

**The University of Wisconsin- Milwaukee**

**URBPLAN 740: Data Analysis Methods**

**Spring 2023**

**Thursdays, 11:30AM – 2:10PM, AUP 158 (In-person)**

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Office Hours: T / TH 2:30PM – 3:30PM, in person

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Office Hours: W / TH 4:00PM – 5:00PM, in person or virtual

**For Course materials, announcements, and other documents, regularly check Canvas**

**Course Objectives:**

- The course introduces basic statistical techniques and the statistical reasoning useful for planning and policy analysis.
- The emphases of this course are:
  - *Quantitative reasoning*: to develop skills in using statistics and data make sound inferences and to learn the strength and limitations of basic statistical techniques.
  - *Application*: to recognize the appropriateness of basic statistical techniques for solving problems, to set up and solve simple “real-world” problems, and to interpret the results to the general public.
  - *Preparation*: to prepare for other planning courses and professional practice that require statistical reasoning and methodology.

**Texts and Reading:**

Meier, K. J., and J. L. Brudney, J. Bohte (2014) *“Applied Statistics for Public & Nonprofit Administration.”* (9th edition), Cengage Learning

All other required readings will be available on the course website

**Course format:** In-person

**Course requirements:**

This is a challenging course, but it is designed so students can succeed regardless of their preexisting knowledge of statistics and quantitative reasoning. Students should read weekly assignments and be prepared for class. If a section of the textbook and/or assignments is puzzling, please make an appointment to see the instructor or the teaching assistant as soon as possible. Students are encouraged to ask questions during lectures and office hours.

In addition to class participation, course requirements include assignments, midterm exam, and final exam, which are all graded. Late assignments will be marked down a full letter. Makeup exams are only available for students who have documentary evidence demonstrating compassionate or compelling circumstances.

### **Grading:**

The course grade will be calculated as follows:

Eight Assignments:	8*5%=40%
Midterm exam:	25%
Final exam:	25%
Class participation:	10%

### **Computer Requirement**

- Knowledge of a statistical package, such as Excel, is an indispensable part of modern statistics. The class presentations, some assignments, and exams are computer-based.
- The analysis ToolPak of Excel is used in this class for exploring statistical concepts and demonstrating statistical analysis of actual data used for business decisions. No previous knowledge of this ToolPak is assumed. If you need additional help, you may also ask the teaching assistants or the instructor to show you how to use the package.

### **Special Accommodation**

Students with limitations due to disability, including learning disability, may request for any reasonable accommodations. Students will be allowed to complete examinations or other requirements that are missed because of a religious observance. In case of special accommodations are needed in order to meet any of the requirements of this course, please contact the instructor as soon as possible.

### **Academic Conduct**

The University, as an instrument of learning, is predicated on the existence of an environment of integrity. The faculty has the primary responsibility for establishing and maintaining an atmosphere and attitude of academic integrity such that the enterprise may flourish in an open and honest way. Students share this responsibility for maintaining standards of academic performance and classroom behavior conducive to the learning process. Please review Chapter UWS 14 and Faculty Document No. 1686 at the following webpage for both UWM's and the expectations of appropriate student academic conduct:

<https://uwm.edu/academicaffairs/facultystaff/policies/academic-misconduct/>

### **Original Work and Plagiarism**

All work in this course should be your own. In written work, cite your sources for quotes, facts, and opinions, both in the body of your work and in the bibliography. Do not copy word for word unless you place the words in quotation marks. Any plagiarism will be dealt with as a serious ethical breach. If you have questions about whether you are crossing an ethical line, ASK ME. Here is a link to some good information on plagiarism from the Harvard Guide to Using sources: <http://isites.harvard.edu/icb/icb.do?keyword=k70847&pageid=icb.page342054>

## **Other Course Policies**

This course adheres to campus policies regarding students with disabilities, religious observances, active military service, incompletes, discriminatory conduct, academic misconduct, complaints about the course, grade appeals, and firearms. For details about these policies, see:

[http://www4.uwm.edu/secu/news\\_events/upload/Syllabus-Links.pdf](http://www4.uwm.edu/secu/news_events/upload/Syllabus-Links.pdf)

## **Other Policies and Acknowledgements**

The Department of Urban Planning is committed to addressing systemic racism across all of its dimensions in our curriculum. Towards this goal, the Department acknowledges the historical roles of urban planning in creating and replicating racial inequities in the built environment. We are committed to developing pedagogical approaches and curricular content to train urban planners on anti-racist planning strategies.

We desire to foster and reinforce an inclusive culture in which democratic principles embrace the richness of our diverse society. This course facilitates and advances respectful dialogues among class participants of diverse backgrounds and experiences.

We also expect all course projects to be cognizant of the role of planning choices on our planet's climate future. The Department of Urban Planning adopted the 2010 Commitment when it was first launched by Architecture 2030 in 2010. <https://architecture2030.org/> The 2010 Commitment commits faculty to include consideration and solutions for sustainability, especially climate mitigation, in requirements for all course projects to effectively train students to address climate and sustainability in their work.

Consistent with both these values, we acknowledge in Milwaukee that we are on traditional Potawatomi, Ho-Chunk and Menominee homeland along the southwest shores of Michigami, North America's largest system of freshwater lakes, where the Milwaukee, Menominee and Kinnickinnic rivers meet and the people of Wisconsin's sovereign Anishinaabe, Ho-Chunk, Menominee, Oneida and Mohican nations remain present.

## Course Schedule

<b>Week 1</b> Readings	<b>1/26</b>	<b>Introduction, Measurement and Research Design</b> Meier, et al, Chapter 1-3 <i>Supplemental resources</i> <ul style="list-style-type: none"><li>• What makes everyday scientific reasoning so challenging?</li><li>• VIDEO: Conceptualization and Measurement of Public Policy</li></ul>
<b>Week 2</b> Readings	<b>2/2</b>	<b>Frequency Distribution, Central Tendency, and Dispersion</b> Meier, et al, Chapter 4-6 Poverty and Inequality in Britain 2005, P9-12
<b>Week 3</b> <u>Assignment 1 due</u> Readings	<b>2/9</b>	<b>Probability</b>  Meier, et al (8th edition), Chapter 7
<b>Week 4</b> <u>Assignment 2 due</u> Readings	<b>2/16</b>	<b>Probability Distribution</b>  Meier, et al, Chapter 7-9
<b>Week 5</b> <u>Assignment 3 Due</u> Readings	<b>2/23</b>	<b>Inference</b>  Meier, et al, Chapter 10 Which Polls Fared Best (and Worst) in the 2012 Presidential Race?
<b>Week 6</b>  Readings	<b>3/2</b>	<b>Hypothesis Testing</b>  Meier, et al, Chapter 11-12
<b>Week 7</b> <u>Assignment 4 Due</u>	<b>3/9</b>	<b>Differences between Two Groups</b>  Meier, et al, Chapter 13 Cyclists and Pedestrians Can End Up Spending More Each Month Than Drivers
<b>Week 8</b>	<b>3/16</b>	<b>Midterm exam (2 hours)</b>
<b>SPRING RECESS</b>		
<b>Week 9</b>	<b>3/30</b>	<b>Analysis of Nominal and Ordinal Data</b>

Readings Meier, et al, Chapter 14-15

**Week 10**                      **4/6**                      **Correlation**

Assignment 5 Due

Readings Interpretation of the Correlation Coefficient: A Basic Review  
Ilvento and Pašif, Correlation and Covariance

**Week 11**                      **4/13**                      **Regression**

Assignment 6 Due

Readings Meier, et al, Chapter 17-18

**Week 12**                      **4/20**                      **Time Series Regression**

Assignment 7 Due

Readings Meier, et al, Chapter 19

**Week 13**                      **4/27**                      **Multivariate Analysis**

Readings Meier, et al, Chapter 20

**Week 14**                      **5/4**                      **TBD**

Assignment 8 Due

**Week 15**                      **5/11**                      **Final Exam Review (optional)**

**Final Exam: TUESDAY, May 16, 11:30 – 1:30 PM in Normal Room**