercise Analyze and interpret existing maps to understand different types of spatial data and their representation.	Reading / Discussion (1) In-class Activity (1) Homework (1) SLO 1, SLO 3 Reflection (1)
2	8/29/2023 8/31/2023	Vector Data Models, Raster Data Models	**Reading / Discussion (2)** 2: Data Models	**In-class Activity (3)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (3)** Vector Data Models Exploration Examine vector data models, such as points, lines, and polygons, and work with sample datasets to understand their characteristics and applications.	Reading / Discussion (2) In-class Activity (2) Homework (2) SLO 3 Reflection (2)
3	9/5/2023 9/7/2023	Coordinate Systems and Map Projections	**Reading / Discussion (3)** 3: Geodesy and Map Projections	**In-class Activity (4)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (4)** Coordinate Systems and Map Projections Basics Explore coordinate systems and map projections, understand their importance, and practice using them in GIS software.	Reading / Discussion (3) In-class Activity (3) Homework (3) **Group Members** SLO 2 Reflection (3)
4	9/12/2023 9/14/2023	Data Input	**Reading / Discussion (4)** 4: Data Entry and Editing	**In-class Activity (5)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (5)** Data Input Exercise Acquire and input spatial data from various sources, such as CSV files or online geospatial databases, into GIS software.	Reading / Discussion (4) In-class Activity (4) Homework (4) SLO 4 Reflection (4)
5	9/19/2023 9/21/2023	GPS and Remote Sensing	**Reading / Discussion (5)** 5: Global Navigation Satellite Systems	**In-class Activity (6)** Study Questions Discussion, Hands-on, Project time with group **Homework (6)** Introduction to GPS and Remote Sensing Gain an understanding of GPS technology and remote sensing principles and discuss their applications in GIS.	Reading / Discussion (5) In-class Activity (5) Homework (5) SLO 4 Reflection (5)
6	9/26/2023 9/28/2023	GPS and Remote Sensing	**Reading / Discussion (6)** 6: Aerial and Satellite Images	**In-class Activity (7)** Study Questions Discussion, Hands-on, Project time with group **Homework (7)** Introduction to Remote Sensing Data Understand the principles of GPS and its application in data collection. Learn how to use GPS devices to collect spatial data in the field and import the collected data into GIS software for visualization and analysis.	Reading / Discussion (6) In-class Activity (6) Homework (6) **Project Proposal and Presentation** SLO 4 Reflection (6)

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7	10/3/2023 10/5/2023	Data Management	**Reading / Discussion (7)** 7: Digital Data Sources	**In-class Activity (8)** Study Questions Discussion, Hands-on, Project time with group **Homework (8)** Introduction to Data Sources and Management Familiarize students with different digital data sources, including online databases and web services. Learn basic data management techniques such as file organization, metadata creation, and data retrieval.	Reading / Discussion (7) In-class Activity (7) Homework (7) SLO 5 Reflection (7)
8	10/10/2023 10/12/2023	Data Management	**Reading / Discussion (8)** 8: Tables and Relational Databases	**In-class Activity (9)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (9)** Introduction to Tabular Data in GIS Understand the importance of tabular data in GIS and learn how to work with attribute tables. Perform basic operations such as sorting, filtering, and joining tables in GIS software.	Reading / Discussion (8) In-class Activity (8) Homework (8) SLO 5 Reflection (8)
9	10/17/2023 10/19/2023	Basic Spatial Analysis	**Reading / Discussion (9)** 9: Basic Spatial Analysis	**In-class Activity (10)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (10)** Introduction to Spatial Analysis Techniques Explore basic spatial analysis techniques such as buffering, overlay, and spatial querying. Apply these techniques to analyze spatial relationships and derive meaningful insights from spatial data.	Reading / Discussion (9) In-class Activity (9) Homework (9) SLO 6 Reflection (9)
10	10/24/2023 10/26/2023	Spatial Analysis	**Reading / Discussion (10)** 10: Topics in Raster Analysis	**In-class Activity (11)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (11)** Introduction to Raster Analysis Learn the fundamentals of working with raster data and perform basic raster analysis tasks such as reclassification, raster calculation, and terrain analysis using GIS software.	Reading / Discussion (10) In-class Activity (10) Homework (10) SLO 6 Reflection (10)
11	10/31/2023 11/2/2023	Spatial Analysis, Data Visualization	**Reading / Discussion (11)** 11: Terrain Analysis	**In-class Activity (12)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (12)** Terrain Analysis Exercise Apply terrain analysis techniques to derive slope, aspect, and other terrain characteristics from digital elevation models (DEM). Learn how to visualize and interpret terrain analysis results.	Reading / Discussion (11) In-class Activity (11) Homework (11) SLO 6 Reflection (11)
12	11/7/2023 11/9/2023	Spatial Analysis	**Reading / Discussion (12)** 12: Interpolation and Spatial Estimation	**In-class Activity (13)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (13)** Introduction to Spatial Interpolation Understand the concept of spatial interpolation and its application in GIS. Learn how to use interpolation methods such as IDW or Kriging to estimate values at unmeasured locations in a continuous surface.	Reading / Discussion (12) In-class Activity (12) Homework (12) SLO 6 Reflection (12)

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13	11/14/2023 11/16/2023	GIS in Practice	**Reading / Discussion (13)** 13: Spatial Models	**In-class Activity (14)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (14)** Introduction to GIS in Practice Explore real-world applications of GIS in various fields, such as environmental management, urban planning, or transportation. Discuss case studies and examples to understand how GIS is used in practice.	Reading / Discussion (13) In-class Activity (13) Homework (13) SLO 1, SLO 8 Reflection (13)
14	11/21/2022	Project Time			
14	**11/23/2023**	**No**	**Class**	**Thanksgiving**	**Break**
15	11/28/2023 11/30/2023	GIS in Society	**Reading / Discussion (14)** 14: Data Standards and Quality	**In-class Activity (15)** Lecture, Study Questions Discussion, Hands-on, Project time with group **Homework (15)** GIS and Community Mapping Exercise Search local community or organization to create a community map using GIS. Identify relevant spatial information and involve community members in the mapping process. Discuss the importance of participatory GIS and its benefits.	Reading / Discussion (14) In-class Activity (14) Homework (14) SLO 1, SLO 8 Reflection (14)
16	12/5/2023 12/7/2023	GIS in Society	**Reading / Discussion (15)** 15: Future Trends	**In-class Activity (16)** Lecture, Study Questions Discussion, Project time with group	Reading / Discussion (15) In-class Activity (15) Homework (15) SLO 1, SLO 8 Reflection (15)
17	12/12/2023	FINAL EXAMINATIONS			Final Project Presentation
17	12/14/2023	FINAL EXAMINATIONS			Final Project Paper

Normal class day Agenda

6:00pm
- House Items (~10 mins)
- Lecture (~15 mins)
- Discussion (~15 mins)

6:40pm
- Break (~5 mins)

6:45pm
- Project time with group (~15 mins)

7:00 pm
- Hands-on (~20 mins)
- Summary (~5 mins)

7:25pm

Reflection Notebook Idea

Write a reflective essay on the potential applications of GIS in various sectors, such as healthcare, transportation, or environmental conservation. Discuss the benefits and challenges of using GIS in these areas and provide personal insights on its potential.

Syllabus Changes

Syllabus is subject to change with the class flow, check Canvas site for the latest version and assignments.