Term Information

Effective Term	Spring
Previous Value	Autumr

Spring 2021 A*utumn 2020*

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

We are proposing that GEOG 5201 be offered in alternative formats. In addition to the traditional in person lecture, we propose to teach GEOG 5201 as a hybrid course (predominately online with one 50 minute in class session per week) and as a completely online course.

What is the rationale for the proposed change(s)?

The new format will make the course more available to students in all terms who need the course offered in an alternative format to accommodate work or athletic schedules, greater accessibility needs, as well as to accommodate students who are away from the OSU campus. The COVID-19 pandemic has also made it necessary for our courses to have online offerings. Alternative formats will also provide greater capacity potential enrollments without detracting from student learning and instructor engagement.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)? None

Is approval of the requrest contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

General Information

Course Bulletin Listing/Subject Area	Geography
Fiscal Unit/Academic Org	Geography - D0733
College/Academic Group	Arts and Sciences
Level/Career	Graduate, Undergraduate
Course Number/Catalog	5201
Course Title	GeoVisualization
Transcript Abbreviation	GeoVisualization
Course Description	Examination of issues, techniques and applications of analytic cartography, interactive maps and scientific visualization for exploring geographic data.
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week, 12 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	Yes
Is any section of the course offered	100% at a distance
	Greater or equal to 50% at a distance
Previous Value	No
Grading Basis	Letter Grade
Repeatable	No
Course Components	Recitation, Laboratory, Lecture
Grade Roster Component	Laboratory

Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites	Prereq: A grade of C- or above in 5200 or 5200S.	
Exclusions		
Electronically Enforced	Yes	

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code	27.0301
Subsidy Level	Doctoral Course
Intended Rank	Junior, Senior, Masters, Doctoral

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes	• Understanding the issues and techniques surrounding computer based mapping and visualization; hands-or experience with transforming and preparing spatial data for exploration, visualization, and interactive mapping	
Content Topic List	• GeoVisualization	
	 Map data structures and transformations 	
	 Analytical techniques and visual representations 	

- Map animation
- Web mapping

No

- Virtual environments
- Scientific visualization

Sought Concurrence

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Attachments	 GEOG5201-online-geovisualization.docx: Syllabus (online)
	(Syllabus. Owner: Xiao,Ningchuan)
	 GEOG5201-hybrid-geovisualization.docx: Syllabus (hybrid)
	(Syllabus. Owner: Xiao,Ningchuan)
	 GEOG5201-asctech-review.docx: ASCTech review (online)
	(Other Supporting Documentation. Owner: Xiao,Ningchuan)
	 GEOG5201-hybrid-asctech-review.docx: ASCTech review (hybrid)
	(Other Supporting Documentation. Owner: Xiao,Ningchuan)
	 GEOG5201-inperson-geovisualization.docx: Syllabus (in person)
	(Syllabus. Owner: Xiao,Ningchuan)
	 Syllabus_Geog5201_online_v1.docx: Syllabus (online, updated)
	(Syllabus. Owner: Xiao,Ningchuan)
	 Syllabus_Geog5201_hybrid_v1.docx: Syllabus (hybrid, updated)
	(Syllabus. Owner: Xiao,Ningchuan)
Comments	Dr. Song has addressed the panel's comments:
	1. Content related to in-person components have been deleted or adjusted for online and hybrid syllabi, respectively.
	2. Statements have been added to Course Description section to address where to access lecture and lab materials
	online and in-person (for hybrid).
	3. There are multiple papers/book chapters to read weekly and each week's readings are organized in a Carmen
	module. Listing all weekly readings in course schedule will make it a very huge table so I simply list the topic of each
	week's reading and students can find reading materials (in pdf format) from associated Carmen modules. As for
	page numbers, all content in uploaded pdf files is required for reading. I have adjust the content of "Textbook and
	reading materials" section to address readings of the course. (by Xiao, Ningchuan on 10/05/2020 09:14 PM)
	• Please see 9-24-20 email to N. Xiao and N. Ettlinger (by Oldroyd, Shelby Quinn on 09/24/2020 05:14 PM)

Status	User(s)	Date/Time	Step
Submitted	Xiao,Ningchuan	07/20/2020 01:46 AM	Submitted for Approval
Approved	Munroe, Darla Karin	07/24/2020 05:34 PM	Unit Approval
Approved	Haddad, Deborah Moore	07/25/2020 09:02 AM	College Approval
Revision Requested	Oldroyd, Shelby Quinn	09/24/2020 05:14 PM	ASCCAO Approval
Submitted	Xiao,Ningchuan	10/05/2020 09:14 PM	Submitted for Approval
Approved	Ettlinger,Nancy	10/05/2020 10:03 PM	Unit Approval
Approved	Haddad, Deborah Moore	10/06/2020 08:37 AM	College Approval
Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay		10/06/2020 08:37 AM	ASCCAO Approval

GEOG 5201 Geovisualization (Online) Syllabus

Instructor Information

- Dr. Yang Song, song.630@osu.edu
- Office Hours and Location: Zoom meetings by appointment only.

Teaching Associates

- TA:
 - Office Hours and Location:
- Grader:

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.

This course is 100% online, and there is no required log-in to Carmen at a scheduled time. The course is divided into weekly modules which are released weekly. All course materials (slides, lecture videos, lab data and exam study guide etc.) will be provided online via Carmen. Each online lecture (may include multiple videos) will take approximately 80 minutes to finish while time to finish a lab may be longer than a regular lab session (80 minutes). Students are expected to watch lecture videos weekly and keep up with weekly deadlines for lab assignments, exams, and short essays. 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.

Course Learning Outcomes

By the end of the semester, students should be able to:

- Describe following concepts: analytical cartography, spatialization, interactive visualization, scientific visualization and geovisualization. Identify goals, driving forces, cognitive aspects, and widely employed methods and techniques of geovisualization.
- Understand the motivation of the development of 3D geovisualization. Identify the gains of going from 2D to 3D. Think critically about 3D geovisualization, identify potential problems employing 3D visualization techniques.

- Memorize the full name of LiDAR and describe the purpose of this remote sensing technique. Describe the physical process, operational theory, components, and principles of LiDAR systems. Understand basic processing steps of LiDAR data.
- Understand the concept of uncertainty and its importance in visualizing geographic data. Describe and compare methods of mapping uncertainty with visual variables.
- Know how time geography was born and understand the concept of space-time. Describe the constrains of space-time and how to use space-time prism to address space-time. Explain why time geography has barely developed since born and how GIS helps the visualization of time.
- Describe the brief evolution of cartography, from general purpose maps to cartography to web and interactive mapping. Identify the context of the emerging of web mapping. Describe the gold of web mapping and explain the difference between traditional and web mapping. Compare and contrast visual elements employed in traditional and web mapping. Identify programming languages and data formats utilized in web mapping.

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 a module in Carmen. All content in each module is required for reading.
- Data storage:
 - A portable memory device (with 16GB or larger storage) 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 usually due one week after a lab is assigned (6:00pm of the due day). Some of them will be granted longer time to finish due to complexity. 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. More details (question format, exam time and length etc.) will be provided at least one week before each exam via Carmen.

- 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 need to 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.
- Grading Scale (OSU standard scale)

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Α	93-100%	B-	80-82%	D+	67-69%	
A-	90-92%	C+	77-79%	D	60-66%	
B+	87-89%	С	73-76%	Е	0-59%	
В	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_John Smith_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.
 - You may find that it helps to update your notifications. You can do this by going to Account > Notifications. There are four notification options, and I suggest that you turn on "Notify me right away" or at least "Send daily summary" for everything until you figure out which notifications are most beneficial to you.
- 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.
 - o If you have concerns on lab grades, please contact your grader via email.
- Late submission policy
 - Short essays will not be accepted late.
 - Lab assignments will be penalized 10% for each day late.

- 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.
- 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: <u>http://slds.osu.edu/</u>
 - 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, <u>https://cstw.osu.edu/writing-center</u>) or the instructor if you have difficulties organizing language for assignments.

- Other Course Policy
 - Please refer to <u>Student Academic Services</u> 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 <u>https://ocio.osu.edu/help/hours</u>, and support for urgent issues is available 24x7.

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

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 <u>here</u>.
- Webcam: built-in or external webcam, fully installed.
- Microphone: built-in laptop or tablet mic or external microphone.

Software

 ArcGIS. You may request a 1-year student trial license from your TA. Just email your TA, and your TA will send you an activation code. You will then need to activate the code and download the software here:

http://www.esri.com/software/landing_pages/arcgis/desktop-ed.

- If you choose to go this route, there is a detailed document regarding the entire process of downloading and installing ArcGIS for Desktop and authorizing it using an authorization code available on the course website, entitled ESRI_installation_tips.pdf. If your installation-related questions are not answered by this document, you will need to contact ESRI Customer Support at 1 (888) 377-4575.
- 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 <u>here</u>. Privacy policies of Esri products can be found <u>here</u>.

- ArcGIS Online and ArcGIS Pro. Please refer to associated installation documents in Carmen for detail. 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 <u>here</u>. Privacy policies of Esri products can be found <u>here</u>.
- QGIS. This is free and open source and can be obtained by visiting <u>https://www.qgis.org/en/site/</u>. 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 <u>here</u>. 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 <u>here</u>.
 - Proctorio: A software to monitor online exams. More details can be found <u>here</u>.
- Proctorio: A software to monitor online exams. More details can be found here.

Schedule

Week	Content	Readings	Note
1	Course Overview	Lecture readings: Geovisualization	
	Discussion Groups (sign up)		
2	Lecture: Geovisualization - Part 1		
	Lecture: Geovisualization - Part 2	Lecture readings: 3D	
3	Lecture: Geovisualization - Part 3	Essay readings: 3D	
	3D - Part 1	Essay readings. 5D	
4	Lecture: 3D - Part 2		
	Lab 1: 3D ArcScene (guided)		Essay on 3D
			Due
5	Lab 2: 3D ArcScene (unguided)		
	Lab 3: 3D QGIS (guided &		Lab 1 Due
	unguided)		
6	Lecture: LiDAR - Part 1	Essay readings: LiDAR	Lab 2 Due
	Lecture: LiDAR - Part 2		Lab 3 Due
7	Exam 1		Essay on
			LiDAR Due
	Lab 4: LiDAR (guided)	Lecture readings: Uncertainty	
8	Lecture: Uncertainty	Lecture readings: Animation	
	Lecture: Animation	Lecture readings: Time	Lab 4 Due
	Lab 5: Animation (guided &		
	unguided)		
9	Lecture: Time	Essay readings: Time	
	Lab 6: Time (guided)		Lab 5 Due
10	Lab 7: Time (unguided)	Lecture readings: Web	Essay on
			Time Due
	Lecture: Web – Part 1	Essay readings: Web	Lab 6 Due
11	Lecture: Web – Part 2		Lab 7 Due
			Essay on
	Exam 2		Web Due
12	Lab 8: Web 1 (guided & unguided)		
13	Lab 9: Web 2 (guided & unguided)		Lab 8 Due
	Lab 10 (guided & unguided)		
14	Lab 11 (guided)		Lab 9 Due
	Lab 12 (guided & unguided)		Lab 10 Due
15			Lab 11 Due
	Work on lat	os, no class	Lab 12 Due

This course schedule provides a general plan for the course. Any changes will be announced by the instructor with as much advance notice as possible.

GEOG 5201 Geovisualization (Hybrid) Syllabus

Instructor Information

- Dr. Yang Song, song.630@osu.edu
- Office Hours and Location: By appointment only. 1120 Derby Hall or Zoom.

Teaching Associates

- TA:
 - Office Hours and Location:
- Grader:

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.

This course is hybrid and there is no required log-in to Carmen at a scheduled Time. All course materials (slides, lecture videos, lab data and exam study guide etc.) will be published online via Carmen. As all course materials are available online, there will be in-person office hours and lab sessions (for all guided labs). You can participate in-person components voluntarily. Each online lecture (may include multiple videos) will take approximately 80 minutes to finish while time to finish a lab may be longer than regular lab session (80 minutes). Students are expected to watch lecture videos weekly and keep up with weekly deadlines for lab assignments, exams, and short essays. This is a 3-credit hour class. For each week, students should expect approximately 3 hours spent on lectures and on/off-site labs at 135/140 Derby Hall, and 6 hours of independent study such as material reading, lab assignments and preparation for the exam to earn a C grade.

Course Learning Outcomes

By the end of the semester, students should be able to:

- Describe following concepts: analytical cartography, spatialization, interactive visualization, scientific visualization and geovisualization. Identify goals, driving forces, cognitive aspects, and widely employed methods and techniques of geovisualization.
- Understand the motivation of the development of 3D geovisualization. Identify the gains of going from 2D to 3D. Think critically about 3D geovisualization, identify potential problems employing 3D visualization techniques.

- Memorize the full name of LiDAR and describe the purpose of this remote sensing technique. Describe the physical process, operational theory, components, and principles of LiDAR systems. Understand basic processing steps of LiDAR data.
- Understand the concept of uncertainty and its importance in visualizing geographic data. Describe and compare methods of mapping uncertainty with visual variables.
- Know how time geography was born and understand the concept of space-time. Describe the constrains of space-time and how to use space-time prism to address space-time. Explain why time geography has barely developed since born and how GIS helps the visualization of time.
- Describe the brief evolution of cartography, from general purpose maps to cartography to web and interactive mapping. Identify the context of the emerging of web mapping. Describe the gold of web mapping and explain the difference between traditional and web mapping. Compare and contrast visual elements employed in traditional and web mapping. Identify programming languages and data formats utilized in web mapping.

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 a module in Carmen. All content in each module is required for reading.
- Data storage:
 - A portable memory device (with 16GB or larger storage), such as a portable hard drive or flash drive, is required.
 - You can also use cloud drives (Box, Dropbox etc.) for data storage if preferred.

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 usually due one week after a lab is assigned (6:00pm of the due day). Some of them will be granted longer time to finish due to complexity or holidays. 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. More details (question format, exam time and length etc.) will be provided at least one week before each exam via Carmen.
- 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 need to 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.
- Grading Scale (OSU standard scale)

А	93-100%	B-	80-82%	D+	67-69%	
A-	90-92%	C+	77-79%	D	60-66%	
B+	87-89%	С	73-76%	Е	0-59%	
В	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_John Smith_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.
 - You may find that it helps to update your notifications. You can do this by going to Account > Notifications. There are four notification options, and I suggest that you turn on "Notify me right away" or at least "Send daily summary" for everything until you figure out which notifications are most beneficial to you.
- 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 during office hours or via email.
 - o If you have concerns on lab grades, please contact your grader via email.

- Late submission policy
 - Short essays will not be accepted late.
 - Lab assignments will be penalized 10% for each day late.
 - 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.
- 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: <u>http://slds.osu.edu/</u>
 - 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.
 - Do NOT leave any of your work saved on the lab computers, as this presents data security and academic integrity concerns.
 - 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, <u>https://cstw.osu.edu/writing-center</u>) or the instructor if you have difficulties organizing language for assignments.

- Other Course Policy
 - Please refer to <u>Student Academic Services</u> for more academic services provided by OSU.
 - Other student services can be accessed <u>here</u>.

Classrooms

If you need to return to the computer lab off hour, please be aware that the building maybe locked at night, over weekends, and on holidays, so be sure to plan accordingly. When you do return to the computer lab outside of class time, there may be a class in session. Please attempt to avoid interrupting classes that are in session, and if there is a class in session, check the computer lab across the hall in Derby 140. It has the same software as Derby 135, and it is usually available.

If you would like to check the schedules for Derby 135 and 140, you can check the Room Matrix:

https://delegated.osu.edu/psp/csosuda_1/EMPLOYEE/CAMP/c/OSR_CUSTOM_MENU .OSR_ROOM_MATRIX.GBL

- Enter DB0135 for Derby 135 or DB0140 for Derby 140.
- Select the date under "Show Week of".
- Click "Refresh Calendar".

Software

You are NOT required to download the software we will be using in the course onto your own computer. However, information on obtaining ArcGIS and QGIS are provided here.

 ArcGIS. You may request a 1-year student trial license from your TA. Just email your TA, and your TA will send you an activation code. You will then need to activate the code and download the software here:

http://www.esri.com/software/landing_pages/arcgis/desktop-ed.

- If you choose to go this route, there is a detailed document regarding the entire process of downloading and installing ArcGIS for Desktop and authorizing it using an authorization code available on the course website, entitled ESRI_installation_tips.pdf. If your installation-related questions are not answered by this document, you will need to contact ESRI Customer Support at 1 (888) 377-4575.
- 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 <u>here</u>. Privacy policies of Esri products can be found <u>here</u>.
- ArcGIS Online and ArcGIS Pro. Please refer to associated installation documents in Carmen for detail. 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 <u>here</u>. Privacy policies of Esri products can be found <u>here</u>.
- QGIS. This is free and open source and can be obtained by visiting <u>https://www.qgis.org/en/site/</u>. 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 <u>here</u>. 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 <u>here</u>.
- Proctorio: A software to monitor online exams. More details can be found <u>here</u>.

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 <u>https://ocio.osu.edu/help/hours</u>, and support for urgent issues is available 24x7.

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

Basic technical skills necessary for this course

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

Schedule

Week	Content	Readings*	Note
1	Course Overview	Lecture readings: Geovisualization	
	Discussion Groups (sign up)		
2	Lecture: Geovisualization - Part 1		
	Lecture: Geovisualization - Part 2	Lecture readings: 3D	
3	La	bor Day, no class	
	Lecture: Geovisualization - Part 3 3D - Part 1	Essay readings: 3D	
4	Lecture: 3D - Part 2		
	Discussion Groups (3D)		
	Lab 1: 3D ArcScene (guided)		
5	Lab 2: 3D ArcScene (unguided)		
	Lab 3: 3D QGIS (guided & unguided)		Lab 1 Due
6	Lecture: LiDAR - Part 1	Essay readings: LiDAR	Lab 2 Due
	Lecture: LiDAR - Part 2		Lab 3 Due
	Discussion Groups (LiDAR)		
7	Exam 1		
	Lab 4: LiDAR (guided)	Lecture readings: Uncertainty	
8	Lecture: Uncertainty	Lecture readings: Animation	
	Lecture: Animation	Lecture readings: Time	Lab 4 Due
	Lab 5: Animation (guided &		
	unguided)		
9	Lecture: Time	Essay readings: Time	
	Discussion Groups (Time)		Lab 5 Due
10	Lab 6: Time (guided)		
10	Lab 7: Time (unguided)	Lecture readings: Web	
	Lecture: Web – Part 1	Essay readings: Web	Lab 6 Due
11	Lecture: Web – Part 2		Lab 7 Due
	Discussion groups (Web)		
	Exam 2		
12	Lab 8: Web 1 (guided & unguided)		
		erans Day, no class	
13	Lab 9: Web 2 (guided & unguided)		Lab 8 Due
	Lab 10 (guided & unguided)		
14	Lab 11 (guided)		Lab 9 Due
	Lab 12 (guided & unguided)		Lab 10 Due
15	Work on lat	os, no class	Lab 11 Due
		,	Lab 12 Due

*The assigned readings prepare you for the next class meeting.

This course schedule provides a general plan for the course. Any changes will be announced by the instructor with as much advance notice as possible.

GEOG 5201 Geovisualization – Autumn 2019 Syllabus

Meeting Times: MW 9:35am - 10:55pm, 135 Derby Hall

Instructor: Dr. Yang Song, song.630@osu.edu

• Office Hours and Location: By appointment. My office is 1120 Derby Hall.

Teaching Assistant: Zhihao Wang, wang.11424@osu.edu

• Office Hours and Location: TR 11:00am-12:00pm @ 1083 Derby Hall

Course Description: This is a theme-oriented course, which focuses on the examination of techniques, issues and applications of analytic cartography, interactive mapping and scientific visualization of geographic data.

Materials:

- Textbook:
 - No textbook is required for this course. All reading materials will be provided via the course website.
- Portable Memory Device:
 - A portable memory device (with 16GB or larger storage), such as a portable hard drive or flash drive, is required. Please bring it with you to every lab session as all your work needs to be saved to this device.
 - You can also store your data with a cloud drive (Box, Google Drive etc.). Please remember to log out the cloud drive when you finish using a lab PC.

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 usually due one week after the lab session (5:00pm of the due day). Lab 12 will be given extra two days to finish. 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.
 - Do not expect to finish all lab work during the scheduled lab time. You will need to work outside of class to complete your labs.
- Exams 30%
 - There will be two non-cumulative exams. Both will be administered using the course website. Exams will be online using Carmen but will occur during normal class times using the computers in our normal classroom.
 - Exams will not be returned to you. If you want to review exams, please schedule a meeting with the instructor.
- Participation 20%
 - Discussion Sessions 10 points
 - There will be 4 discussion sessions of recent papers focusing on the themes of 3D, LiDAR, Time, and Web.

- You are required to attend all of them but will only lead the group discussion for one of them.
- After each discussion session, you will need to submit a focused critical analysis of the geovisualization method covered by the readings of the theme via the course website. This is always due *the next day (5:00pm) of the discussion.*
- Attendance 10 points
 - Attendance is required and will be recorded at all class meetings (lectures and labs). An attendance sheet will be passed around the classroom, and you are responsible for remembering to sign it. If you forget to sign the attendance sheet during the scheduled class time, you will be marked absent (unexcused).
 - Unexcused Absences:
 - You may miss 2 class meetings (include lectures and labs) without penalty. Additional unexcused absences will result in a 1-point deduction from your attendance grade. No more than 10 points can be deducted from attendance.
 - Excused Absences:
 - Please email the instructor or TA for excused absences (e.g. due to illness, car trouble, conference attendance, required job training, passing away of a loved one, etc.) Proper documentation (e.g. doctor's note, bill from a mechanic, proof of conference registration, email from a supervisor, obituary, etc.) must be provided.
- Grading Scale (OSU standard scale):

3			/-		
A	93-100%	B-	80-82%	D+	67-69%
A-	90-92%	C+	77-79%	D	60-66%
B+	87-89%	С	73-76%	Е	0-59%
В	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_John Smith_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 meet your TA during his office hours or via email.

- Please send your lab-related questions as least 24 hours before the day/time the lab is due to allow your TA time to respond.
- Late submission policy
 - Focused critical analysis will not be accepted late.
 - Lab assignments will be penalized 10% for each day late.
 - 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, 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.
 - You are expected to arrive to all exams on time. Students who arrive late to the exam will be permitted to begin the exam, until the first student leaves. After a student completes the exam and leaves, students who arrive late will not be permitted to begin the exam, will be asked to leave, and will be considered absent. Your absence will be considered unexcused, except in the case of emergency.
 - You are expected to finish all exams on time. Exams begin when schedule class time begins, and exams end when the scheduled class time ends. At the end of the scheduled class time, you are to stop working and turn in your exam. You may not continue working on your exam after the scheduled class time.
- 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. The Office for Disability Services is located in 098 Baker Hall, 113 W. 12th Ave, Columbus, OH 43210; telephone 614-292-3307; 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.

- Do NOT leave any of your work saved on the lab computers, as this presents data security and academic integrity concerns.
- 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, <u>https://cstw.osu.edu/writing-center</u>) or the instructor if you have difficulties organizing language for assignments.

Classrooms:

If you need to return to the computer lab outside of class time, please be aware that the building maybe locked at night, over weekends, and on holidays, so be sure to plan accordingly. When you do return to the computer lab outside of class time, there may be a class in session. Please attempt to avoid interrupting classes that are in session, and if there is a class in session, check the computer lab across the hall in Derby 140. It has the same software as Derby 135, and it is usually available.

If you would like to check the schedules for Derby 135 and 140, you can check the Room Matrix:

https://delegated.osu.edu/psp/csosuda 1/EMPLOYEE/CAMP/c/OSR CUSTOM MENU.OSR R OOM MATRIX.GBL

- Enter DB0135 for Derby 135 or DB0140 for Derby 140.
- Select the date under "Show Week of".
- Click "Refresh Calendar".

Software:

You are NOT required to download the software we will be using in the course onto your own computer. However, information on obtaining ArcGIS and QGIS are provided here.

• ArcGIS. You may request a 1-year student trial license from your TA. Just email your TA, and your TA will send you an activation code. You will then need to activate the code and download the software here:

http://www.esri.com/software/landing_pages/arcgis/desktop-ed.

- If you choose to go this route, there is a detailed document regarding the entire process of downloading and installing ArcGIS for Desktop and authorizing it using an authorization code available on the course website, entitled "ESRI_installation_tips.pdf". If your installation-related questions are not answered by this document, you will need to contact ESRI Customer Support at 1 (888) 377-4575.
- 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: <u>http://gis.harvard.edu/services/blog/installingarcgis-desktop-mac</u>.
- QGIS. This is free and open source and can be obtained by visiting <u>https://www.qgis.org/en/site/</u>. 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.
- ArcGIS Online and ArcGIS Pro. Please refer to the documents on the course website for the instructions of them ("Getting Started with ArcGIS Online.pdf" and "Getting Started with ArcGIS Pro.pdf"). The link included in "Getting Started with ArcGIS Pro.pdf" for the installation file of ArcGIS Pro may have not worked anymore and please use this link to download instead.

GEOG 5201 Geovisualization – Autumn 2019

Schedule

Week	Date	Content	Reading*	Note
1	W 08/21	Course Overview	Lecture readings:	
		Discussion Groups (sign up)	Geovisualization	
2	M 08/26	Lecture: Geovisualization - Part 1		
	W 08/28	Lecture: Geovisualization - Part 2	Lecture readings: 3D	
3	M 09/02	Labor Day, no class		
	W 09/04	Lecture: Geovisualization - Part 3	Discussion group readings: 3D	
		3D - Part 1		
4	M 09/09	Lecture: 3D - Part 2		
		Discussion Groups (3D)		
	W 09/11	Lab 1: 3D - ArcScene (guided)		
5	M 09/16	Lab 2: 3D ArcScene (unguided)		
	W 09/18	Lab 3: 3D QGIS (guided & unguided)		Lab 1 Due
6	M 09/23	Lecture: LiDAR - Part 1	Discussion group readings: LiDAR	Lab 2 Due
	W 09/25	Lecture: LiDAR - Part 2		Lab 3 Due
		Discussion Groups (LiDAR)		
7	M 09/30	Exam 1		
	W 10/02	Lab 4: LiDAR (guided)	Lecture readings: Uncertainty	
8	M 10/07	Lecture: Uncertainty	Lecture readings: Animation	
	W 10/09	Lecture: Animation	Lecture readings: Time	Lab 4 Due
		Lab 5: Animation (guided &		
		unguided)		
9	M 10/14	Lecture: Time	Discussion group readings: Time	
	W 10/16	Discussion Groups (Time)		Lab 5 Due
		Lab 6: Time (guided)		
10	M 10/21	Lab 7: Time (unguided)	Lecture readings: Web	
	W 10/23	Lecture: Web – Part 1	Discussion group readings: Web	Lab 6 Due
11	M 10/28	Lecture: Web – Part 2		Lab 7 Due
		Discussion groups (Web)		
	W 10/30	Exam 2		
12	M 11/04	Lab 8: Web 1 (guided & unguided)		
	W 11/06	Lab 9: Web 2 (guided & unguided)		
13	M 11/11	Veterans Day, no class		Lab 8 Due
	W 11/13	Lab 10 (guided & unguided)		Lab 9 Due
14	M 11/18	Lab 11 (guided)		
	W 11/20	Lab 12 (guided & unguided)		Lab 10 Due
15	M 11/25	Work for labs, no class		Lab 11 Due
	W 11/27	Thanksgiving Day, no class		
16	M 12/02	Work for labs, no class		Lab 12 Due

*The assigned readings prepare you for the next class meeting.

This course schedule provides a general plan for the course. Any changes will be announced by the instructor with as much advance notice as possible.

Arts and Sciences Distance Learning Course Component Technical Review Checklist

Course: Geog 5201 Instructor: Yang Song Summary: Cartography and Map Design

Standard - Course Technology Yes with Feedback/ Yes No Revisions Recomm. Office 365 6.1 The tools used in the course support the learning Х objectives and competencies. Carmen ArcGIS OGIS RemoteLab 6.2 Course tools promote learner engagement and active Х CarmenZoom learning. CarmenWiki • Carmen Discussion Boards 6.3 Technologies required in the course are readily All tools are available via Х obtainable. OSU site license free of charge. 6.4 The course technologies are current. All are updated regularly. Х Privacy policies for all 3rd 6.5 Links are provided to privacy policies for all external Х party tools (ArcGIS) need tools required in the course. to be included. **Standard - Learner Support** 7.1 The course instructions articulate or link to a clear Links to 8HELP are description of the technical support offered and how to provided Х access it. 7.2 Course instructions articulate or link to the institution's Х а accessibility policies and services. 7.3 Course instructions articulate or link to an explanation Include statement b Х of how the institution's academic support services and resources can help learners succeed in the course and how learners can obtain them. 7.4 Course instructions articulate or link to an explanation Include statement c Х of how the institution's student services and resources can help learners succeed and how learners can obtain them Standard – Accessibility and Usability 8.1 Course navigation facilitates ease of use. Х Recommend using the Carmen Distance Learning "Master Course" template developed by ODEE and available in the Canvas Commons to provide student-users with a consistent user experience in terms of navigation and access to course content. Accessibility policies for all 3rd party tools need to be 8.2 Information is provided about the accessibility of all Х technologies required in the course. included. 8.3 The course provides alternative means of access to Х course materials in formats that meet the needs of Instructions are provided to obtain materials in diverse learners another format. 8.4 The course design facilitates readability Х 8.5 Course multimedia facilitate ease of use. All assignments and Х activities that use the Carmen LMS with embedded multimedia facilitates ease of use. All other multimedia resources facilitate ease of use by being available through a standard web browser

Reviewer Information

- Date reviewed: 7/13/20
- Reviewed by: Ian Anderson

Notes: Include dates with weekly breakdown.

^aThe following statement about disability services (recommended 16 point font): Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614- 292-3307, <u>slds@osu.edu</u>; <u>slds.osu.edu</u>.

^bAdd to the syllabus this link with an overview and contact information for the student academic services offered on the OSU main campus. <u>http://advising.osu.edu/welcome.shtml</u>

^cAdd to the syllabus this link with an overview and contact information for student services offered on the OSU main campus. <u>http://ssc.osu.edu</u>. Also, consider including this link in the "Other Course Policies" section of the syllabus.

Arts and Sciences Distance Learning Course Component Technical Review Checklist

Course: Geog 5201 Instructor: Yang Song Summary: Cartography and Map Design

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^cAdd to the syllabus this link with an overview and contact information for student services offered on the OSU main campus. <u>http://ssc.osu.edu</u>. Also, consider including this link in the "Other Course Policies" section of the syllabus.