

Term Information

Effective Term Autumn 2022
Previous Value Autumn 2019

Course Change Information

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

We are proposing that GEOG 4103 be offered in alternative formats. In addition to the traditional in person lecture, we propose to teach this course 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)?

Our goal is to 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. Our hope is to increase enrollments with the completely online option. 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 request 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 Undergraduate
Course Number/Catalog 4103
Course Title Introductory Spatial Data Analysis
Transcript Abbreviation Intro Spatial Data
Course Description An introduction to spatial data analysis in geography: the fundamental statistical and spatial analysis methods used in quantitative geographic research.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 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, Greater or equal to 50% at a distance
Grading Basis Letter Grade
Repeatable No
Course Components Laboratory, Lecture, Recitation

| | |
|-----------------------------------|------------|
| 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: Math 1116 or 1130 or above, or Math Placement Level M or L, or permission of instructor. |
| Exclusions | Not open to students with credit for 5100. |
| Electronically Enforced | Yes |

Cross-Listings

Cross-Listings

Subject/CIP Code

| | |
|-------------------------|---------------------------|
| Subject/CIP Code | 45.0701 |
| Subsidy Level | Baccalaureate Course |
| Intended Rank | Sophomore, Junior, Senior |

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors

Course Details

| | |
|---|--|
| Course goals or learning objectives/outcomes | <ul style="list-style-type: none">• Develop "spatial thinking", the ability to understand and address special issues arising from the use of spatial data. Obtain a basic set of statistical tools for spatial data analysis. |
| Content Topic List | <ul style="list-style-type: none">• Geographic data<ul style="list-style-type: none">Descriptive (spatial) statisticsProbabilitySamplingHypothesis testingAnalysis of varianceCorrelationRegressionModifiable areal unit problemSpatial autocorrelationSpatial pattern analysis |
| Sought Concurrence | No |

COURSE CHANGE REQUEST
4103 - Status: PENDING

Last Updated: Vankeerbergen,Bernadette
Chantal
02/22/2022

Attachments

- GEOG 4103_Intro Spatial Data Analysis_Online_revised.pdf: Syllabus (online)
(Syllabus. Owner: Xiao,Ningchuan)
- GEOG 4103_Intro Spatial Data Analysis_Hybrid_revised.pdf: Syllabus (hybrid)
(Syllabus. Owner: Xiao,Ningchuan)
- asc-distance-approval-cover-sheet-fillable_3_GEOG 4103_approved.pdf: ASCTech review
(Other Supporting Documentation. Owner: Xiao,Ningchuan)
- Geog4103_Schedule_AU19.pdf: Syllabus, schedule (in-person) - current
(Syllabus. Owner: Xiao,Ningchuan)
- Geog4103_Syllabus_AU19.pdf: Syllabus (in person) - current
(Syllabus. Owner: Xiao,Ningchuan)
- GEOG 4103_Intro Spatial Data Analysis_Hybrid_revised_v2.pdf: Updated syllabus (hybrid)
(Syllabus. Owner: Xiao,Ningchuan)
- GEOG 4103_Intro Spatial Data Analysis_Online_revised_v2.pdf: Updated syllabus (online)
(Syllabus. Owner: Xiao,Ningchuan)

Comments

- Please find the changes per your request in the updated syllabi:
 - The course schedule is now on a day-by-day basis.
 - Integrity statements are updated. *(by Xiao,Ningchuan on 02/22/2022 09:02 AM)*
- Please see Panel feedback e-mail sent 02/09/22. *(by Cody,Emily Kathryn on 02/09/2022 11:18 AM)*

Workflow Information

| Status | User(s) | Date/Time | Step |
|--------------------|---|---------------------|------------------------|
| Submitted | Xiao,Ningchuan | 01/21/2022 08:46 AM | Submitted for Approval |
| Approved | Xiao,Ningchuan | 01/21/2022 08:47 AM | Unit Approval |
| Approved | Vankeerbergen,Bernadette Chantal | 01/26/2022 10:28 AM | College Approval |
| Revision Requested | Cody,Emily Kathryn | 02/09/2022 11:18 AM | ASCCAO Approval |
| Submitted | Xiao,Ningchuan | 02/22/2022 09:02 AM | Submitted for Approval |
| Approved | Xiao,Ningchuan | 02/22/2022 09:03 AM | Unit Approval |
| Approved | Vankeerbergen,Bernadette Chantal | 02/22/2022 09:58 AM | College Approval |
| Pending Approval | Cody,Emily Kathryn Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Hilty,Michael Vankeerbergen,Bernadette Chantal Steele,Rachel Lea | 02/22/2022 09:59 AM | ASCCAO Approval |



SYLLABUS GEOG4103 INTRODUCTORY SPATIAL DATA ANALYSIS AUTUMN 2022 - ASYNCHRONOUS ONLINE

Course overview

Instructor

Instructor: Dr. Desheng Liu
Email address: liu.738@osu.edu
Office hours: See the CarmenCanvas Calendar
Office Location: CarmenZoom

Course prerequisites

Math 1116 or 1130 or above, or Math Placement Level M or L, or permission of instructor.

Course description

This is an introductory course in statistical analysis of spatial data emphasizing spatial thinking. Lectures will introduce students a range of fundamental statistical and spatial analysis methods used in geographic problem solving. Labs will help students develop skills to analyze and interpret spatially referenced data using computer software.

Course learning outcomes

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

- Obtain a basic set of statistical concepts and tools geographers use to solve statistical problems.
- Use statistical software to make graphs and maps, compute descriptive statistics, conduct hypothesis tests, implement regression analysis, and quantify spatial patterns.
- Interpret data-driven results and critically evaluate statistical arguments in the discipline of geography.
- Understand special issues arising from the statistical analysis of spatial data

How This Course Works

Mode of delivery

This course is 100% online. *It will be an asynchronous learning environment so there are no required sessions when you must be logged in to Carmen at a scheduled time.*

Pace of online activities

This course is divided into **weekly modules** that are released at least one week ahead of time. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame. Weekly video recordings to be viewed consist of 2-3 videos of ~30 minutes for lectures and 1 video of ~20 minutes for labs. All course materials, lectures, labs, quizzes, exams, and participation opportunities can be found on the course website, under Modules, organized according to the week that they are assigned.

Credit hours and work expectations

This is a **3-credit-hour course**. According to [Ohio State policy](#), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

Course materials

Rogerson, P.A. (2020). *Statistical Methods for Geography: A Student's Guide (Fifth Edition)*, Sage Publications, London.

This book will be used as the required text for this course. The ISBN-13 for the paperback is 9781526498809. It is available for purchase in print or electronic format from the campus bookstore, Amazon, the publisher, etc.

Course technology

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

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** 8help@osu.edu
- **TDD:** 614-688-8743

Baseline technical skills for online courses

- Basic computer and web-browsing skills
- Navigating Carmen: for questions about specific functionality, see the [Canvas Student Guide](#).

- [CarmenZoom virtual meetings](#)

Required equipment

- Computer: current PC (Windows 7+) or Mac (OS X) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed
- Microphone: built-in or external microphone, fully installed

Required software

Please keep in mind that you are NOT required to purchase any software for this class. The following list should help you access the software free-of-cost to you as a student in this class.

- [Microsoft Office 365 ProPlus](#) 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.
 - Students are able to access Word, Excel, PowerPoint, Outlook and other programs, depending on platform. Users will also receive 1 TB of OneDrive for Business storage.
 - Office 365 is installed within your BuckeyeMail account. Full instructions for downloading and installation can be found at <https://ocio.osu.edu/kb04733>.
- SPSS
 - SPSS is a comprehensive statistical analysis package that is available to OSU students, faculty, and staff for university-related business, including teaching and academic research.
 - It is available to students for use on their personally owned computer. Ohio State owns a Teaching and Research license. You can install SPSS on your computer by downloading the software and obtaining the license code from <https://osuism.service-now.com/selfservice/#/>.
- RemoteLab
 - If you have any trouble with downloading, installing, or using SPSS on your own machine, you may access the computers in the Derby Hall 0135 and 0140 computer labs via remotelab.osu.edu.
 - Instructions for using RemoteLab can be found at the course website in Carmen.
 - Important: It is best if you can download, install, and use SPSS on your own machine, rather than via RemoteLab, because there are a limited number of computers available remotely, so please only use this option of absolutely needed.
 - Email Jens Blegvad at belgvad.1@osu.edu for RemoteLab technical support.

Carmen Access

You will need to use [BuckeyePass](#) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the [Duo Mobile application](#) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

Grading and faculty response

Grades

| Assignment or category | Percentage |
|------------------------|------------|
| Participation | 10 |
| Homework | 15 |
| Labs | 25 |
| Quizzes | 10 |
| Midterm Exam | 15 |
| Final Exam | 25 |
| Total | 100 |

Assignment information

Participation

With each module, there will be 1-2 participation activities (e.g., peer review), usually 0.5-1 point each. Your goal is to accumulate 10+ points to receive full credit for the participation portion of your grade.

Homework

There will be 5 homework assignments of selected problems from the textbook. Your homework assignments should be your own original work and include sufficient details to demonstrate the steps to your final answers.

Labs

There will be 10 labs. You will be provided with data and step-by-step instructions for each lab, but keep in mind that the process of completing any given lab may not go as smoothly as planned. Unexpected challenges may arise, so it is best to plan for this. Set a goal to submit each lab in advance of the deadline. That way, if unexpected challenges do arise, you have time to deal with them before the deadline passes. Your lab reports should be your own original work. You are encouraged to ask a trusted person to proofread your written reports before you turn them in, but no one else should revise or rewrite your work.

Quizzes

There will be 5 short quizzes administered in Carmen. Quizzes are open-note, and you must complete the quizzes yourself, without any help from other persons. Quizzes will open at the times specified in the class schedule and will be open 24 hours. You will have three attempts to complete each quiz in 20 minutes. The dates and times in which quizzes will open can be found in the syllabus class schedule and CarmenCanvas.

Exams

There will be two exams (midterm and final) administered in Carmen. Each exam will be

- *Timed.* If you are registered with SLDS for extended time accommodations, please confirm that extended time has been granted before you begin the exam.
- *Open-note.* This means that you can use the lecture slides, the handouts, your notes, the textbook, etc.
- *Completed independently.* You must complete the exam by yourself, without any external help or communication. Collaboration with one or more other persons will be considered academic misconduct.
- *Allowed only one attempt.* Be sure that you are ready to complete the exam in one sitting before you begin.

Exams must be turned in on time to receive credits. No make-up exams will be given unless legitimate documents for medical or personal emergency are presented.

Late assignments

- You can submit assignments up to **one week late** unless otherwise noted, and the late penalty is 5% (of the total possible score) per day. The late penalty will not reduce grades to below 70% (of the total possible score). Late penalties are managed by the course website and automatically applied.
- Extensions are NOT typically granted due to getting “stuck,” encountering unexpected errors, software crashes, lost work, or other issues related to these. This is because these are realistic issues that you are likely to encounter when performing work outside of this class, and you need to learn how to manage these issues. However, do keep in touch with your instructor/TA when issues arise so that we can provide support.

Grading scale

92.5–100: A
 89.5–92.49: A-
 86.5–89.49: B+
 82.5–86.49: B
 79.5–82.49: B-
 76.5–79.49: C+
 72.5–76.49: C
 69.5–72.49: C-
 66.5–69.49: D+
 59.5–66.49: D
 Below 59.5: E

Instructor feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course.

Grades and feedback

You can generally expect grades and feedback to be returned within **7 days** once the assignment's deadline has passed. More or less time may be needed, depending on the complexity of the assignment.

E-mail and discussion boards

I usually reply to e-mails and discussion board posts within **24 hours on school days**. This usually occurs during normal work hours (8am-5pm), and although I might reply to emails outside of those hours, please do not expect this.

Attendance, participation, and discussions

Student participation requirements

Because this is a distance-education course, your attendance is based on your online activity and participation. The following is a summary of everyone's expected participation:

- **Logging in: AT LEAST TWICE PER WEEK**
 Be sure you are logging in to the course in Carmen each week, including weeks with holidays or weeks with minimal online course activity. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.
- **Office hours & video recordings: OPTIONAL OR FLEXIBLE**

All video recordings will be posted, no live sessions. If you are interested in discussing an assignment with me, please contact me at the beginning of the week to schedule virtual office hours by appointment.

- **Participating in discussion forums: 0-2 TIMES PER WEEK (FLEXIBLE)**

There are two ways that we'll be using discussion forums.

- In each module, there will be 1-2 participation activities (each worth 0.5 - 1 point), and many of these activities will require student interaction and participation in a discussion forum. Your goal is to accrue 10+ points by the end of the semester, which allows some flexibility for which participation activities you choose to complete.
- There is a Q&A discussion forum for every lab. These forums are for addressing lab-specific questions, and you may engage with these forums as needed. Participating in these forums does not affect your participation grade.

Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. (Note: Excessive grammar, spelling, or punctuation errors in discussions or any other assignment submissions may be penalized at the discretion of the instructor/TA.) A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Other course policies

Academic integrity policy

Ohio State's academic integrity policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand

the university's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. (Note that "warnings" are not given due to an offense being one's first offense, due to ignorance of what constitutes academic misconduct, or due to any other circumstances.) If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* (www.northwestern.edu/uacc/8cards.htm)

Academic integrity information specific to this course

Collaboration for the purposes of troubleshooting is highly encouraged in this course, but everyone is expected to complete all assignment tasks themselves and submit their own unique work. With this in mind, here are some examples of acceptable and unacceptable behavior:

- Acceptable:
 - Asking a classmate how to resolve an unexpected error message, how to find a hidden setting in the software, or similar troubleshooting tasks.
 - Participating in a study group study the course material.
 - Asking a trusted person to proofread (without revising or rewriting) your assignments before you turn them in.
- Unacceptable:
 - Using another student's work (in part or in full) as your own.
 - Sharing files and/or using shared files that contain intermediate or final results.
 - Submitting the same work (even if modified) from a past semester or from another course.
 - Comparing and/or sharing answers before submitting a graded assignment.

- Forgetting to cite sources, including the course materials, websites visited, etc.

There are many other acceptable/unacceptable actions than those exemplified here, so if you have any questions or concerns about acceptable/unacceptable actions or what constitutes academic misconduct in this course, ask your instructor for clarification/permission.

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Statement on title IX

All students and employees at Ohio State have the right to work and learn in an environment free from harassment and discrimination based on sex or gender, and the university can arrange interim measures, provide support resources, and explain investigation options, including referral to confidential resources.

If you or someone you know has been harassed or discriminated against based on your sex or gender, including sexual harassment, sexual assault, relationship violence, stalking, or sexual exploitation, you may find information about your rights and options at titleix.osu.edu or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu. Title IX is part of the Office of Institutional Equity (OIE) at Ohio State, which responds to all bias-motivated incidents of harassment and discrimination, such as race, religion, national origin and disability. For more information on OIE, visit equity.osu.edu or email equity@osu.edu.

Statement on diversity

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Accessibility accommodations for students with disabilities

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology

This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [CarmenCanvas accessibility](#)
- [CarmenZoom accessibility](#)

Your mental health!

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614- 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273- TALK or at suicidepreventionlifeline.org.

Disclaimer

This course syllabus provides a general plan for the course; deviations may be necessary. Such deviations may be made for individuals or for the entire class, as deemed appropriate by the instructor. Any changes that affect the entire class will be announced by the instructor with as much advance notice as possible.

Course schedule

| Week | Topics | Readings | Assignments |
|------|--|--------------------|-------------------------------|
| 1 | 08/23: Introduction 08/25: Lab 1: Introduction to SPSS | Ch. 1: p. 1-17 | |
| 2 | 08/30: Geographic Data 09/01: Basic Terms and Notations | Ch. 1: p. 18-26 | 09/04: Lab 1 |
| 3 | 09/06: Descriptive Statistics 09/08: Lab 2: Descriptive Statistics | Ch. 2: p. 27-54 | 09/09: Quiz 1 09/11: HW 1 |
| 4 | 09/13: Probability (I) 09/15: Lab 3a: Probability Distribution | Ch. 3: p. 61-95 | 09/18: Lab 2 |
| 5 | 09/20: Probability (II) 09/22: Lab 3b: Probability Distribution | Ch. 4: p. 96-125 | 09/25: HW 2 |
| 6 | 09/27: Sampling 09/29: Lab 4: Sampling | Ch. 5: p. 160-165 | 09/30: Quiz 2 10/02: Lab 3 |
| 7 | 10/04: Estimation 10/06: Lab 5: Confidence Interval | Ch. 5: p. 126-132 | 10/09: Lab 4 |
| 8 | 10/11: Midterm Exam 10/13: <i>Autumn Break</i> | | |
| 9 | 10/18: Hypothesis Testing (I) 10/20: Lab 6a: Hypothesis Testing | Ch. 5: p. 133-160 | 10/23: Lab 5 |
| 10 | 10/25: Hypothesis Testing (II) 10/27: Lab 6b: Hypothesis Testing | Ch. 5: p. 133-160 | 10/28: Quiz 3 10/30: HW 3 |
| 11 | 11/01: Analysis of Variance 11/03: Lab 7: ANOVA | Ch. 6: p. 187-215 | 11/06: Lab 6 |
| 12 | 11/08: Correlation 11/10: Lab 8: Correlation | Ch. 7: p. 216-238 | 11/13: Lab 7 11/13: HW 4 |
| 13 | 11/15: Regression (I) 11/17: Lab 9: Regression | Ch. 9: p. 261-288 | 11/18: Quiz 4 11/20: Lab 8 |
| 14 | 11/22: Regression (II) 11/24: <i>Thanksgiving Break</i> | Ch. 10: p. 289-318 | 11/27: HW 5 11/27: Lab 9 |
| 15 | 11/29: Spatial Autocorrelation 12/01: Lab 10: Spatial Analysis in GeoDa | Ch. 11: p. 335-341 | 12/02: Quiz 5 |
| 16 | 12/06: Spatial Pattern Analysis | Ch. 11: p. 328-334 | 12/08: Lab 10 |
| | 12/12: Final Exam | | |



SYLLABUS GEOG4103 INTRODUCTORY SPATIAL DATA ANALYSIS AUTUMN 2022 - HYBRID

Course overview

Instructor

Instructor: Dr. Desheng Liu
Email address: liu.738@osu.edu
Office hours: See the CarmenCanvas Calendar
Office Location: CarmenZoom

Course prerequisites

Math 1116 or 1130 or above, or Math Placement Level M or L, or permission of instructor.

Course description

This is an introductory course in statistical analysis of spatial data emphasizing spatial thinking. Lectures will introduce students a range of fundamental statistical and spatial analysis methods used in geographic problem solving. Labs will help students develop skills to analyze and interpret spatially referenced data using computer software.

Course learning outcomes

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

- Obtain a basic set of statistical concepts and tools geographers use to solve statistical problems.
- Use statistical software to make graphs and maps, compute descriptive statistics, conduct hypothesis tests, implement regression analysis, and quantify spatial patterns.
- Interpret data-driven results and critically evaluate statistical arguments in the discipline of geography.
- Understand special issues arising from the statistical analysis of spatial data

How This Course Works

Mode of delivery

This course is a hybrid course that is approximately 50% online. You are required to attend one 80-minute lab section per week.

Pace of online activities

This course is divided into **weekly modules** that are released at least one week ahead of time. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame. Weekly lecture recordings to be viewed include 2-3 videos of ~30 minutes. All course materials, lectures, labs, quizzes, exams, and participation opportunities can be found on the course website, under Modules, organized according to the week that they are assigned.

Credit hours and work expectations

This is a **3-credit-hour course**. According to [Ohio State policy](#), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

Course materials

Rogerson, P.A. (2020). *Statistical Methods for Geography: A Student's Guide (Fifth Edition)*, Sage Publications, London.

This book will be used as the required text for this course. The ISBN-13 for the paperback is 9781526498809. It is available for purchase in print or electronic format from the campus bookstore, Amazon, the publisher (Esri Press), etc.

Course technology

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

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** 8help@osu.edu
- **TDD:** 614-688-8743

Baseline technical skills for online courses

- Basic computer and web-browsing skills
- Navigating Carmen: for questions about specific functionality, see the [Canvas Student Guide](#).

- [CarmenZoom virtual meetings](#)

Required equipment

- Computer: current PC (Windows 7+) or Mac (OS X) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed
- Microphone: built-in or external microphone, fully installed

Required software

Please keep in mind that you are NOT required to purchase any software for this class. The following list should help you access the software free-of-cost to you as a student in this class.

- [Microsoft Office 365 ProPlus](#) 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.
 - Students are able to access Word, Excel, PowerPoint, Outlook and other programs, depending on platform. Users will also receive 1 TB of OneDrive for Business storage.
 - Office 365 is installed within your BuckeyeMail account. Full instructions for downloading and installation can be found at <https://ocio.osu.edu/kb04733>.
- SPSS
 - SPSS is a comprehensive statistical analysis package that is available to OSU students, faculty, and staff for university-related business, including teaching and academic research.
 - It is available to students for use on their personally owned computer. Ohio State owns a Teaching and Research license. You can install SPSS on your computer by downloading the software and obtaining the license code from <https://osuism.service-now.com/selfservice/#/>.
- RemoteLab
 - If you have any trouble with downloading, installing, or using SPSS on your own machine, you may access the computers in the Derby Hall 0135 and 0140 computer labs via remotelab.osu.edu.
 - Instructions for using RemoteLab can be found at the course website in Carmen.
 - Important: It is best if you can download, install, and use SPSS on your own machine, rather than via RemoteLab, because there are a limited number of computers available remotely, so please only use this option if absolutely needed.
 - Email Jens Blegvad at belgvad.1@osu.edu for RemoteLab technical support.

Carmen Access

You will need to use [BuckeyePass](#) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the [Duo Mobile application](#) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

Grading and faculty response

Grades

| Assignment or category | Percentage |
|------------------------|------------|
| Participation | 10 |
| Homework | 15 |
| Labs | 25 |
| Quizzes | 10 |
| Midterm Exam | 15 |
| Final Exam | 25 |
| Total | 100 |

Assignment information

Participation

With each module, there will be 1-2 participation activities (e.g., peer review), usually 0.5-1 point each. Your goal is to accumulate 10+ points to receive full credit for the participation portion of your grade.

Homework

There will be 5 homework assignments of selected problems from the textbook. Your homework assignments should be your own original work and include sufficient details to demonstrate the steps to your final answers.

Labs

There will be 10 labs. You will be provided with data and step-by-step instructions for each lab, but keep in mind that the process of completing any given lab may not go as smoothly as planned. Unexpected challenges may arise, so it is best to plan for this. Set a goal to submit each lab in advance of the deadline. That way, if unexpected challenges do arise, you have time to deal with them before the deadline passes. Your lab reports should be your own original work. You are encouraged to ask a trusted person to proofread your written reports before you turn them in, but no one else should revise or rewrite your work.

Quizzes

There will be 5 short quizzes administered in Carmen. Quizzes are open-note, and you must complete the quizzes yourself, without any help from other persons. Quizzes will open at the times specified in the class schedule and will be open 24 hours. You will have three attempts to complete each quiz in 20 minutes. The dates and times in which quizzes will open can be found in the syllabus class schedule and CarmenCanvas.

Exams

There will be two exams (midterm and final) administered in Carmen. Each exam will be

- *Timed.* If you are registered with SLDS for extended time accommodations, please confirm that extended time has been granted before you begin the exam.
- *Open-note.* This means that you can use the lecture slides, the handouts, your notes, the textbook, etc.
- *Completed independently.* You must complete the exam by yourself, without any external help or communication. Collaboration with one or more other persons will be considered academic misconduct.
- *Allowed only one attempt.* Be sure that you are ready to complete the exam in one sitting before you begin.

Exams must be turned in on time to receive credits. No make-up exams will be given unless legitimate documents for medical or personal emergency are presented.

Late assignments

- You can submit assignments up to **one week late** unless otherwise noted, and the late penalty is 5% (of the total possible score) per day. The late penalty will not reduce grades to below 70% (of the total possible score). Late penalties are managed by the course website and automatically applied.
- Extensions are NOT typically granted due to getting “stuck,” encountering unexpected errors, software crashes, lost work, or other issues related to these. This is because these are realistic issues that you are likely to encounter when performing work outside of this class, and you need to learn how to manage these issues. However, do keep in touch with your instructor/TA when issues arise so that we can provide support.

Grading scale

92.5–100: A
 89.5–92.49: A-
 86.5–89.49: B+
 82.5–86.49: B
 79.5–82.49: B-
 76.5–79.49: C+
 72.5–76.49: C
 69.5–72.49: C-
 66.5–69.49: D+
 59.5–66.49: D
 Below 59.5: E

Instructor feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course.

Grades and feedback

You can generally expect grades and feedback to be returned within **7 days** once the assignment's deadline has passed. More or less time may be needed, depending on the complexity of the assignment.

E-mail and discussion boards

I usually reply to e-mails and discussion board posts within **24 hours on school days**. This usually occurs during normal work hours (8am-5pm), and although I might reply to emails outside of those hours, please do not expect this.

Attendance, participation, and discussions

Student participation requirements

Because this is a hybrid course, your attendance is partially based on your online activity and participation. The following is a summary of everyone's expected participation:

- **Logging in: AT LEAST TWICE PER WEEK**
 Be sure you are logging in to the course in Carmen each week, including weeks with holidays or weeks with minimal online course activity. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.
- **Office hours & video recordings: OPTIONAL OR FLEXIBLE**

All video recordings will be posted, no live sessions. If you are interested in discussing an assignment with me, please contact me at the beginning of the week to schedule virtual office hours by appointment.

- **Participating in discussion forums: 0-2 TIMES PER WEEK (FLEXIBLE)**

There are two ways that we'll be using discussion forums.

- In each module, there will be 1-2 participation activities (each worth 0.5 - 1 point), and many of these activities will require student interaction and participation in a discussion forum. Your goal is to accrue 10+ points by the end of the semester, which allows some flexibility for which participation activities you choose to complete.
- There is a Q&A discussion forum for every lab. These forums are for addressing lab-specific questions, and you may engage with these forums as needed. Participating in these forums does not affect your participation grade.

Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. (Note: Excessive grammar, spelling, or punctuation errors in discussions or any other assignment submissions may be penalized at the discretion of the instructor/TA.) A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Other course policies

Academic integrity policy

Ohio State's academic integrity policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's [Code of Student Conduct](#), and that all students will complete all academic and

scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. (Note that "warnings" are not given due to an offense being one's first offense, due to ignorance of what constitutes academic misconduct, or due to any other circumstances.) If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* (www.northwestern.edu/uacc/8cards.htm)

Academic integrity information specific to this course

Collaboration for the purposes of troubleshooting is highly encouraged in this course, but everyone is expected to complete all assignment tasks themselves and submit their own unique work. With this in mind, here are some examples of acceptable and unacceptable behavior:

- Acceptable:
 - Asking a classmate how to resolve an unexpected error message, how to find a hidden setting in the software, or similar troubleshooting tasks.
 - Participating in a study group study the course material.
 - Asking a trusted person to proofread (without revising or rewriting) your assignments before you turn them in.
- Unacceptable:
 - Using another student's work (in part or in full) as your own.
 - Sharing files and/or using shared files that contain intermediate or final results.
 - Submitting the same work (even if modified) from a past semester or from another course.
 - Comparing and/or sharing answers before submitting a graded assignment.
 - Forgetting to cite sources, including the course materials, websites visited, etc.

There are many other acceptable/unacceptable actions than those exemplified here, so if you have any questions or concerns about acceptable/unacceptable actions or what constitutes academic misconduct in this course, ask your instructor for clarification/permission.

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Statement on title IX

All students and employees at Ohio State have the right to work and learn in an environment free from harassment and discrimination based on sex or gender, and the university can arrange interim measures, provide support resources, and explain investigation options, including referral to confidential resources.

If you or someone you know has been harassed or discriminated against based on your sex or gender, including sexual harassment, sexual assault, relationship violence, stalking, or sexual exploitation, you may find information about your rights and options at titleix.osu.edu or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu. Title IX is part of the Office of Institutional Equity (OIE) at Ohio State, which responds to all bias-motivated incidents of harassment and discrimination, such as race, religion, national origin and disability. For more information on OIE, visit equity.osu.edu or email equity@osu.edu.

Statement on diversity

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Accessibility accommodations for students with disabilities

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology

This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [CarmenCanvas accessibility](#)
- [CarmenZoom accessibility](#)

Your mental health!

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614- 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273- TALK or at suicidepreventionlifeline.org.

Disclaimer

This course syllabus provides a general plan for the course; deviations may be necessary. Such deviations may be made for individuals or for the entire class, as deemed appropriate by the instructor. Any changes that affect the entire class will be announced by the instructor with as much advance notice as possible.

Course schedule

| Week | Topics | Readings | Assignments |
|------|--|--------------------|-------------------------------|
| 1 | 08/23: Introduction 08/25: Lab 1: Introduction to SPSS | Ch. 1: p. 1-17 | |
| 2 | 08/30: Geographic Data 09/01: Basic Terms and Notations | Ch. 1: p. 18-26 | 09/04: Lab 1 |
| 3 | 09/06: Descriptive Statistics 09/08: Lab 2: Descriptive Statistics | Ch. 2: p. 27-54 | 09/09: Quiz 1 09/11: HW 1 |
| 4 | 09/13: Probability (I) 09/15: Lab 3a: Probability Distribution | Ch. 3: p. 61-95 | 09/18: Lab 2 |
| 5 | 09/20: Probability (II) 09/22: Lab 3b: Probability Distribution | Ch. 4: p. 96-125 | 09/25: HW 2 |
| 6 | 09/27: Sampling 09/29: Lab 4: Sampling | Ch. 5: p. 160-165 | 09/30: Quiz 2 10/02: Lab 3 |
| 7 | 10/04: Estimation 10/06: Lab 5: Confidence Interval | Ch. 5: p. 126-132 | 10/09: Lab 4 |
| 8 | 10/11: Midterm Exam 10/13: <i>Autumn Break</i> | | |
| 9 | 10/18: Hypothesis Testing (I) 10/20: Lab 6a: Hypothesis Testing | Ch. 5: p. 133-160 | 10/23: Lab 5 |
| 10 | 10/25: Hypothesis Testing (II) 10/27: Lab 6b: Hypothesis Testing | Ch. 5: p. 133-160 | 10/28: Quiz 3 10/30: HW 3 |
| 11 | 11/01: Analysis of Variance 11/03: Lab 7: ANOVA | Ch. 6: p. 187-215 | 11/06: Lab 6 |
| 12 | 11/08: Correlation 11/10: Lab 8: Correlation | Ch. 7: p. 216-238 | 11/13: Lab 7 11/13: HW 4 |
| 13 | 11/15: Regression (I) 11/17: Lab 9: Regression | Ch. 9: p. 261-288 | 11/18: Quiz 4 11/20: Lab 8 |
| 14 | 11/22: Regression (II) 11/24: <i>Thanksgiving Break</i> | Ch. 10: p. 289-318 | 11/27: HW 5 11/27: Lab 9 |
| 15 | 11/29: Spatial Autocorrelation 12/01: Lab 10: Spatial Analysis in GeoDa | Ch. 11: p. 335-341 | 12/02: Quiz 5 |
| 16 | 12/06: Spatial Pattern Analysis | Ch. 11: p. 328-334 | 12/08: Lab 10 |
| | 12/12: Final Exam | | |

GEOG 4103 – Introductory Spatial Data Analysis

Instructor

Professor Desheng Liu
Email: liu.738@osu.edu
Office: 1056 Derby Hall
Phone: 614-247-2775
Office Hours: Tu 11:00-12:30PM, or by appointment

Teaching Assistant

Mr. Yuchen Li
Email: li.9296@buckeyemail.osu.edu
Office: 1155 Derby Hall
Office Hours: Tu 2:30-3:30PM; Wed 10:00-11:00AM or by appointment

Lectures/Labs

0140 Derby Hall, TuTh 9:35-10:55AM

Course Website

The course schedule, announcements, lecture notes, homework and lab assignments, and other course information will be posted on Carmen (<https://carmen.osu.edu>).

Required Textbook

[R] Rogerson, P.A. (2015). *Statistical Methods for Geography: A Student's Guide (Fourth Edition)*, Sage Publications, London.

Prerequisites

Math 1116 or 1130 or above, or Math Placement Level M or L, or permission of instructor

Course Description

This course provides an introduction to statistical analysis of spatial data emphasizing spatial thinking. In this course fundamental statistical methods are presented in the context of geographic sciences. Students will develop a fundamental understanding of statistical concepts and the tools geographers use to solve statistical problems. Lectures will introduce students a range of fundamental statistical and spatial analysis methods used in geographic problem solving. Labs will help students develop skills to analyze and interpret spatially referenced data using computer software. This course emphasizes hands-on experience and practical understanding. Real-world examples from a variety of topical areas in geography will be used in the lectures and labs.

Grading Policy

Your final course grade will be based on the following weighting of assessment components:

| | |
|-----------------|-----|
| Class Exercises | 20% |
| Homework | 10% |
| Labs | 30% |
| Midterm Exam | 15% |
| Final Exam | 25% |

- Class exercises will be frequently given throughout the semester. They are designed to help students understand the lectures and do well in exams. Students will receive credits by showing efforts in class but no make-ups will be given for absence.
- All assignments should be turned in on time. Late submissions will be penalized by 10% per day late.
- There will be a midterm exam during the semester as well as a final exam. Students must take all exams to receive credits. No make-up exams will be given unless legitimate documents for medical or personal emergency are presented **prior to** the exams.

Final course grades will be assigned based on the following grading scale:

A: 93–100 | **A-:** 90–92 | **B+:** 87–89 | **B:** 83–86 | **B-:** 80–82 | **C+:** 77–79
C: 73–76 | **C-:** 70–72 | **D+:** 67–69 | **D:** 60–66 | **F:** below 60

Student Responsibility

You are responsible for your own learning. I am here solely to facilitate your learning. I will help you as much as I can, but learning the material is ultimately up to you. This includes:

- Attending class meetings or getting assignments and notes from others if you miss class;
- Asking questions when you have them, either in class or out of class;
- Doing the assigned homework and labs on time and participating in class;
- Contacting me if you have difficulties.

Communication Devices

Cell phones and other communication devices must be either turned off or put on vibrate during class. Please refrain from texting during class as a courtesy to those sitting around you. All electronic devices other than a calculator must be shut off and put away during examinations.

Academic Misconduct

Please help maintain an academic environment of mutual respect and fair treatment. It is the responsibility of the Committee on Academic Misconduct 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). Academic misconduct will not be tolerated and will be dealt with procedurally in accordance with university policy, which is available at <http://oaa.osu.edu/coam.html>. For additional information, see the Code of Student Conduct at <http://studentlife.osu.edu/csc/>.

Students with Disabilities

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. You are also welcome to register with Student Life Disability Services to establish reasonable accommodations. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **SLDS contact information:** slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Receiving an 'I' for the Course

You cannot receive an incomplete for the course unless 70% of the work in the course has been completed. Extenuating circumstances will be handled on a case-by-case basis.

Weekly Topics

A tentative outline of weekly topics is given below. Students should check the course website frequently for updates.

| Week | Topics | Readings |
|------|--------------------------|--------------|
| 1 | Introduction | [R] 1 |
| 2 | Geographic data | [R] 1.7, 2.1 |
| 3 | Descriptive statistics | [R] 2 |
| 4 | Probability (I) | [R] 3 |
| 5 | Probability (II) | [R] 4 |
| 6 | Sampling | [R] 5.7 |
| 7 | Estimation | [R] 5.1~5.2 |
| 8 | Midterm Exam | |
| 9 | Hypothesis testing (I) | [R] 5.3~5.6 |
| 10 | Hypothesis testing (II) | [R] 5.3~5.6 |
| 11 | Analysis of variance | [R] 6 |
| 12 | Correlation | [R] 7 |
| 13 | Regression (I) | [R] 8, 9 |
| 14 | Regression (II) | [R] 11 |
| 15 | Spatial autocorrelation | [R] 10 |
| 16 | Spatial pattern analysis | [R] 10 |

| Week | Date | Topics | Assignments |
|------|-------|--------------------------------------|-------------|
| 1 | 08/20 | Introduction | |
| | 08/22 | Lab 1: Introduction to SPSS | |
| 2 | 08/27 | Geographic Data | |
| | 08/29 | Review of Basic Terms and Notations | Lab 1 due |
| 3 | 09/03 | Descriptive Statistics | |
| | 09/05 | Lab 2: Descriptive Statistics | |
| 4 | 09/10 | Probability (I) | HW 1 due |
| | 09/12 | Lab 3: Probability Distribution | Lab 2 due |
| 5 | 09/17 | Probability (II) | |
| | 09/19 | Lab 3: Probability Distribution | |
| 6 | 09/24 | Sampling | HW 2 due |
| | 09/26 | Lab 4: Sampling | Lab 3 due |
| 7 | 10/01 | Estimation | |
| | 10/03 | Lab 5: Confidence Interval | Lab 4 due |
| 8 | 10/08 | Midterm Exam: 9:35-10:55AM | |
| | 10/10 | <i>No Class (Autumn Break)</i> | |
| 9 | 10/15 | Hypothesis Testing (I) | |
| | 10/17 | Lab 6: Hypothesis Testing | Lab 5 due |
| 10 | 10/22 | Hypothesis Testing (II) | |
| | 10/24 | Lab 6: Hypothesis Testing | |
| 11 | 10/29 | Analysis of Variance | HW 3 due |
| | 10/31 | Lab 7: ANOVA | Lab 6 due |
| 12 | 11/05 | Correlation | |
| | 11/07 | Lab 8: Correlation | Lab 7 due |
| 13 | 11/12 | Regression (I) | HW 4 due |
| | 11/14 | Lab 9: Regression | Lab 8 due |
| 14 | 11/19 | Regression (II) | |
| | 11/21 | Spatial Autocorrelation | HW 5 due |
| 15 | 11/26 | Lab 10: Spatial Analysis in GeoDa | Lab 9 due |
| | 11/28 | <i>No Class (Thanksgiving Break)</i> | |
| 16 | 12/03 | Spatial Pattern Analysis | Lab 10 due |
| | 12/06 | Final Exam: 8:00-9:45AM | |

Distance Approval Cover Sheet

For Permanent DL/DH Approval | College of Arts and Sciences

Course Number and Title:

Carmen Use

When building your course, we recommend using the [ASC Distance Learning Course Template](#) for CarmenCanvas. For more on use of [Carmen: Common Sense Best Practices](#).

A Carmen site will be created for the course, including a syllabus and gradebook at minimum.

If no, why not?

Syllabus

Proposed syllabus uses the ASC distance learning syllabus template, includes boilerplate language where required, as well as a clear description of the technical and academic support services offered, and how learners can obtain them.

Syllabus is consistent and is easy to understand from the student perspective.

Syllabus includes a schedule with dates and/or a description of what constitutes the beginning and end of a week or module.

If there are required synchronous sessions, the syllabus clearly states when they will happen and how to access them.

Additional comments (optional):

Instructor Presence

For more on instructor presence: [About Online Instructor Presence](#).

Students should have opportunities for regular and substantive academic interactions with the course instructor. Some ways to achieve this objective:

Regular instructor communications with the class via announcements or weekly check-ins.

Instructional content, such as video, audio, or interactive lessons, that is visibly created or mediated by the instructor.

- Regular participation in class discussion, such as in Carmen discussions or synchronous sessions.
- Regular opportunities for students to receive personal instructor feedback on assignments.

Please comment on this dimension of the proposed course (or select/explain methods above):

Delivery Well-Suited to DL/DH Environment

Technology questions adapted from the [Quality Matters](#) rubric. For information about Ohio State learning technologies: [Toolsets](#).

- The tools used in the course support the learning outcomes and competencies.
- Course tools promote learner engagement and active learning.
- Technologies required in the course are current and readily obtainable.
- Links are provided to privacy policies for all external tools required in the course.

Additional technology comments (optional):

Which components of this course are planned for synchronous delivery and which for asynchronous delivery? (For DH, address what is planned for in-person meetings as well.)

If you believe further explanation would be helpful, please comment on how course activities have been adjusted for distance learning (optional):

Workload Estimation

For more information about calculating online instruction time: [ODEE Credit Hour Estimation](#).

- Course credit hours align with estimated average weekly time to complete the course successfully.
- Course includes direct (equivalent of “in-class”) and indirect (equivalent of “out-of-class”) instruction at a ratio of about 1:2.

Provide a brief outline of a typical course week, categorizing course activities and estimating the approximate time to complete them or participate:

- In the case of course delivery change requests, the course demonstrates comparable rigor in meeting course learning outcomes.

Accessibility

For more information or a further conversation, contact the [accessibility coordinator](#) for the College of Arts and Sciences. For tools and training on accessibility: [Digital Accessibility Services](#).

- Instructor(s) teaching the course will have taken Digital Accessibility training (starting in 2022) and will ensure all course materials and activities meet requirements for diverse learners, including alternate means of accessing course materials when appropriate.
- Information is provided about the accessibility of all technologies required in the course. All third-party tools (tools without campus-wide license agreements) have their accessibility statements included.

Description of any anticipated accommodation requests and how they have been/will be addressed.

Additional comments (optional):

Academic Integrity

For more information: [Academic Integrity](#).

- The course syllabus includes online-specific policies about academic integrity, including specific parameters for each major assignment:
- Assignments are designed to deter cheating and plagiarism and/or course technologies such as online proctoring or plagiarism check or other strategies are in place to deter cheating.

Additional comments (optional):

Frequent, Varied Assignments/Assessments

For more information: [Designing Assessments for Students](#).

Student success in online courses is maximized when there are frequent, varied learning activities. Possible approaches:

- Opportunities for students to receive course information through a variety of different sources, including indirect sources, such as textbooks and lectures, and direct sources, such as scholarly resources and field observation.
- Variety of assignment formats to provide students with multiple means of demonstrating learning.
- Opportunities for students to apply course knowledge and skills to authentic, real-world tasks in assignments.

Comment briefly on the frequency and variety of assignment types and assessment approaches used in this course (or select methods above):

Community Building

For more information: [Student Interaction Online](#).

Students engage more fully in courses when they have an opportunity to interact with their peers and feel they are part of a community of learners. Possible approaches:

- Opportunities for students to interact academically with classmates through regular class discussion or group assignments.
- Opportunities for students to interact socially with classmates, such as through video conference sessions or a course Q&A forum.
- Attention is paid to other ways to minimize transactional distance (psychological and communicative gaps between students and their peers, instructor, course content, and institution).

Please comment on this dimension of the proposed course (or select methods above):

Transparency and Metacognitive Explanations

For more information: [Supporting Student Learning](#).

Students have successful, meaningful experiences when they understand how the components of a course connect together, when they have guidance on how to study, and when they are encouraged to take ownership of their learning. Possible approaches:

- Instructor explanations about the learning goals and overall design or organization of the course.
- Context or rationale to explain the purpose and relevance of major tasks and assignments.

- Guidance or resources for ancillary skills necessary to complete assignments, such as conducting library research or using technology tools.
- Opportunities for students to take ownership or leadership in their learning, such as by choosing topics of interest for an assignment or leading a group discussion or meeting.
- Opportunities for students to reflect on their learning process, including their goals, study strategies, and progress.
- Opportunities for students to provide feedback on the course.

Please comment on this dimension of the proposed course (or select methods above):

Syllabus and cover sheet reviewed by *Jeremie Smith* on

Reviewer Comments:

Additional resources and examples can be found on [ASC's Office of Distance Education](#) website.