

# Pennsylvania State University

World Campus

GeoDz 511: Geodesign History, Theory, and Principles

Summer 2020

## Course Description

GeoDZ 511 introduces the fundamental theory, concepts, and frameworks of geodesign. This course will introduce Dr. Carl Steinitz's framework for geodesign, plus two other commonly used frameworks, along with Ian McHarg's design work to provide students with a solid foundation for designing in response to geographic information. Throughout the course, students will become familiar with the geodesign process by reviewing videos and case studies, engaging in dialogue with colleagues, and by completing weekly assignments.

Each week the course material will be communicated through:

- Core readings
- Lesson narratives (*lectures*)
- Weekly assignments and/or quizzes
- Weekly discussions
- Independent research towards a final project

Students will demonstrate an understanding of geodesign concepts and material by using the geodesign framework to develop a proposed plan for a place and problem of their choosing. One peer-review session will take place in week 6 of the course, providing students the chance to review and provide constructive feedback on the development of each other's individual plans/projects. Students will be assigned to groups of three according to their chosen project topic. We will use VoiceThread to support more interactive and meaningful feedback.

## Required Texts

- Steinitz, Carl. A Framework for Geodesign: Changing Geography by Design. ESRI Press. 2012.

- McHarg, Ian L. Design with Nature. John Wiley & Sons Inc. New York. 1992.
- Other texts and articles will be provided through CANVAS.

## **Course Objectives**

By the end of this course, you should be able to:

- Define *geodesign* and its purpose.
- Identify a geographic problem and propose a method for solving the problem.
- Describe the basic historic and contemporary foundations of geodesign theory.
- Demonstrate a working knowledge of the geodesign process.
- Understand the building blocks of a system and the significance of thinking in systems
- Collect a library of geodesign literature
- Develop a geodesign plan and methodology for inclusion in your portfolio

## **Course Evaluation**

Geographic design is an inherently visual and communicative process. As such, all assignments will be submitted as PDFs in CANVAS or as ArcGIS Story Maps. These submission formats allow you to use visual storytelling techniques to convey your ideas. For most assignments, you must combine maps, images, diagrams and text to support and communicate your ideas effectively.

## **Late Assignment Policy**

This course moves at a fast pace. Assignments that are submitted late affect both your ability to receive timely feedback and your preparedness for the following assignment. As such, late submissions will receive a 10% deduction. The course instructor will not review assignments submitted more than one week after the original submission date.

## **2% Orientation Quiz - Not Included in O.E.R. Course**

Becoming familiar with the course format and online environments is essential to your success. Prior to the beginning of the lessons, an orientation quiz will be required. The quiz tests your familiarity with the course interface and structure.

## **30% Lesson Quizzes**

Two quizzes will be given to test your understanding of the three iterations of the Steinitz Geodesign

Framework. Because the Steintz framework is the guiding methodology for geodesign practice, a firm grasp of each part of the framework is essential to your success in this course and any future work in geodesign. Quizzes will be open book, but unlike the orientation quiz, there is a time limit and may only be taken once.

### **30% Lesson Assignments**

Assignments will generally consist of 2-3 questions related to the lesson. Each assignment is a critical building block toward your final project. Evaluation is based on:

- 30% Comprehension Is it clear that the student understands the material?
- 30% Application Is the student able to apply the concept(s) to a problem?
- 30% Articulation Does the student clearly communicate concepts?

**Note:** this includes spelling, grammar, formatting, etc. The remaining 10% of your grade will be awarded for assignments that are submitted complete and on time.

### **10% Draft Project + Peer Review**

The draft of your final project and associated peer-review is a significant checkpoint in the course. It is an opportunity for the student to demonstrate they have a firm grasp of the geodesign framework and can apply it to a place and problem to develop a potential solution. It is also a chance to learn from your peers by giving and receiving constructive criticism that you can fold into your final deliverable. Students will submit a visual information product (PDF or Story Map) as an outline for their final project that briefly runs through each iteration of the Steintz Geodesign framework for their individual AOI to 1) scope the study area and describe the issue 2) outline a strategy for addressing the issue and 3) propose a hypothetical solution for implementation. At a minimum, the plan will:

- Identify a clear design problem, plus a discussion of the science of theory underlying the problem (root causes, history, etc. This will require research);
- Identify a strategy for solving the problem (offensive or defensive, exploratory or anticipatory);
- List the geodesign team members and why they were selected;
- List potential project stakeholders (decision-makers) and why their contributions are necessary;
- Describe 2-3 design alternatives, and the reason for the choosing the preferred alternative;
- Describe how each step (model) in the Steintz framework sequentially works together to assess and resolve your specific problem.

It is expected that much of the content of your plan will be developed through the lesson assignments, but

that a significant contribution will come from independent research conducted throughout the course. While still only a draft, your information product should be well researched to include the science or theory underlying the problem.

The peer review session will take place the week following submission of the drafts. You will be assigned to peer-review groups of 3-4 and use VoiceThread to facilitate the peer-review process.

## **20% Final Plan**

Your final geodesign plan is an expanded version of your draft plan. In this final version you have the opportunity to respond to feedback from your peers, and expand on each framework model to include more detail, supporting information, and enhanced visual communication. Literature, case studies, or other supporting media should be cited with a bibliography. Maps, images, diagrams, and other means of visual communication are required.

- 5% Background Is the study area adequately described?
- 5% Problem Are the issues clearly presented?
- 15% Strategy Does the design strategy address the issue?
- 35% Method Is the framework process evident and clear?
- 5% Team-building Is there a rationale and explanation for selected team members?
- 5% Stakeholders Is there a list and explanation of stakeholders provided?
- 10% Design Are design alternatives and a preferred solution clearly presented?
- 5% Feedback Is feedback appropriately integrated?
- 10% Articulation Does the student clearly communicate key concepts?
- 5% Research/Citation Is the paper properly researched and cited?

## **8% Collaboration**

Collaboration is a key part of the geodesign process. Collaboration is an opportunity for students to share ideas with their peers. You will be expected to maintain an on-going conversation with your peers through weekly discussion. Note that the peer-review session associated with the draft plan will be evaluated as part of that assignment, and is not directly tied to your overall collaboration grade.

Discussion contributions need not be long, but should be substantive and engaging. Students will be evaluated on the quality, insight, and productivity of their contributions in weekly discussions:

- 40% Consistency Does the student consistently contribute to the conversations?
- 30% Quality Is the discussion grounded in a theoretical foundation?
- 30% Response Does the student acknowledge and respond to other students?

## Course Grades

**A** 90% - 100% **B** 80% - 89% **C** 70% - 79% **D** 60% - 69% **F** < 60%

## Course Schedule

All assignments should be complete and submitted to \_\_\_\_\_ by 11:59pm on Monday night. The instructor will generally provide feedback on each assignment by Sunday evening. A full course calendar of assignment and peer review due dates can be found on \_\_\_\_\_ A typical week is outlined below.

Monday	Tuesday	Wednesday	Thursday	Friday		
Assignment/Quiz Due @ 11:59pm	Contribute to weekly discussion	Contribute to weekly discussion	Mid-week Q+A session with instructor 6:00pm PST via Zoom	Work on lesson assignment and independent research towards Final Plan		
Receive graded assignment from previous week						
Begin weekly readings and Lesson Narrative	Readings and Lesson Narrative	Readings and Lesson Narrative	Respond to weekly discussion thread			

## Course Delivery Format

This course will be delivered entirely online. There are no face-to-face class sessions. Be sure to go through the Getting Started module thoroughly to prepare yourself for how this course will operate and what is expected of you. In short, the course is Web-based.

content, directions, media, and activities you will need. The Getting Started module will explain the delivery format in more detail.

## **Technical Requirements**

*Operating System* Windows 2000/XP or Vista, Mac OS X 10.2 or higher (10.3 or higher recommended)

*Web browser* Mac OS X: Firefox, Safari (current version) Windows: Firefox, Safari, Internet Explorer (current version) Firefox and Safari are preferred as they will provide the fastest experience possible for e-Learning Institute courses. Due to nonstandard handling of CSS, JavaScript and caching, we do not support using Internet Explorer 6 as your browser.

### *Other requirements*

- Adobe Flash Player 9 or later
- A minimum of 256 MB of RAM
- GHz or higher processor
- 500 MB of available (a.k.a *free*) hard disk storage is recommended
- Broadband (cable or DSL) connection required

Note: Cookies, Java, and JavaScript must be enabled. Pop-up blockers should be configured to permit new windows from Penn State web sites.

## **Academic Policies**

*Academic Integrity* According to the Penn State Principles and University Code of Conduct: Academic integrity is a basic guiding principle for all academic activity at Penn State University, allowing the pursuit of scholarly activity in an open, honest, and responsible manner. According to the University's Code of Conduct, you must not engage in or tolerate academic dishonesty. This includes, but is not limited to cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized possession of examinations, submitting work of another person, or work previously used without informing the instructor, or tampering with the academic work of other students. Any violation of academic integrity will be investigated, and where warranted, punitive action will be taken. For every incident when a penalty of any kind is assessed, a report must be filed.

*Affirmative Action & Sexual Harassment* The Pennsylvania State University is committed to a policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University

policy or by Commonwealth or Federal authorities. Penn State does not discriminate against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, or veteran status. Direct all inquiries to the Affirmative Action Office, 211 Willard Building.

*An Invitation to Students with Learning Disabilities* Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for modifications or reasonable accommodations in this course, contact the Office for Disability Services, ODS (located in 116 Boucke Building, 1-814-863-1807 (V/ TTY). For further information regarding ODS please visit their website at: [www.equity.psu.edu/ods](http://www.equity.psu.edu/ods).

Instructors should be notified as early in the semester as possible regarding the need for modification or reasonable accommodations. Since many students have disabilities not readily noticeable this announcement or statement encourages students to identify their needs early in the semester so timely adaptations can be made. You may refer to the Nondiscrimination Policy in the Student Guide to University Policies and Rules.