

# GEOG 4103 Introductory Spatial Data Analysis – Spring 2020

## Syllabus

**Meeting Time and Location:** TR 2:20pm – 3:40pm, 140 Derby Hall

**Instructor Name and Email:** Dr. Yang Song, [song.630@osu.edu](mailto:song.630@osu.edu)

- Office Hours and Location: W 1:30pm - 3:30pm, via Zoom.

**Teaching Associates:**

- TA: Rebecca Chapman, [chapman.751@osu.edu](mailto:chapman.751@osu.edu)  
Office Hours and Location: W 1:30-3:30pm, via Zoom.

**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.

**Materials:**

- Textbook:
  - [R] Rogerson, P.A. (2015). *Statistical Methods for Geography: A Student's Guide* (Fourth Edition), Sage Publications, London.
- Portable Memory Device:
  - A portable memory device, 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.

**Evaluation:**

- Labs – 30%
  - There will be 9 labs, each with an assignment. All lab assignments will count toward your final grade of the course.
  - Lab assignments are due **one week after the lab session (6:00pm of the due day)**. Please refer to the course schedule for detailed information.
  - All lab assignments will be submitted via the course website.
  - 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.
  - Due to COVID-19, labs after spring break will be held online via Zoom.
- Exams – 25%
  - There will be a midterm exam during the semester as well as a non-cumulative final exam. Students must take both exams to receive credits.
  - Exams will not be returned to you. If you want to review exams, please schedule a meeting with the instructor.
- Homework – 25%
  - Several homework will be given during the semester. They are picked from textbook exercises.
  - All homework 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.

- Attendance – 20%
  - Attendance is required and will be recorded at all meetings. An attendance sheet will be passed around during lecture and lab sessions, 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).
  - Due to COVID-19, only attendance records before spring break will be counted towards the final grade.
  - Absences:
    - Unexcused Absences:
      - You may miss 2 meetings (lectures and labs) without penalty. Additional unexcused absences will result in a 2 point deduction from your attendance grade. No more than 20 points can be deducted from lab attendance.
    - Excused Absences:
      - Please email the instructor 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):
 

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
- 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.
  - There is a Canvas app available for [iPhone](#) and [Android](#), which you may find beneficial for keeping up with the course website.
- 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 meet your TA during his office hours or via email.
- 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.
  - 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.
- 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](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.
  - 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, <https://cstw.osu.edu/writing-center>) or the instructor if you have difficulties organizing language for assignments.

Week	Date	Topics	Assignments
1	01/07	Introduction	
	01/09	Lab 1: Introduction to SPSS	
2	01/14	Geographic Data	
	01/16	Review of Basic Terms and Notations	Lab 1 due
3	01/21	Descriptive Statistics (p26-p44)	HW 1 assigned
	01/23	Lab 2: Descriptive Statistics	
4	01/28	Probability (I) (p60-p74)	HW 1 due
	01/30	Lab 3: Probability Distribution	Lab 2 due
5	02/04	Probability (II) (p90-p99)	HW 2 assigned
	02/06	Lab 3: Probability Distribution	
6	02/11	Sampling (p151-p153)	HW 2 due
	02/13	Lab 4: Sampling	Lab 3 due
7	02/18	Estimation (p120-p123)	
	02/20	Lab 5: Confidence Interval	Lab 4 due
8	02/25	<b>Midterm Exam</b> (regular meeting time 140 Derby)	
	02/27	Hypothesis Testing (I) (p126-p133)	
9	03/03	Hypothesis Testing (II) (p135-p139)	HW 3 assigned
	03/05	Lab 6: Hypothesis Testing	Lab 5 due
10	03/10	<i>Spring Break, no class</i>	
	03/12	<i>Spring Break, no class</i>	
11	03/17	<i>Spring Break, no class</i>	
	03/19	<i>Spring Break, no class</i>	
12	03/24	Analysis of Variance (p177-p183)	HW 3 due
	03/26	Lab 7: ANOVA	Lab 6 due
13	03/31	Correlation (p205-p215)	HW 4 assigned
	04/02	Lab 8: Correlation	Lab 7 due
14	04/07	Regression (p225-p236)	HW 4 due, HW 5 assigned
	04/09	Lab 9: Regression	Lab 8 due
15	04/14	Spatial Autocorrelation	HW 5 due
	04/16	<b>Final Exam</b> (take-home exam, refer to Carmen announcement for details)	Lab 9 due