

# SYLLABUS

## PUBLIC POLICY 604 STATISTICAL ANALYSIS FALL 2023

### INSTRUCTOR

---

**Yusuke Kuwayama**

Email: [kuwayama@umbc.edu](mailto:kuwayama@umbc.edu)

Pronouns: he/him/his

Office hours: Tuesdays, 2 – 3 pm, or by appointment

***All office hours are virtual (Zoom Meeting ID: 945 503 3539).***

### LEARNING OBJECTIVES

---

This course provides an introduction to statistical analysis in the social sciences. The objectives for the course are that, by the end of the course, students will have learned how to: (a) frame quantitative research questions relating to social processes and public policy; (b) find, organize, and analyze data that address these research questions; (c) use descriptive statistics and statistical inference to address these research questions; and (d) coherently report and display results.

### COURSE MATERIALS

---

1. Daniels, Lisa, and Nicholas Minot. (2020). *An Introduction to Statistics and Data Analysis Using Stata*. Thousand Oaks, CA: SAGE Publications.
2. Stata/MP 18: Students are expected to have Stata installed on a computer and should have access to this computer during class. Free download for UMBC graduate students at: <https://wiki.umbc.edu/display/faq/Software>.
3. Blackboard: Problem sets, datasets, lecture slides, and other course materials will be posted on the course page in Blackboard.

### COURSE REQUIREMENTS

---

1. **Problem sets (6 x 7 points each; lowest score will be dropped):** Problem sets will guide students through statistical analysis exercises.
2. **Take-home midterm exam (30 points):** The exam will test mastery of theory and execution of research design, statistical terms, foundational statistical tools, and interpretation of results.
3. **Final project (35 points):** Independent statistical analysis project to demonstrate mastery of course concepts and ability to communicate results in writing.

### PROBLEM SET RULES

---

Due dates for problem sets are listed in the table at the end of this syllabus. **Problem sets are always due at the beginning of class.** If you miss the deadline for submitting your problem set, you may submit your problem set late but the grade for that problem set will be marked down:

- 25% for being even a second late
- 25% for each successive day that the problem set is late

up to 4 days late, at which point the grade on the problem set will be zero. In addition, your lowest problem set grade will be dropped when calculating the final grade for the course.

Students are encouraged to work on problem sets collaboratively, under the following ground rules:

1. Collaboration means discussing the problems together. However, the actual writing must be done individually. Each collaborator must hand in their own problem set; you cannot hand in a single set as the work of several people.
2. When collaborating, every student must work on every problem. You may not divide the problems up among yourselves.

## **ACADEMIC INTEGRITY**

---

Academic integrity is an important value at UMBC. 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. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. These principles and policies apply in both face-to-face and online classes. Resources for students about academic integrity at UMBC are available at <https://academicconduct.umbc.edu/resources-for-students/>.

## **USE OF ARTIFICIAL INTELLIGENCE (AI) ASSISTANTS**

---

The School of Public Policy currently does not have an official policy on the use of generative AI tools (such as ChatGPT) for course assessments. Understanding how and when to use these tools is quickly emerging as an important skill for future professions. To that end, *in this course*, you are allowed to use generative AI tools as long as it aligns with the learning outcomes or goals associated with assignments.

*You are fully responsible for the information you submit based on a generative AI query. Your submissions may not violate academic honesty standards, intellectual property laws, or standards of research you are conducting through coursework. You are responsible for fact checking statements composed by AI language models as well as any mathematical calculations performed by AI assistants.*

The same statistical analysis can often be performed in slightly different ways. *Problem sets and exams will be graded based on use of methods and approaches (e.g., formulas, mathematical conventions, Stata commands) that are presented in class.* I may deduct points on a question if the student relies on an AI tool that took a different approach to answer the question, and thus arrived at an answer that is different from what they would have obtained using methods and approaches presented in class.

*Finally, your use of generative AI tools must be properly documented and cited for any work submitted in this course.*

## **COVID-19 SAFETY PROTOCOLS AND COMPLIANCE**

---

Students should comply with the university's current COVID-19 guidance and regulations, which can be found on the Retriever Ready: COVID-19 Response website: <https://covid19.umbc.edu>.

## **TRAUMA-INFORMED PEDAGOGY**

---

Diminished mental health can interfere with optimal academic performance. The source of symptoms might be related to your course work; if so, please speak with me. However, problems with other parts

of your life can also contribute to decreased academic performance. UMBC provides cost-free and confidential mental health services through [Retriever Integrated Health](#) to help you manage personal challenges that threaten your personal or academic well-being. Remember, getting help is a smart and courageous thing to do—for yourself and for those who care about you. Retriever Integrated Health is located in The Center for Well-Being (between Chesapeake and Susquehanna Halls). Phone: 410-455-2542. Hours: Monday-Friday 8:30am-5:00pm.

## **ACCESSIBILITY AND DISABILITY ACCOMMODATIONS, GUIDANCE, AND RESOURCES**

---

Accommodations for students with disabilities are provided for all students with a qualified disability under the Americans with Disabilities Act (ADA & ADA AAA) and Section 504 of the Rehabilitation Act who request and are eligible for accommodations. The Office of Student Disability Services (SDS) is the UMBC department designated to coordinate accommodations that creates equal access for students when barriers to participation exist in University courses, programs, or activities.

If you have a documented disability and need to request academic accommodations in your courses, please refer to the SDS website at <https://sds.umbc.edu> for registration information and office procedures.

SDS email: [disAbility@umbc.edu](mailto:disAbility@umbc.edu)

SDS phone: 410-455-2459

If you will be using SDS approved accommodations in this class, please contact the instructor to discuss implementation of the accommodations. During remote instruction requirements due to COVID, communication and flexibility will be essential for success.

## **SEXUAL ASSAULT, SEXUAL HARASSMENT, AND GENDER BASED VIOLENCE AND DISCRIMINATION**

---

[UMBC Policy](#) in addition to federal and state law (to include Title IX) prohibits discrimination and harassment on the basis of sex, sexual orientation, and gender identity in University programs and activities. Any student who is impacted by sexual harassment, sexual assault, domestic violence, dating violence, stalking, sexual exploitation, gender discrimination, pregnancy discrimination, gender-based harassment, or related retaliation should contact the University's Title IX Coordinator to make a report and/or access support and resources. The Title IX Coordinator can be reached at [titleixcoordinator@umbc.edu](mailto:titleixcoordinator@umbc.edu) or 410-455-1717.

*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 take action on its own if essential to protect the safety of the community.*

If you are interested in making a report, please use the [Online Reporting/Referral Form](#). Please note that, if you report anonymously, the University's ability to respond will be limited.

### ***Notice that Faculty are Responsible Employees with Mandatory Reporting Obligations:***

All faculty members are considered *Responsible Employees*, per [UMBC's Policy on Sexual Misconduct, Sexual Harassment, and Gender Discrimination](#). Faculty are therefore required to report any/ all available information regarding conduct falling under the Policy and violations of the Policy to the Title IX Coordinator, even if a student discloses an experience that occurred before attending UMBC and/or an incident that only involves people not affiliated with UMBC. Reports are required regardless of the amount of detail provided and even in instances where support has already been offered or received.

While faculty members want encourage you to share information related to your life experiences through discussion and written work, students should understand that faculty are required to report *past and present* sexual assault, domestic and interpersonal violence, stalking, and gender discrimination that is shared with them to the Title IX Coordinator so that the University can inform students of their [rights, resources and support](#). While you are encouraged to do so, you are not obligated to respond to outreach conducted as a result of a report to the Title IX Coordinator.

If you need to speak with someone in confidence, who does not have an obligation to report to the Title IX Coordinator, UMBC has a number of [Confidential Resources](#) available to support you:

- [Retriever Integrated Health](#) (Main Campus): 410-455-2472; Monday – Friday 8:30 am – 5:00 pm; for after-hours support, call 988.
- [Center for Counseling and Well-Being](#) (Shady Grove Campus): 301-738-6273; Monday-Thursday 10:00am – 7:00 pm and Friday 10:00 am – 2:00 pm (virtual) [Online Appointment Request Form](#)
- Pastoral Counseling via [The Gathering Space for Spiritual Well-Being](#): 410-455-6795; [i3b@umbc.edu](mailto:i3b@umbc.edu); Monday – Friday 8:00 am – 10:00 pm

Other Resources:

- [Women’s Center](#) (for students of all genders): 410-455-2714; [womenscenter@umbc.edu](mailto:womenscenter@umbc.edu). Monday – Thursday 9:30 am – 5:30 pm and Friday 10:00 am – 4:00 pm
- [Shady Grove Student Resources](#), [Maryland Resources](#), [National Resources](#).

#### **[Child Abuse and Neglect:](#)**

Please note that Maryland law and [UMBC policy](#) require that faculty report all disclosures or suspicions of child abuse or neglect to the Department of Social Services and/or the police even if the person who experienced the abuse or neglect is now over 18.

#### **[Lauren’s Promise:](#)**

I promise to (a) listen and believe you if someone is threatening you; (b) represent a safe haven for sharing incidents of sexual assault, domestic violence, or stalking; (c) change campus culture that responds poorly to dating violence and stalking.

#### **DISCLAIMER**

---

This syllabus may need to be updated throughout the semester for many reasons. Policies, deadlines, and assignments may change. I will clearly communicate all such changes to you and the most up-to-date syllabus will always be posted on Blackboard.

**COURSE SCHEDULE, READINGS, & DUE DATES**

<b>Week #</b>	<b>Date</b>	<b>Topics</b>	<b>Readings</b>	<b>Due</b>	
<b>1</b>	August 30	Introduction to statistical analysis; units of analysis, variables, observations, and values			
<b>2</b>	September 6	Frequency tables; graphical displays; introduction to Stata	D & M: Chapters 1 – 5		
<b>3</b>	September 13	Central tendency; dispersion	D & M: Chapter 6	<b><i>Problem Set #1</i></b>	
<b>4</b>	September 20	Describing the shape of a distribution; the normal distribution	D & M: Chapter 7		
<b>5</b>	September 27	Sampling distributions; standard errors; confidence intervals	D & M: Chapter 8	<b><i>Problem Set #2</i></b>	
<b>6</b>	October 4	Introduction to hypothesis testing; hypothesis tests about a single mean		<b><i>Problem Set #3</i></b>	
<b>7</b>	October 11	<b>NO CLASS – TAKE-HOME MIDTERM EXAM</b>			
<b>8</b>	October 18	Hypothesis tests about a single proportion; hypothesis tests about two independent means	D & M: Chapter 9		
<b>9</b>	October 25	Hypothesis tests about two non-independent means; hypothesis tests about two proportions; multiple sample tests for means	D & M: Chapter 10	<b><i>Problem Set #4</i></b> <b><i>Final Project: Select a dataset</i></b>	
<b>10</b>	November 1	Multiple sample tests of proportions; statistical association	D & M: Chapter 11	<b><i>Problem Set #5</i></b> <b><i>Final Project: Research plan meeting</i></b>	
<b>11</b>	November 8	Introduction to simple linear regression; hypotheses in simple linear regression	D & M: Chapter 12	<b><i>Problem Set #6</i></b>	
<b>12</b>	November 15	Goodness of fit; multivariate regression	D & M: Chapter 13		
<b>13</b>	November 22	<b>NO CLASS – THANKSGIVING WEEK – WATCH RECORDED LECTURES</b>			
		Linear regression in practice I			
<b>14</b>	November 29	<b>WORKSHOP FOR FINAL PROJECTS</b>			<b><i>Final Project: In-class presentation</i></b>
<b>15</b>	December 6	Linear regression in practice II	D & M: Chapter 14	<b><i>Final Project: Final report</i></b>	