GEOG 4103 Introductory Spatial Data Analysis – Spring 2021
Syllabus (Online)

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

Teaching Associates:
- TA: Yue Lin, lin3326@buckeyemail.osu.edu
  Office Hours: Synchronous Zoom meetings by appointment.

Course Description:
This course introduces methods for spatial data analysis in quantitative geographic research. The emphasis is on the statistical analysis of geographic data. The objectives are (1) to introduce students a range of fundamental statistical and spatial analysis methods used in geographic problem solving, (2) to present students real-world examples from a variety of areas in geography, and (3) to provide students a basis for understanding more advanced geographic data analysis methods.

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 deadlines for lab assignments and exams. 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, lab assignments, homework, and preparation for exams to earn a C grade.

Materials:
- Textbook:
  - [R] Rogerson, P.A. (2015). Statistical Methods for Geography: A Student's Guide (Fifth Edition), Sage Publications, London.
- Portable Memory Device:
  - A cloud drive (Box, Dropbox etc.) is needed for data storage.

Evaluation:
- Labs – 40%
  - There will be 9 labs, each with an assignment. All lab assignments will count toward your final grade of the course.
  - Most lab assignments are due ***one week after the lab session***. Two weeks are granted for lab 3 and 5 due to length and complexity. Please refer to the course schedule for detailed information.
  - All lab assignments will be submitted via the course website.
- Exams – 30%
  - There will be a midterm exam during the semester as well as a non-cumulative final exam. Both exams are open-book. Students must take both exams to receive credits.

    - Exams will be published as Word documents on course website 12am on exam days. You need to type your answers in exam documents and turn in before 11:59pm the same day. More details about exams will be announced during the semester.
- Homework – 30%
    - Several homework will be given during the semester. Questions in HW are picked from textbook exercises. Refer to Homework Assignments.docx on course website for the list of questions for HW.
    - Homework is due one week after releasing and should be submitted via Carmen. You are expected to show not only results, but also processes of calculation to get full credit of homework. Please make good use of Microsoft Equation Editor (Insert -> Equation -> Insert New Equation) to correctly insert mathematical formulas into your homework.
- Grading Scale:

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

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

Course Policies:

- Email correspondence policy
    - You are responsible for all course related emails, so be sure to check your inbox on a daily basis.
    - When emailing your instructor, TA or grader, please always begin the subject of the email with the course number (GEOG4103) 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:

        GEOG4103_John Smith_Questions on Lab 3
- Lab questions policy
    - If you have any questions on lab content (can't finish specific steps, tools are not working etc.) or concerns on lab grades, please email your TA for a Zoom meeting.
    - Carmen discussion boards will be created for all labs. You can also communicate with classmates, instructor and TA via discussion boards.
- Late submission policy
    - Late submissions 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.
    - Calculation process must be shown to get full credits. Correct results without calculation process do not get credits.
- 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. If you have any questions or concerns about acceptable/unacceptable actions, ask your instructor for clarification/permission.
    - All open-ended responses to questions, prompts, etc. must be written entirely, nearly entirely, or at least in majority using your own words. Use credible sources, and cite all sources, including those only referenced, those indirectly paraphrased, and those directly quoted, being sure to use quotation marks to identify excerpts from these credible sources. This expectation to cite all of your sources also extends to the textbook, the lab instructions, lecture slides, other course materials, online resources, etc. Please contact Center for the Study and Teaching of Writing (CSTW, https://cstw.osu.edu/writing-center) or the instructor if you have difficulties organizing language for assignments.
- Other Course Policy
    - Please refer to Student Academic Services for more academic services provided by OSU.
    - Other student services can be accessed here.

Other Course Technology

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

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

Basic technical skills necessary for this course

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

Equipment

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

Software

- SPSS Statistics will be used for labs and lab assignments. This software may be requested through the Order Services link of OCIO Self Service.
- You can also use Guacamole to remotely access lab PCs in Derby 135 and 140. A tutorial on how to use Guacamole can be found on course website. Besides, Guacamole is list based, which means your credential needs to be manually input to grant you access. Thus, although I have submitted class roster to the IT office of the department, you may want to let me know if you enrolled this course after Jan 11th so they can update the list and let you use Guacamole.

Tentative Schedule

Week	Date	Topics	Assignments
1	01/11	Introduction	
	01/13	Lab 1: Introduction to SPSS	
2	01/18	Geographic Data	
	01/20	Review of Basic Terms and Notations	Lab 1 due
3	01/25	Descriptive Statistics (p26-p44)	HW 1 assigned
	01/27	Lab 2: Descriptive Statistics	
4	02/01	Probability (I) (p60-p74)	HW 1 due
	02/03	Lab 3: Probability Distribution	Lab 2 due
5	02/08	Probability (II) (p90-p99)	HW 2 assigned
	02/10	Lab 3: Probability Distribution	
6	02/15	Sampling (p151-p153)	HW 2 due
	02/17	Lab 4: Sampling	Lab 3 due
7	02/22	Estimation (p120-p123)	
	02/24	Lab 5: Confidence Interval	Lab 4 due
8	03/01	**Midterm Exam**	
	03/03	Hypothesis Testing (I) (p126-p133)	
9	03/08	Hypothesis Testing (II) (p135-p139)	HW 3 assigned
	03/10	Lab 6: Hypothesis Testing	Lab 5 due
10	03/15	Analysis of Variance (p177-p183)	HW 3 due
	03/17	Lab 7: ANOVA	Lab 6 due
11	03/22	Correlation (p205-p215)	HW 4 assigned
	03/24	Lab 8: Correlation	Lab 7 due
12	03/29	Regression (p225-p236)	HW 4 due, HW 5 assigned
	03/31	Lab 9: Regression	Lab 8 due
13	04/05	Spatial Autocorrelation	HW 5 due
	04/07	Work on lab 9 and prepare for the final exam	Lab 9 due
14	04/12	**Final Exam**	