GES 400/777 Syllabus – Fall 2025
Public and Crowdsourced Spatial Data

Instructor:
Prof. Cheryl Knott, MA cherylk1@umbc.edu

Time and Location:
Tuesdays 6:00-8:30pm in Sondheim 001 (Cartography Lab)

Office Hours:
By virtual appointment on WebEx. Please email/message me at least 24 hours in advance during the week to schedule a mutually agreed upon time to connect.

Course Description:
The generation of crowdsourced data is being produced in unprecedented quantities and is used in numerous ways from research to navigating daily life. This course introduces students to topics ranging from the conceptual to the applied with particular attention to public and crowdsourced data, their utility in drawing insights about place and space, and ethical and legal concerns with data and data gathering processes. Students will first learn the behavioral aspects of how geographic data are sensed, surveilled, volunteered, or gathered from crowdsourcing platforms and covers the principals of spatial thinking that lead to our understanding of geographic patterns such data. Students will engage in assignments and projects that assess the quality of crowdsourced data, gaining a comprehensive knowledgebase of the statistical properties and limitations when using data naturally generated and limitations when using data gathered through purpose-driven initiatives. Students will learn to use the crowdsourcing platforms to conduct geographical analysis to identify trends and estimate changes to space and place.

Grading Overview:
Students will have a total of three (3) guided **exploration projects** to complete over the semester, comprising of 30% of the total final grade, or 10% apiece. These projects will enable you to download, analyze, and visualize real world datasets from local, state, and federal sources. *Students may coordinate with the instructor to resubmit assignments based on feedback. Late work is not accepted without prior agreement with the instructor.*

A **final analysis project** will enable students to showcase their technical and communication skills. The project will consist of three graded components: a written proposal, peer review exercise, and presentation. This project will require you to select dataset(s) of your choice and create an analysis and visualization that could be used by fellow researchers, policymakers, and/or practitioners to better understand your selected topic. Students may decide *how* this project is undertaken – the proposal is an opportunity to begin a dialogue with the instructor about datasets, methods, and tools that can be utilized.

Attendance and engagement are required in this class and will comprise of 15% of the final grade. If you're unable to attend class, please let me know by email as soon as possible. *In this course, reading the weekly course material (posted on Blackboard) and discussing in class is REQUIRED.*

Data exploration projects	30%
Attendance and Engagement	15%
Final analysis project	
Project proposal	10%
Peer review exercise	15%
Technical analysis presentation	30%

Undergraduate Students:

90 to 100 = A	80 to 89 = B	70 to 79 = C	60 to 69 = D	0 to 59 = F

Graduate Students:

94 to 100 = A	90 to 93 = A-	87 to 89 = B+	84 to 86 = B	80 to 83 = B-
77 to 79 = C+	74 to 76 = C	70 to 73 = C-	69 to 0 = F	

Preliminary Schedule:

Week	Topics & Deadlines	Readings/Agenda
September 2, 2025 1 In-Person	**Introduction to the Course**	*Please review this syllabus and come to class prepared with any questions. We will get started discussing what open data is and how it's collected and presented.*
September 9, 2025 2 In-Person	**Data Democratization and Data Intermediaries**	Kingsley, G.T. "Strengthening Communities with Neighborhood Data" Chapter 2 (p. 13-56) "Partner's Perspective: NNIP and Open Data" Petit, K., et al. "Putting Open Data to Work for Communities" Schachtel, M. "CitiStat and the Baltimore Neighborhood Indicators Alliance: Using Information to Improve Communication and Community"
September 16, 2025 3 In-Person	**Surveillance, Volunteered, and Crowdsourced Data**	Crittenden, C. "'A Drama in Time': How Data and Digital Tools are Transforming Cities and their Communities" Goodchild, M.F. "Citizens as sensors: the world of volunteered geography" Haklay, M. "Why is participation inequality important" Mergel, I. "Distributed Democracy: SeeClickFix.com for Crowdsourced issue reporting" Seltzer, E., & Mahmoudi, D. "Citizen Participation, Open Innovation, and Crowdsourcing: Challenges and Opportunities for Planning"
September 23, 2025 4 In-Person	**Privacy Considerations and Data Ethics** *First exploration project due at 6:00pm*	Elwood, A. and Leszczynski, S. "Privacy and the Ethics of Geospatial Data: A Critical Review" Gorman, S. and Harlan, S. "Geoprivacy: The Ethics of Protecting Personal Location Information in GIS" Hefferman, A. and Clark, J. "GIS, Ethics, and Human Subjects Research: A Framework for Navigating IRB Protocols" Zulkernine, M. and Boulianne, E. "Privacy and Security in GIS: A Review"
September 30, 2025 5 Asynchronous	**Extracting Data from OpenStreetMap**	*Access the digital lecture via Blackboard.* *Sign up for a free account, if you do not have one already, at openstreetmap.org.*
October 7, 2025 6 In-Person	**Governance, Infrastructure, Crime – Statistical Issues in Self-Reporting and Surveillance** *Final Project proposal due at the start of class*	Buil-Gil, D. and Solymosi, R. "Using Crowdsourced Data to Study Crime and Place" Dixon, B. et al. "The role of crowdsourced data, participatory decision-making and mapping of flood related events" Misra, A. et al. "Crowdsourcing and Its Application to Transportation Data Collection and Management" Wilson, R. "The Neighborhood Context of Foreclosures and Crime"

October 14, 2025 7 In-Person	**Crowdsourcing Patterns in Citizen Science and Ecology – Absence and Presence Measurements**	Fink, D., Theodoros, D., and Jaimin, D. "Adaptive Spatio-Temporal Exploratory Models: Hemisphere-Wide Species Distributions from Massively Crowdsourced EBird Data" Hochmair, H.H., et al. "Evaluating the data quality of iNaturalist termite records" Jacobs, C. "Data quality in crowdsourcing for biodiversity research: issues and examples" White, E. et al. "Quantifying error in occurrence data: Comparing the data quality of iNaturalist and digitized herbarium specimen data in flowering plant families of the southeastern United States"
October 21, 2025 8 Virtual	**Guest Speaker**	Hear from a data practitioner about their work. Speaker name and biography will be posted in advance on Blackboard. **Please join via Webex!**
October 28, 2025 9 In-Person	**Public Participation GIS** *Second exploration project due at the start of class*	Brown, G. and Kytta, M. "Key issues and research priorities for the public participation GIS (PGIS): A synthesis based on empirical research" Korpilo, S., et al. "Public participation GIS can help assess multiple dimensions of environmental justice in urban green and blue space planning"
November 4, 2025 10 In-Person	**Social Implications of Movement – Calculating Flow Mapping**	Aryandoust, A., van Vliet, O., and Patt, A. "City-Scale Car Traffic and Parking Density Maps from Uber Movement Travel Time Data" Attoh, K., Wells, K., and Cullen, D. "'We're Building Their Data': Labor, Alienation, and Idiocy in the Smart City" Sen Roy, S., Perlman, J., and Balling, Jr. R.C. "Analysis of Human Movement in the Miami Metropolitan Area Utilizing Uber Movement Data"
November 11, 2025 11 In-Person	**Deriving Stories from Data**	Earley-Spadoni, T. "Spatial History, Deep Mapping and Digital Storytelling" Archaeology's Future Imagined through an Engagement with the Digital Humanities" Marshall, D. Smaira, D., and Staeheli, L. "Intergenerational Place-Based Digital Storytelling: A More-than-Visual Research Method" Salesses, P. Schechtner, K., and Hidalgo, C. "The Collaborative Image of the City: Mapping the Inequality of Urban Perception"
November 19, 2025 12 In-Person	**#SocialMediaData** *Third exploration project due at the start of class*	Boy, J. and Uitermark, J. "Reassembling the city through Instagram" Poorthuis, A., Shelton T., Zook, M. "Changing Neighborhoods, shifting connections: mapping relational geographies of gentrification using social media data" Tenkanen, H. et al. "Instagram, Flickr, or Twitter: Assessing the Usability of Social Media Data for Visitor Monitoring in Protected Areas" Walker, M.A., Boamah, E.F. "The digital life of the #migrantcaravan: Contextualizing Twitter as a spatial technology"
November 25, 2025 13 No Class	**Technical Analysis Work Time**	*Use this time during Thanksgiving week to work on your technical analysis presentation.*

December 2, 2025 14 In-Person	**Peer Review** *Rough draft of your technical analysis presentation is due at the start of class*	*Peer review exercise.*
December 9, 2025 15 No Class	**Technical Analysis Work Time**	*Use this time to work on your technical analysis presentation.*
December 16, 2025 16 In-Person	**Presentations and Gathering** *PowerPoint slides due at 11:55pm*	*Students will present their final projects to their classmates. Light refreshments will be provided.*

Disclaimer:
I will make every effort to ensure that this syllabus and all other course materials posted on Blackboard are up-to-date and accurate to course plans, however policies, deadlines, and assignments may change unexpectedly, and I will keep you updated and informed in a timely fashion if modifications may need to occur.

Assignment Ethos:
UMBC guidelines state that for every credit, you should spend 2+ hours outside of class. The general expectation for graduate school, when you're taking fewer credits as a full-time load, jumps to 3+ hours per credit hour. During outside class times, students are expected to do their own research about the topics and materials presented in classroom. The instructor is always available for guidance, but graduate school is about students learning how to use their own devices in solving assignment problems that can aid in completing the assignments.

Writing Quality Expectations:
This course is part of a curriculum that awards a Masters in Professional Studies (M.P.S.) degree. Because the course requires students to describe –in writing– their interpretations of statistical results it is expected that students will generate products that meet the professional standards of such a program. One of the main facets of an M.P.S. is to gain an ability to clearly communicate analytical results to audiences of all types. All assignment and project products for this course will be evaluated on the student's ability to write a high-quality report of findings. Exercises and projects are designed to train students on how to professionally report analytical results in documents or write software code that others will read or use. This is an important facet in demonstrating the value of geography and spatial analysis over other forms of analysis. All products, written or coded, must be thoroughly defined and polished. Poorly written assignments may be downgraded one letter from achieved grade.

The Academic Success Center offers free writing assistance through our Writing Center, which is located on the first floor of the library. We also offer online and asynchronous tutoring. Writing tutors are students like you who receive ongoing training to stay up to date on the best tutoring techniques. To make an appointment, please visit http://academicsuccess.umbc.edu/writing-center. The GSA does have a graduate writing advisor, as well: https://gsa.umbc.edu/writing-advisor/

Academic Integrity:
By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong.

Copying or using another's work in written or oral form –partial or complete– without giving credit to the other person is a serious academic offense and is taken very seriously in this class, by the Department and by the University of Maryland, Baltimore County. UMBC specifically defines plagiarism as anyone who:

> *"Knowingly, or by carelessness or negligence, representing as one's own in any academic exercise the words, ideas, works of art or computer-generated information and images of someone else."*

Any student who plagiarizes will be referred to the Program Directors and will be subject to the policies of the university. In general, the consequences of plagiarism include failing an assignment, receiving a lower course grade, and even failing a course.

Examples of plagiarism include:

- Submit someone else's work as your own.
- Buy a paper from a paper-mill, website, or other source.
- Copy sentences, phrases, paragraphs, or ideas from someone else's work, published or unpublished, without giving the original author credit.
- Replace select words from a passage without giving the original author credit. ·
- Copy any type of graphics, tables, graphs, maps, or charts from someone else's work without giving the original author credit.
- Piece together phrases, ideas, and sentences from a variety of sources to write an essay.
- Build on someone else's idea or phrase without giving the original author credit.
- Using another person's maps as your own or using another's map as a foundation for making your own.
- Use Artificial Intelligence (AI) without reviewing and refining the output to ensure that is it correct and does not use another author's work that you are claiming to have produced.

Details about avoiding plagiarism, examples, and disciplinary policies should be reviewed to gain a clear understand prior to working on an assignment or exam. Resources are also available on campus to help students needing academic support on this subject at the Center for Academic Success.

Mac Usage:
There are no versions of ArcGIS Pro for Mac computers. As such, students using Macs as their personal machine need to make arrangements to complete the assignments. There are three options for using ArcGIS Pro on a Mac, which can be found here: Install ArcGIS on a Mac. There is also the option of using a virtual machine to run ArcGIS Pro on a server from the Mac. Please contact Charlie Kaylor at ckaylor@umbc.edu at for help in getting set up with the Mac.

QGIS can be used as an alternate GIS in this class for mapping and other geo-processing tasks. However, the assignments must be completed according to the requirements for the final map products that are an output of the GIS. This means, if an assignment comes up short in meeting the requirements or objectives because of a limitation in QGIS, then the complete points for that assignment cannot be awarded because the decision to use an alternate software than what is used in the class rests on the student's choice. The loss of points can be minor or significant depending on the assignment.

Inclement Weather:
In case of inclement weather, classes will be held if the university is open; please notify the instructor if you commute from out of the area and have trouble coming to campus. If a weather delay affects university operations, then class will be cancelled if it is scheduled before the university resumes operations.

Religious Observances:
UMBC Policy provides that students should not be penalized because of observances of their religious beliefs, students shall be given an opportunity, whenever feasible, and to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. It is the responsibility of the student to inform the instructor of any intended absences for religious observances in advance, and as early as possible. For questions, please contact the Office of Equity and Inclusion.

Hate, Bias, Discrimination, and Harassment:
UMBC values safety, cultural and ethnic diversity, social responsibility, lifelong learning, equity, and civic engagement. Consistent with these principles, UMBC Policy prohibits discrimination and harassment in its educational programs and activities or with respect to employment terms and conditions based on race, creed, color, religion, sex, gender, pregnancy, ancestry, age, gender identity or expression, national origin, veterans status, marital status, sexual orientation, physical or mental disability, or genetic information.

Students (and faculty and staff) who experience discrimination, harassment, hate or bias or who have such matters reported to them should use the online reporting form to report discrimination, hate or bias incidents; reporting may be *anonymous*. Any student who is impacted by sexual harassment, gender-based harassment, sexual assault, sexual

coercion, relationship violence, domestic violence, sexual exploitation, sexual intimidation, sex, gender-based stalking or retaliation, or gender or pregnancy discrimination is encouraged to seek support and resources.

You can access support and resources even if you do not want to take any further action. You will not be forced to file a formal complaint or police report. Please be aware that the University may act on its own if essential to protect the safety of the community. As an instructor, I am considered a *Responsible Employee*, per UMBC's Policy on Prohibited Sexual Misconduct, Interpersonal Violence, and Other Related Misconduct I am required to report disclosures of possible violations of the Policy to the Title IX Coordinator, even if the experience occurred before you attended UMBC.

While I want you to be able to share information related to your life experiences through discussion and written work, I also want you to understand that I must report Sexual Misconduct to the Title IX Coordinator so that the University can inform you of your rights, resources and support. *If you need to speak with someone in confidence*, who does not have an obligation to report to the Title IX Coordinator, about an incident, UMBC has the following Confidential Resources available to support you: The Counseling Center: 410-455-2742; University Health Services: 410-455-2542; For after-hours emergency consultation, call 301-314-7651.Other on-campus supports and resources include The Women's Center (for students of all genders): 410-455-2714; Title IX Coordinator, 410- 455-1250.

Disabilities:

The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. Moreover, the UMBC requires students register with the Office of Student Disability Services and I will work with you and the SDS to ensure your success.