GEOG 5201 Geovisualization
AU 2021 (In-Person)

Class Meetings:

- Lecture: Tuesday & Thursday 9:35 am – 10:55 am @ Macquigg Lab 264
- Lab: Tuesday & Thursday 11:10 am – 12:30 am @ Derby 0135

Instructor Information:

- Instructor: Dr. Sohyun Park, park.2627@osu.edu
- Office Hours: Thursday 11:30-3:00 pm in Derby 1120, or by appointment (Zoom meeting is also available).

TA Information:

- TA: Yue Lin, lin.3326@osu.edu
  Office Hours: Monday & Wednesday 1:00-2:00 pm in Derby 1131, or by appointment

Prerequisite:

- GEOG 5200 or 5200S Cartography and Map Design

Course Description:

This is a topic-oriented course focusing on the examination of concepts, techniques, issues and applications of analytical cartography, interactive mapping, and scientific visualization of geographic data. Approximately half of the course will be lectures introducing concepts and theories of geovisualization. The rest of the course will provide hands-on experience on interactive mapping and visualization of geographic data with ArcGIS and other software.

The course is divided into weekly modules. All course materials (slides, reading materials, lab data and exam study guide etc.) will be provided online via Carmen. This is a 3-credit hour class. For each week, students should expect approximately 3 hours spent on online lectures and labs, and 6 hours of independent study such as textbook reading, online quizzes, lab assignments and preparation for the exam to earn a C grade.

Materials

- Textbook and reading materials:
  - No textbook is required for this course. All reading materials (each one with a pdf file) will be provided via Carmen.
  - Each week's reading materials, including lecture and essay readings, are organized in two modules on Carmen. All content in each module is required for reading.
- Data storage:
  - A portable memory device (with 16GB or larger) or a cloud drive (Box, Dropbox etc.) is needed for data storage.

Evaluation

- Labs – 50%

- There will be 12 labs, each with an assignment. All lab assignments will count toward your final grade of the course.
- Lab assignments are due ***one week after a lab is assigned.*** Please refer to the course schedule for detailed information.
- All lab assignments will be submitted via the course website in a quiz-like format. For each assignment, you need to answer several questions and may be asked to upload your work and/or data. Assignment questions will be provided to you in advance at the end of each lab's instruction.

- Exams – 30%
  - There will be two non-cumulative exams. Both will be administered using the course website. Exams contains multiple choices and blank filling questions relate to only lecture content (each exam accounts for 15%).
  - Exams will be online using Carmen during normal class times using the computers in our classroom. Exams must be taken at the place and time designated unless you have made prior, approved arrangements.
  - Exams cannot be opened in Carmen once finished. If you want to review exams, please schedule a meeting with the instructor.
- Short Essays – 20%
  - There will be 4 short essay assignments focusing on the themes of 3D, LiDAR, Time, and Web. After reading papers related to each theme, you will choose one paper and submit an essay of the geovisualization method covered by the readings of the theme via the course website. Please refer to course schedule for more information on when to read papers of different themes and dues of essays.
- Attendance – Extra credit up to 5%
  - Considering previous (and on-going) situation, attendance will not be counted to the normal evaluation. Instead, you will get extra credit for attendance (0.2% per class, you get 5% if you attend more than 25 classes, including lectures, labs, and exams). An attendance sheet will be passed around the classroom.
- Grading Scale

A	93-100%	B-	80-82%	D+	67-69%
A-	90-92%	C+	77-79%	D	60-66%
B+	87-89%	C	73-76%	E	0-59%
B	83-86%	C-	70-72%		

  - Your final grade as seen on the course website will be rounded to the nearest whole number (e.g. an 89.49 is a B+ while an 89.50 is an A-) before being submitted to the University Registrar at the end of the semester.

Course Policies

- Email correspondence policy
  - You are responsible for all course related emails, so be sure to check your inbox on a daily basis.
  - When emailing your instructor, TA or grader, please always begin the subject of the email with the course number (GEOG5201) and your name (first name followed by last name). This is important as your instructor and TA teach multiple classes and need to know to which class you are referring. A proper email subject should be like this:

    GEOG5201_Walter White_Questions on Lab 3
- Course website policy
  - You are responsible for all announcements, additional readings, assignments and other material posted on the course website. Be sure to check it frequently.
- Lab questions policy
  - If you have any questions on lab content (can't finish specific steps, tools are not working etc.), please contact your TA via email.
  - Carmen discussion boards will be created for all labs. You can also communicate with classmates, instructor and TA via discussion boards.
  - If you have concerns on lab grades, please contact your TA via email.
- Late submission policy
  - Assignments will be penalized 10% for each business day late. Thus, assignments submitted 10 business days after the deadline will be graded 0.
  - Extensions will not be granted due to lost work; be sure you back up and keep all your work.
- Exam policy
  - Exams must be taken at the scheduled time (detailed information can be found in Carmen), unless you have informed your instructor ***before*** the exam with proper reasons and documents, and got approved by the instructor. Please contact your instructor in advance of the scheduled exam to schedule a make-up exam, except in the case of emergency.
    - Make-up exams for excused absences will not be penalized.
    - Make-up exams for unexcused absences will be penalized 15%.
- Disability services policy
  - Students with disabilities that have been certified by the Office for Disability Services (SLDS) will be appropriately accommodated and should inform the instructor as soon as possible of their needs.
    - Address: 098 Baker Hall, 113 W. 12th Ave, Columbus, OH 43210
    - Telephone: 614-292-3307
    - Website: http://slds.osu.edu/
  - Registration with SLDS does not grant accommodations automatically. You need to bring the accommodation form provided by SLDS to the instructor to work out a plan for accommodations. Please contact the instructor as soon as you are registered with SLDS for attendance, assignment and/or exam accommodations.
- Academic Misconduct policy
  - It is the responsibility of the Committee on Academic Misconduct (COAM) to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct: http://studentlife.osu.edu/pdfs/csc_12-31-07.pdf.

    - Collaboration for the purposes of troubleshooting is highly encouraged in this course, but everyone is expected to submit their own unique work. For example, asking a classmate how to resolve an unexpected error message is OK, but using another classmate's work (e.g. screen captures, etc.) as your own is NOT ok, regardless of whether or not they provide consent for the use of their materials. (Note: There are many other acceptable/unacceptable actions than those exemplified here.) If you have any questions or concerns about acceptable/unacceptable actions, ask your instructor for clarification/permission.
    - All open-ended responses to questions, prompts, etc. must be written entirely, nearly entirely, or at least in majority using your own words. Use credible sources, and cite all sources, including those only referenced, those indirectly paraphrased, and those directly quoted, being sure to use quotation marks to identify excerpts from these credible sources. This expectation to cite all of your sources also extends to the textbook, the lab instructions, lecture slides, other course materials, online resources, etc. Please contact Center for the Study and Teaching of Writing (CSTW, https://cstw.osu.edu/writing-center) or the instructor if you have difficulties organizing language for assignments.
- Other Course Policy
    - Please refer to Student Academic Services for more academic services provided by OSU.
    - Other student services can be accessed here.

Other Course Technology

Please contact OSU IT Service Desk for any help with password, university e-mail, Carmen, or any other technology issues, questions, or requests. Standard support hours are available at https://ocio.osu.edu/help/hours, and support for urgent issues is available 24x7.

- Phone: 614-688-HELP (4357)
- Email: 8help@osu.edu
- Self-Service and Chat support: http://ocio.osu.edu/selfservice

Basic technical skills necessary for this course

- Basic computer and web-browsing skills
- Navigating and utilizing Carmen

Equipment

- Computer: As ArcGIS Desktop/Pro software will be used, a Windows PC is needed. Specific system requirements can be found here.
- Webcam: built-in or external webcam, fully installed.
- Microphone: built-in laptop or tablet mic or external microphone.

Software

- ArcGIS Desktop
    - A tutorial on how to install ArcGIS Desktop from OCIO can be found on course website (How to download ArcGIS from OCIO Self-service.pdf).
    - Please note that ArcGIS for Desktop is NOT certified or supported on the Mac operating system. However, if you have an Apple computer running Windows, you can install ArcGIS for Desktop using VMWare, BootCamp, or Parallels. To learn more, please visit this link: http://gis.harvard.edu/services/blog/installing-arcgis-desktop-mac.

    - System requirements of ArcGIS desktop can be found here. Privacy policies of Esri products can be found here.
- ArcGIS Online and ArcGIS Pro
    - Please refer to associated installation documents on Carmen for details (Getting Started with ArcGIS Online.pdf and Getting Started with ArcGIS Pro.pdf). There is no specific system requirement for ArcGIS Online and you can use it as long as you have a web browser. System requirements of ArcGIS Pro can be found here. Privacy policies of Esri products can be found here.
- QGIS
    - This is free and open source and can be obtained by visiting https://www.qgis.org/en/site/. Unlike ArcGIS, QGIS can operate on the Mac operating system.
    - Please note that if you choose to install QGIS onto your personal machine, your instructor and TA are NOT responsible for answering your installation-related questions. You will need to troubleshoot such issues yourself.
    - There is no official documents regarding system requirements of QGIS, but you can find useful discussion on this topic here. There are no official privacy policies from developers of QGIS.
- Microsoft Office 365
    - All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Each student can install Office on five PCs or Macs, five tablets (Windows, iPad® and Android™) and five phones.
    - Office 365 is installed within student's BuckeyeMail account. Full instructions for downloading and installation can be found here.
    - Proctorio: A software to monitor online exams. More details can be found here.

Course Content Schedule

	Date	Lecture @ Macquigg 9:35	Lab @ Derby 11:10	Readings	Due
1	T 08/24	Course Overview			
	R 08/26	Lecture: Geovisualization - Part 1		1976_Tobler Spatial or Geospatial	
2	T 08/31	Lecture: Geovisualization - Part 2		What is scientific visualization?	
	R 09/02	Lecture: Geovisualization - Part 3		2007_Nollenburg	
3	T 09/07	Lecture: 3D - Part 1	Lab 1: 3D ArcScene (guided)	2008_Shepherd	
	R 09/09				
4	T 09/14	Lecture: 3D - Part 2	Lab 2: 3D ArcScene (unguided)	2013_Richards-Rissetto et al (essay) 2015_Kwan&Kotsev (essay) 2016_Kete (essay)	
	R 09/16				Lab 1
5	T 09/21	Lecture: LiDAR - Part 1	Lab 3: 3D QGIS (guided & unguided)		Essay on 3D
	R 09/23				Lab 2
6	T 09/28	Lecture: LiDAR - Part 2	Lab 4: LiDAR (guided)	2016_Hoffmeister et al (essay) 2016_Yan et al (essay) 2019_Matos-Machado et al (essay)	
	R 09/30				Lab 3
7	T 10/05		*Exam 1*		
	R 10/07	Lecture: Uncertainty		2014_Muehlenhaus_Chapter 10	Lab 4
8	T 10/12	Lecture: Animation, Discussions on individual topics			Essay on LiDAR
	R 10/14	Break – No class			
9	T 10/19	Lecture: Time	Lab 5: Animation (guided & unguided)	1970_Hagerstrand 2004_Kwan 2013_Goodchild 2013_Chen&Clark (essay) 2016_Cheng et al (essay) 2021_Kim&Kwan (essay)	
	R 10/21				
10	T 10/26	Lecture: Web – Part 1	Lab 6: Time (guided & unguided)	2014_Muehlenhaus_Chapter1 2014_Muehlenhaus_Chapter2	Essay on Time
	R 10/28				Lab 5
11	T 11/02	Lecture: Web – Part 2	Lab 7: Web (guided & unguided)	2014_Muehlenhaus_Chapter12 2014_Delemelle et al (essay) 2019_Kubíček et al (essay) 2021_Qin et al (essay)	
	R 11/04				Lab 6
12	T 11/09		*Exam 2*		
	R 11/11	Veterans Day – No class			
13	T 11/16	Lecture: Other topics	Lab 8 (guided & unguided)		Essay on Web
	R 11/18				Lab 7
14	T 11/23		Work on proposal		
	R 11/25	Thanksgiving Day – No class			Lab 8
15	T 11/30	Proposal Day	Lab 9 (unguided)		
	R 12/02				Lab 9
16	T 12/07		Lab 10 (work on final project)		Lab 10