The University of Western Ontario

SOCIOLOGY 4421A-001
Mapping Inequality
Fall 2023

In-person

Instructor: Patrick Denice, Assistant Professor
Email: pdenice@uwo.ca

Course Description: This course introduces students to the roles space and place play in generating patterns of social inequality, and it provides hands-on experience in the analysis of spatial data. Students will learn how to find, manage, and analyze spatial data to better understand the communities around them.

Prerequisite(s): Sociology 2205A/B or 0.5 course from the Introductory Statistics Course List, and Sociology 2206A/B or 0.5 course from: Social Work 2206A/B, Health Sciences 2801A/B, Political Science 3325F/G or Political Science 3324F/G, Political Science 2325F/G. For a full list of Introductory Statistics courses, please see: https://www.westerncalendar.uwo.ca/Departments.cfm?DepartmentID=55&SelectedCalendar=Live&ArchiveID=

Anti-requisite(s): None.

Course Objectives and Learning Outcomes: Many social phenomena have a spatial element to them: We track unemployment rates by county or province. Countries differed in the severity of and their response to the COVID-19 pandemic. The locations of higher- and lower-performing schools vary in their proximity to population groups. We can pinpoint where crimes are committed in a city. The average household income or education level or home price varies across neighborhoods. However, most of our usual methods of statistical analysis (like those you learned in Sociology 2205) ignore these spatial dynamics.

This course provides students with introductory training in the analysis of spatial data. We will talk specifically about the important roles that space and place play in generating patterns of social inequality. The course will also provide students with hands-on experience. Students will learn how to find, manage, and analyze spatial data to better understand the communities around them. We will focus on examples and applications from a wide range of social sciences—including sociology, demography, education, criminology, and public policy.

By the end of the term, students will:

1. Gain a theoretical understanding of the role of space and place in community-level patterns of inequality.
2. Learn about what kinds of spatial data are available and where to find them.

3. Develop proficiency in tools to manage and descriptively analyze spatial data.

Course Materials:

Required Readings: There is no official textbook for this course. Readings will instead consist of journal articles, research reports, and lab guides that illustrate the concepts we cover. All readings will be made available on our OWL course website.

Statistical Software: To explore spatial data in this course, we will use a statistical language called R. R has become an increasingly popular program for social scientists doing statistical analyses. Because it is free, you can download R to your own computers. To work with R, we will use a user-friendly interface called RStudio. Do not let this new statistical program and language scare you off this course! The lab guides will provide as much detail as possible for you to complete exercises and assignments.

Additionally, because R is open source, an extensive online community is constantly updating and providing help for those working with it. You can find several helpful resources here (and I'm happy to recommend more):

- A short manual, *The Undergraduate Guide to R*: http://www.biostat.jhsph.edu/~ajaffe/docs/undergradguidetoR.pdf
- Another short manual: https://cran.r-project.org/doc/contrib/Verzani-SimpleR.pdf
- A slightly more technical manual: https://cran.r-project.org/doc/manuals/R-intro.pdf
- One of my go-to webpages for online help: http://www.statmethods.net/

Optional Readings: Although not required, students may find the following textbooks helpful:

1) Wickham, H., & Grolemund, G. 2017. R for Data Science. Sebastopol, CA: O'Reilly Media.

   This textbook is available for free online at: http://r4ds.had.co.nz/introduction.html. It provides a good foundation for using R.

2) Lovelace, R., Nowosad, J., & Meunchow, J. Geocomputation with R. CRC Press.

   This textbook is also available for free online: https://geocompr.robinlovelace.net/. It covers the management and analysis of spatial data in R.

Communication:

Students are responsible for checking the *OWL course website* on a regular basis for news, updates, assignments, and additional materials. This is the primary method by which information will be disseminated to all students in the class. I will also announce any upcoming deadlines or changes to the course schedule in class. If you miss a class, check first with a *classmate* for any announcements, notes, or other materials. If you have a specific question or issue, you may send me an *email* (pdenice@uwo.ca). I typically respond to students within 24-48 business hours.

Students are encouraged to come to *office hours*. To set up either an in-person or Zoom meeting during my office hours, go to the following link: https://calendly.com/patrickdenice/15min. Students may also drop in (without setting up a meeting) to my office hours on a first-come/first-serve basis. If my office hours do not work, students are welcome to set up an appointment at a different time, or to approach me before or after class.

Method of Evaluation:

The evaluation methods listed and described below are essential requirements for the course.

1.	Class participation	10%
2.	Assignments (4 x 10%)	40%
3.	Final project presentation	25%
4.	Final project write-up	25%

Class participation (10%): Students are expected to come to class engaged and ready to learn. Students are encouraged to participate by asking questions, responding to questions posed by the instructor and their peers, being attentive, and making connections among readings and discussions.

Assignments (40%): Students will complete 4 homework assignments during the term. These are due approximately every 2-3 weeks. The assignments will provide students an opportunity to reflect on and practice what we are learning in class. Each assignment will contain two parts: the first part will encourage students to find examples of some of the concepts from class, and the second part will ask students to apply methods in R. Students are encouraged to work together on these assignments (particularly the R sections), but each must submit their own work.

Final project presentation (25%) and write-up (25%): Students will work individually or in small teams (of 2 or 3) to conduct a research project using spatial data and the methods we cover in class about a topic of their choosing. Students will present their projects on the final day of class, and teams will be able to choose from among two options: (1) a PowerPoint presentation or (2) a conference-style poster. Teams will also submit a write-up of their results; here, again, students have a choice: they can submit either (1) a policy brief or (2) a research paper. More details will be made available on the OWL course site early in the term.

Additional Notes About Grading: There will be no opportunities for extra credit. I encourage you to work consistently throughout the semester, and to reach out to other students in the class or me as soon as you have trouble with the material. Consistent with departmental guidelines, it is expected that the class average for this course will be around 78-82%. Should the final overall grades yield a value significantly below this range, grades will be adjusted upward to ensure an appropriate mean for the class.

Contingency Plan for an In-Person Class Pivoting to 100% Online Learning: In the event of a COVID-19 resurgence during the course that necessitates the delivery of our course moving away from face-to-face interactions, affected course material will be delivered entirely online

and asynchronously through OWL. The grading scheme will not change. Any remaining assessments will also be conducted as determined by the course instructor.

Student Absences: Because you cannot participate and actively engage with the materials and your colleagues if you are not here, in order to receive a passing grade, students are expected to attend at least 80% of the class meetings for this course. This requirement will only be waived in exceptional circumstances with documentation. While attendance is not an explicit part of the evaluation breakdown, you will see your final grade lowered if you miss an excessive number of class sessions. Please inform me as soon as possible if you are unable to attend a class for medical or personal reasons.

Additionally, if you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below:

Assignments worth less than 10% of the overall course grade: In this class, we do not have any assignments worth less than 10% of your overall course marks.

Assignments worth 10% or more of the overall course grade: For work totaling 10% or more of the final course grade, students must provide valid medical or supporting documentation to their Home Faculty Academic Counselling Office as soon as possible. In most cases, students with approved accommodations will be granted a one-week extension. If a student's situation requires a longer absence or extension, the assignment will be dropped, and their overall course grade will be reweighted without it.

Absences from final examinations: There is no final exam for this class.

Note: Missed work can only be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is not sufficient on its own. Students should check the Western website to see what directives for Covid are to be followed. Western has been and will continue to follow directives established by the Middlesex-London Health Unit. That directive will state whether students should or should not come to campus/class and any other requirements (e.g., masks are mandatory). Please check on your own and do not email the instructor, the Department Undergraduate Advisor/Coordinator, or the Faculty of Social Science Academic Counselling Office.

Course Schedule and Readings

Please note: Readings should be completed prior to class on the date listed. This outline is subject to change over the course of the term in order to meet the needs of the class. Any changes will be announced in class and/or through our OWL course website.

Date	Topics	R Labs	Readings & Deadlines
Sept. 13	Introduction to class The role of space & place for social inequality	1: Introduction	R Lab 1 (pp. 1-3)
Sept. 20	Finding spatial data	2: Exploring data	Tickamyer (2000) Logan (2012)
Sept. 27	Data visualization	3: Drawing data	**HW 1**
Oct. 4	Defining neighborhoods	4: Mapping data	Sharkey & Faber (2014)
Oct. 11	Geocoding & georeferencing	5: Point patterns	**HW 2** Legewie & Cricco (2022)
Oct. 18	Spatial accessibility	6: Accessibility	Waity (2016)
Oct. 25	Segregation	7: Segregation, part 1	**HW 3** Logan & Stults (2011)
Nov. 1	*Reading Week*		
Nov. 8	Extensions to segregation	8: Segregation, part 2	Denice (2022)
Nov. 15	Spatial autocorrelation	9: Autocorrelation	Voss et al. (2006)
Nov. 22	Spatial regression	10: Regression	**HW 4** Duncan et al. (2012)
Nov. 29	Students' choice Best practices Project workshop	TBA	TBA
Dec. 6	Research celebration	NA	Project presentations

Final papers are due at 11:55pm on Dec. 6.

Academic Policies

Disputing a Grade: Students who wish to dispute an assignment, exam, or course grade must write a one-page explanation justifying why their work should be re-evaluated. Work will not be re-evaluated on the basis that students were sick or feeling stressed when completing the assignment. Please be advised that a student's mark may go up or down upon re-evaluation.

Rounding of Marks: Final marks, irrespective of the number of decimal places used in marking individual assignments and exams, will be calculated to one decimal place and rounded to the nearest integer (e.g., 74.4 becomes 74, 74.5 becomes 75). Marks will not be bumped to the next grade or GPA (e.g., a 79 will not be bumped up to an 80). The mark attained is the mark you achieved; requests for mark "bumping" will go unanswered and will be denied.

Extraordinary Circumstances: The content and/or evaluation of this course is subject to change in the event of extraordinary circumstances beyond the University's or instructor's control.

Additional Policies: Please review the Department of Sociology "Important Academic Policies" document (https://sociology.uwo.ca/undergraduate/courses/Academic_Policies.pdf) for additional information regarding:

- Scholastic Offences
- Plagiarism
- Copyright
- Academic Accommodation
- Accessibility Options
- Mental Health