Course Syllabus

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GIS 341: Introduction to Cartography and Georepresentation

Course Information

Course Description: This course introduces cartography – the art, science, and technology of maps and map making. Students will learn the fundamental principles of map design and utilize computer software to produce maps to communicate geographic information clearly and effectively.

Credits: 3

Prerequisites: GIS 205 with C or better

Instructor: Yueling Li

Contact: yueling.li@asu.edu (mailto:yueling.li@asu.edu)

Lab Help (No appointment needed): GIS Peer Mentors (https://asu.instructure.com/courses/233150/pages/peer-mentor-availability-in-real-time)

General studies designation statement and outcomes

This course fulfills the ASU Quantitative Reasoning General Studies requirement. Students completing a Quantitative Reasoning course will be able to:

1. Understand variables, measurement and data, including how they can be used to pose and answer questions about society and nature, and to manipulate, organize, classify and visualize quantitative data.

2. Evaluate arguments from everyday life or academic fields of study that are represented mathematically, statistically, computationally, or in visualizations.

3. Formulate hypotheses, mathematical models or narratives that are consistent with quantitative data.

4. Communicate how quantitative data, interpretations, or models are connected to outcomes, predictions, decisions, explanations, or future states.

5. Employ one or more digital tools effectively to accomplish these outcomes.

Course Learning Outcomes

After completing this course, students will be able to:

- Understand and utilize cartographic vocabulary to critically evaluate maps, with a focus on how variables, measurements, and spatial data can be used to pose and answer questions about society and nature.
- Organize and manipulate spatial data using ArcGIS Pro to classify, visualize, and interpret quantitative data in the context of map-making.
- Apply cartographic design principles, including symbology, color theory, projection selection, and layout design, to produce clear, meaningful, and effective maps that are mathematically and statistically sound.
- Evaluate and formulate hypotheses or models represented in maps, ensuring that choices related to scale, representation, and visualization are consistent with quantitative data and underlying narratives.
- Communicate how spatial data, map interpretations, and cartographic decisions contribute to outcomes, predictions, and explanations, using digital tools effectively to accomplish these goals.

Course Materials

There is no required textbook. The course materials are selected from the online resources and the following books. All readings will be posted as PDF files or website links on the Canvas course site under each week's module.

Books:

- Brewer, Cynthia A. 2014. *Designing Better Maps: A Guide for GIS Users*. Second Edition. ESRI Press.
- Krygier, John, and Denis Wood. 2016. *Making Maps: A Visual Guide to Map Design for GIS*. 3rd ed. Guilford Publications.
- Peterson, Gretchen N. 2009. *GIS Cartography: A Guide to Effective Map Design.* CRC Press
- Price, Maribeth H. 2015. *Mastering ArcGIS*. McGraw-Hill Education.

Students are welcome (but not required to) purchase these books for future study. Other cartographic resources will be provided on the "Learning Materials" page under each week's module.

Course Access

Your ASU courses can be accessed by both **my.asu.edu** (http://my.asu.edu) and **myasucourses.asu.edu** (http://myasucourses.asu.edu); bookmark both if one site is down.

Computer Requirements

This is a fully online course; therefore, it requires a computer with internet access and the following technologies:

- Web browsers (**Chrome** (https://www.google.com/chrome), **Mozilla Firefox** (http://www.mozilla.org/en-US/firefox/new/), or **Safari** (http://www.apple.com/safari/))
- **Adobe Acrobat Reader** (http://get.adobe.com/reader/) (free)
- ArcGIS Pro (**free for ASU students** (https://libguides.asu.edu/esrisoftware/arcgispro))*
- Microsoft Office (**Microsoft 365 is free** (https://myapps.asu.edu/app/microsoft-office-2016-home-usage) for all currently enrolled ASU students)
- A reliable broadband internet connection (DSL or cable) is needed to stream videos.

* If you're an ASU Online student, you must install ArcGIS on your computer. In that case, you will follow the installation instructions on Canvas. If you are an on-campus student, you can also access the software on the **campus computing sites.** (https://tech.asu.edu/services/campus-it-sites)

Note: A smartphone, iPad, Chromebook, etc. will not be sufficient for completing your work in ASU Online courses. While you can access course content with mobile devices, you must use a computer or laptop for all assignments, quizzes, and labs.

All the Lab instructions, TA and peer mentor support are based on the ArcGIS Pro.

Help

For technical support, use the Help icon in the black global navigation menu in your Canvas course or call the ASU Help Desk at +1-(855) 278-5080. Representatives are available to assist you 24 hours a day, 7 days a week.

Student Success

To be successful:

- check the course daily
- read announcements
- read and respond to the course email messages as needed
- complete assignments by the due dates specified
- communicate regularly with your instructor and peers
- create a study and/or assignment schedule to stay on track

- access **ASU Online Student Resources (http://goto.asuonline.asu.edu/success/online-resources.html)**

Grading

Evaluation of the course is based on four parts: ***Quizzes***, ***Map Critiques***, ***Labs***, and ***Discussion Participation***. Students will complete five quizzes, six map critiques, and six labs, and participate in weekly discussions on the Discussion Forum. Detailed instructions will be provided under each week's module.

The total grade for this course is 350 points. Gradings is calculated based on the following components:

Grading Components	Total Points
Quizzes	70
Map Critiques	90
Labs	160
Discussion Participation	30

Your grade will be determined based on the following grading schema:

Grade	Minimum Percent
A+	98%
A	94%
A-	90%
B+	87%

B	84%
B-	80%
C+	77%
C	74%
C-	70%
D	60%
E	<60%

This course currently does not offer opportunities to earn extra credits. However, students have an opportunity to redo or refine one of the five labs. In the last week of the course, students can redo any one of their previous labs and submit a revised version for re-evaluation. Students who are satisfied with all their previous labs can give up this opportunity. Final grade would not be curved.

Course Schedule

The course contains six modules in a seven-week period. All modules will open to students at the beginning of the session. There will be weekly student activities, including quiz, lab and map critique, that are **due at the 11:59 PM (MST, Tempe, AZ time) on the Friday of the designated week**.

The following table is a summary of the course schedule:

Module	Topic	Quizzes	Map Critique	Labs
1	**Maps and Map Making**	Quiz #1	Critique #1	Lab #1
2	**Map Elements**	Quiz #2	Critique #2	Lab #2

3	**Data for Making Maps**	Quiz #3	Critique #3	Lab #3
4	**Symbology and Visual Variables**	Quiz #4	Critique #4	Lab #4
5	**Color and Text**	Quiz #5	Critique #5	Lab #5
6*	**Principles for Cartographic Design**	-	Critique #6	Lab #6 & Revising A Previous Lab

*Note: Assignments in this module have different due dates. Please make sure to check the module carefully to prevent late penalties.

Submitting Assignments

All assignments, unless otherwise announced, MUST be submitted to the designated area of Canvas. **The instructor will not accept assignments submitted via email.**

Assignment due dates follow the Arizona Standard time. Click the link to access the **Time Converter (http://www.thetimezoneconverter.com/)** to ensure that you account for the difference in Time Zones. Note that Arizona does not observe daylight savings time.

Grading Procedure

Grades reflect your performance on assignments and adherence to deadlines. Grades on assignments will be available within **72 hours** of the due date in the Gradebook.

Late or Missed Assignments

Students will not receive a score when they post on the discussion forum or take the quiz after the due date. Late submissions of labs and map critiques are subject to a **10%** penalty per day until reaching 30% of the assignment grade. **No late labs and map critiques will be graded one week after the due date.**

Notify the instructor **BEFORE** an assignment is due if an urgent situation arises and you are unable to submit the assignment on time.

Follow the appropriate University policies to request an **accommodation for religious practices** (http://www.asu.edu/aad/manuals/acd/acd304-04.html) or to accommodate a missed assignment **due to University-sanctioned activities** (http://www.asu.edu/aad/manuals/acd/acd304-02.html) .

Communicating with the Instructor

Discussion Forum

There is a “Discussion Forum” under each week’s module for questions about readings, assignments, and software. Before posting a question or comment, check the syllabus, announcements, and existing posts to ensure it's not redundant. Students are encouraged to respond to the questions asked by classmates or share course-related resources or technical tips.

Students will receive full credits for useful, meaningful, or helpful posts. Short replies or brief acknowledgments without useful information or lack of constructive feedback only receive partial credits.

Email questions of a personal nature to the instructor.

Students can expect a response within 72 hours, excluding holidays or weekends.

Email

ASU email is an **official means of communication** (http://www.asu.edu/aad/manuals/ssm/ssm107-03.html) among students, faculty, and staff. Students are expected to read and act upon email in a timely fashion. Students bear the responsibility of missed messages and should check their ASU-assigned email regularly.

All instructor correspondence will be sent to your ASU email account.

Use of Generative AI Guidelines

Artificial Intelligence (AI), including ChatGPT, is utilized in workplaces globally to enhance efficiency by generating text, images, computer code, audio, or other media. In this class, students are allowed to use AI for **research, brainstorm, or edit purposes**. However, direct copying and pasting of content from AI without proper citation or extensively quoting from AI with limited original text from the student are NOT permitted in any assignments.

The use of such tools must be clearly noted on the submissions (where and how), see **examples on how to properly cite use** (https://libguides.asu.edu/c.php?g=1311696&p=9700102) . Any submitted course assignment not explicitly identified as having used generative AI will be assumed to be

your original work. Using AI tools to generate content without proper attribution will be considered a violation of the **ASU Academic Integrity Policy (https://provost.asu.edu/academic-integrity/policy)**, and students may be sanctioned for confirmed, non-allowable use. If at any point you have questions about what is permitted, contact the instructor to discuss before submitting work.

ASU Online Course Policies

View the **ASU Online Course Policies (https://asuonline-dev.asu.edu/qm-template/CanvasQM/qm-policies.html)**

Accessibility Statements

View the **ASU Online Student Accessibility (https://asuonline-dev.asu.edu/qm-template/CanvasQM/qm-accessibility.html)** page to review accessibility statements for common tools and resources used in ASU Online courses.

Syllabus Disclaimer

This syllabus is subject to change or revision, as needed, to best reflect the educational goals.

The syllabus is a statement of intent and serves as an implicit agreement between the instructor and the student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. Remember to check your ASU email and the course site often.

Course Summary:

Date	Details	Due
Fri Aug 29, 2025	**Academic Integrity Agreement (https://asu.instructure.com/courses/233150/assignments/6528406)**	due by 11:59pm
	Module 1: Discussion Forum (https://asu.instructure.com/courses/233150/assignments/6528416)	due by 11:59pm
	Module 1: Lab 1 – Installing and Activating ArcGIS Pro (https://asu.instructure.com/courses/233150/assignments/6528418)	due by 11:59pm

Date	Details	Due
Fri Sep 5, 2025	Module 1: Map Critique 1 (https://asu.instructure.com/courses/233150/assignments/6528419)	due by 11:59pm
	Module 1: Quiz 1 (https://asu.instructure.com/courses/233150/assignments/6528405)	due by 11:59pm
	Syllabus Quiz (https://asu.instructure.com/courses/233150/assignments/6528408)	due by 11:59pm
	Module 2: Discussion Forum (https://asu.instructure.com/courses/233150/assignments/6528415)	due by 11:59pm
	Module 2: Lab 2 – Getting Around in ArcGIS (https://asu.instructure.com/courses/233150/assignments/6528420)	due by 11:59pm
	Module 2: Map Critique 2 (https://asu.instructure.com/courses/233150/assignments/6528421)	due by 11:59pm
	Module 2: Quiz 2 (https://asu.instructure.com/courses/233150/assignments/6528410)	due by 11:59pm
Fri Sep 12, 2025	Module 3: Discussion Forum (https://asu.instructure.com/courses/233150/assignments/6528414)	due by 11:59pm
	Module 3: Lab 3 – Thematic Mapping I (https://asu.instructure.com/courses/233150/assignments/6528422)	due by 11:59pm
	Module 3: Map Critique 3 (https://asu.instructure.com/courses/233150/assignments/6528423)	due by 11:59pm
	Module 3: Quiz 3 (https://asu.instructure.com/courses/233150/assignments/6528409)	due by 11:59pm
Fri Sep 19, 2025	Module 4: Discussion Forum (https://asu.instructure.com/courses/233150/assignments/6528413)	due by 11:59pm
	Module 4: Lab 4 – Thematic Mapping II (https://asu.instructure.com/courses/233150/assignments/6528424)	due by 11:59pm

Date	Details	Due
	Module 4: Map Critique 4 (https://asu.instructure.com/courses/233150/assignments/6528425)	due by 11:59pm
	Module 4: Quiz 4 (https://asu.instructure.com/courses/233150/assignments/6528407)	due by 11:59pm
	Module 5: Discussion Forum (https://asu.instructure.com/courses/233150/assignments/6528412)	due by 11:59pm
	Module 5: Lab 5 – Labeling Exercise (https://asu.instructure.com/courses/233150/assignments/6528426)	due by 11:59pm
	Module 5: Map Critique 5 (https://asu.instructure.com/courses/233150/assignments/6528427)	due by 11:59pm
	Module 5: Quiz 5 (https://asu.instructure.com/courses/233150/assignments/6528404)	due by 11:59pm
Fri Oct 3, 2025	Extra Work for Honors Contract (https://asu.instructure.com/courses/233150/assignments/6528417)	due by 11:59pm
	Module 6: Discussion Forum (https://asu.instructure.com/courses/233150/assignments/6528411)	due by 11:59pm
	Module 6: Lab 6-1 - Mapping COVID (https://asu.instructure.com/courses/233150/assignments/6528428)	due by 11:59pm
	Module 6: Map Critique 6 (https://asu.instructure.com/courses/233150/assignments/6528429)	due by 11:59pm
	Module 6: Revising One Previous Lab (Optional) (https://asu.instructure.com/courses/233150/assignments/6528430)	due by 11:59pm