

# GEOG 2100

# CARTOGRAPHIC PRINCIPLES

## Course Description

This course introduces fundamental cartographic concepts. Successful students can employ design principles to create and edit effective visual representations of data (e.g., maps, graphs, and diagrams) in different formats (e.g., hardcopy, digital, web). Specific topics include the ethical and appropriate application of map scale, map projections, generalization, and symbolization.

- OER Textbook | [Geographic Information Systems and Cartography](#)
- Semester: Fall
- Additional Course Fee Required
- No Prerequisites

## Course Student Learning Outcomes

- Demonstrate the knowledge and skill sets to categorize and describe different types of maps and be able to give examples of how they are used.
- Demonstrate the knowledge and skill sets to apply the components of a map (map elements).
- Demonstrate the knowledge and skill sets needed to employ an appropriate geographic referencing system (datum, projection, coordinate system) for a given purpose.
- Demonstrate the knowledge and skill sets to select and apply ethical and appropriate data models, map scale, map elements, symbolization, and color to produce maps that effectively communicate quantitative and qualitative geographic data.
- Demonstrate knowledge and skill sets regarding the design of professional-quality maps, including map elements such as text, graphs, charts, and diagrams, employing cartographic principles.
- Demonstrate the knowledge and skill sets to produce maps and related products in various formats (hardcopy, digital, and web).
- Demonstrate the knowledge and skill sets to professionally critique maps for appropriate use of cartographic design principles.

## Communication Plan

I will respond to your emails within 48 hours and offer feedback on major assignments within one week of the due date. The best way to contact me is via the Canvas inbox, as I will prioritize this email over other modes of communication.

Additionally, I will participate in the discussion forums with you to share my perspective within the discipline and offer some nuances of interpretation that may not be present in your textbook.

Lastly, we'll hold small group Q&A sessions to learn from our peers (and faculty) on some of the more difficult units within the course.

## Keys for Success

This syllabus represents an "agreement" between you and the instructor. It is designed to ensure course integrity and fairness and provides students with a clear understanding of course expectations. The instructor and students are expected to use the syllabus and schedule as a guide for the semester. Any deviation from the syllabus or schedule will be discussed and agreed upon by the instructor and students.

The course will take the entire Fall semester. Each week, you will have several assignments. These will include reading and answering quizzes on the readings, earning several ESRI Virtual Campus Certificates, learning map interpretation skills, creating or critiquing maps, participating in online discussions, and doing some professional career development.

It is designed not only to teach the information and skills required by discipline but also to develop vital workplace skills, strategies, and skills for lifelong learning. Education is more than acquiring facts; it uses information meaningfully to enrich one's life.

While each course's subject is essential and valuable, we become genuinely educated by connecting such varied information with the different methods of organizing human experience practiced by different disciplines. Therefore, combined with other courses, this course will enable you to develop broader perspectives and deeper understandings of your community, and the world and challenge previously held assumptions about the world and its inhabitants.

## Course Procedure

Active participation in activities is expected. You will be expected to interact with others during class and participate in group discussions. Most of the assignments you complete for the course will be submitted online using Canvas LMS. There are also Canvas apps available.

All of the mapping assignments will be done electronically using Esri's ArcGIS platform. The classroom has a computer lab if you would like to use it, or students are encouraged to bring their own laptops. All students will gain access to ArcGIS to download on a personal computer.

It is HIGHLY recommended you set up Canvas so it can send you messages to your email, cell phone, Facebook, or Twitter accounts. When your instructor sends out announcements, messages, and information on Canvas, you will be notified in the media you designate

# Assignment Description

## GIS Assignments

Each module will have a series of mapping activities to build your knowledge and skill sets in applying geographic information systems (GIS). The assignments will range in length and difficulty level, which will also determine the point structure for each assignment.

## Module Quizzes

Each module will also have a quiz focusing on the learning objectives listed in that module. The open-book quizzes consist of ten randomly selected questions from an assessment database, and each quiz is worth ten points.

## Professional Portfolio

GIS has always been a portfolio discipline where you provide potential employers with your best work. As GIS has become more web-based, you will learn how to create an electronic professional portfolio to link your web maps, ArcGIS Insights, and ArcGIS StoryMaps within this portfolio. The total points for the professional portfolio is 100 points.

# Grading Scale

<b>GRADE</b>	<b>SCORE RANGE</b>
<b>A</b>	100-94 percent
<b>A-</b>	93-90 percent
<b>B+</b>	89-87 percent
<b>B</b>	86-84 percent
<b>B-</b>	83-80 percent
<b>C+</b>	79-77 percent
<b>C</b>	76-74 percent
<b>C-</b>	73-70 percent
<b>D+</b>	69-67 percent
<b>D</b>	66-64 percent
<b>D-</b>	63-60 percent
<b>E</b>	Less than 60 percent

# Incomplete Grade Policy

If circumstances make you unable to complete the course in the regular time frame, you may work with the instructor to take an incomplete. Students must be passing and have completed 75% of the course work to be granted an incomplete. Students are responsible for planning for successful course completion.

# Assignment Schedule

## Module 1 | Fundamentals of Cartography

- 1.1 Assignment | ArcGIS Accounts
- 1.2 Assignment | Where Does Healthcare Cost the Most?
- 1.3 Assignment | Create a Policy Map to Address Health Conditions
- 1.4 Assignment | Getting Started with Cartography
- 1.5 Quiz | Module 1

## Module 2 | Map Scale and Spatial Reference Systems

- 2.1 Assignment | Make a Web Map without a Map Mercator
- 2.2 Assignment | Map Scale and Generalization
- 2.3 Assignment | Create a Policy Map to Address Health Conditions
- 2.4 Assignment | Coordinate Systems and Map Projections
- 2.5 Quiz | Module 2

## Module 3 | Geographic Data Representation

- 3.1 Assignment | Introduction to Spatial Data
- 3.2 Assignment | Symbolize by Size
- 3.3 Assignment | Convert a List of Historic Places into a Map
- 3.4 Assignment | Using GIS to Solve Problems
- 3.5 Assignment | Mapping a Hurricane
- 3.6 Assignment | Map Hurricane Storm Surges
- 3.7 Assignment | Collect Hurricane Damage Assessments
- 3.8 Assignment | Design Symbology for a Thematic Map in ArcGIS Pro
- 3.9 Assignment | Design Symbology for a Thematic Map in ArcGIS Online
- 3.10 Assignment | Symbolize by Size
- 3.11 Assignment | Design Custom Symbols to Map Fires
- 3.12 Assignment | Get Started with ArcGIS Arcade
- 3.13 Assignment | Get Started with ArcGIS StoryMaps
- 3.14 Assignment | Telling Stories with GIS Maps
- 3.15 Quiz | Module 3

## Module 4 | Quantitative Thematic Mapping

- 4.1 Assignment | Map Arctic Sea Ice
- 4.2 Assignment | Refine Symbology
- 4.3 Assignment | Label a Map
- 4.4 Assignment | Arrange a Map Layout
- 4.5 Assignment | Make an Inset Map
- 4.6 Assignment | Style Thematic Data
- 4.7 Assignment | Customize a Basemap
- 4.8 Assignment | Map Pop-Ups and Labels
- 4.9 Assignment | Guide Users Through a Map

- 4.10 Assignment | Style and Credit a Story
- 4.11 Assignment | Choropleth Maps
- 4.12 Assignment | Dot Density, Proportional Symbol, and Graduated Symbol Maps
- 4.13 Assignment | Isarithmic and Surface Maps
- 4.14 Assignment | Flow Maps
- 4.15 Quiz | Module 4

#### Module 5 | ArcGIS and Adobe Cloud

- 5.1 Assignment | Get Started with ArcGIS Maps for Adobe Cloud
- 5.2 Assignment | Design a Map with ArcGIS and Adobe Illustrator
- 5.3 Quiz | Module 5

#### Module 6 | Publishing Maps

- 6.1 Assignment | Convert a Static Map into a Web App
- 6.2 Assignment | Convert a Web Map into a Print Map
- 6.3 Assignment | Creating and Building a Professional GIS Portfolio
- 6.3 Quiz | Module 6

## Transfer/Certification/Licensure/Employment Information

This course is required for those interested in the Earth and Environmental Science AS degree. The AS degree directly transfers to most four-year higher education institutions within Utah.

The Earth and Environmental Science Department also offers the following programs of study: GIS and Drones AAS, a GIS Certificate of Proficiency, and a Drones Certificate of Proficiency.

## Institutional Policies

As members of our academic community, we would like to invite you to review the Institutional Syllabus, which covers important policies and procedures. This document contains important links for students on the code of student rights and responsibilities, academic integrity, grading policies, Title IX, and other important acknowledgments. By familiarizing yourself with this information, you can help us create a safe and respectful environment for everyone.

You can access the document by clicking on the following link: [Institutional Syllabus](#)

## Learning Support and Tutoring Services

We are pleased to offer a range of tutoring and learning support services to help you achieve your academic goals. Whether you need assistance with a specific subject or want to improve your study skills, you have many options for tutoring or other support.

To learn more about the services we offer and how to access them, please visit the Institutional Syllabus under the Tutoring and Learning Support tab: [Institutional Syllabus](#)

We encourage you to use these resources to help you succeed in your studies. If you have any questions or would like to schedule a tutoring session, please don't hesitate to contact us. We are here to support you in any way we can.

## Advising and Counseling Support Services

Our institution is committed to supporting your academic and personal growth. That's why we offer a range of advice and counseling services to help you navigate the challenges of college life. To learn more about the resources available to you and how to access them, please visit the Institutional Syllabus under the Advising and Counseling Support Services tab: [Institutional Syllabus](#)

Our advising team and the support centers across campus are here to help you achieve your goals and overcome any obstacles you may face.

## Student Academic Calendar

As students, you should be aware of all important dates in the semester, such as the day that courses begin and end, as well as the drop date and the last day to withdraw. To learn more about those dates, navigate to the Student Academic Calendar: [SLCC Student Academic Calendar](#)