Statistics II (CRIM 783)

Professor: Dr. Sue-Ming Yang   Semester/Year: Spring, 2024

Class Day/Time: Tuesday /10:30 pm - 13:10 pm   Class Location: Innovation Hall 129

Email: syang10@gmu.edu   Office: Enterprise Hall 304

Office Hours: Tuesday 14:30pm to 15:30 pm, or by appointment

Teaching Assistant: I-Ching Jen

Email: ijen@gmu.edu

Course Goals and Objectives

- Provide students with the ability to understand the appropriate techniques for analyzing criminal justice data (i.e. variations on the generalized linear model)
- Provide students with the ability to estimate advanced analytical techniques in criminology and criminal justice
- Provide students with the ability to test hypotheses using quantitative analysis techniques for research papers, reports, presentations, theses, etc.
- Provide students with an introduction to data analysis programs
- Provide students with the ability to evaluate the statistical approaches used in scholarly papers in the field

Course Requirements and Policies

1. Attendance:
   Attendance is both expected and required. Attendance will be taken at each course session, but will not count toward your grade in this course. Research has demonstrated a positive correlation between course attendance and course grades, so it is in your own interest to attend class regularly.
2. Readings:
   Reading assignments appear on the course outline. Students should complete the assigned readings BEFORE coming to class on the day that the readings are assigned.
3. Computer Programs:
   One of the goals of this class is to familiarize students with various statistical programs.

While there are many options out there, I will try to use SPSS when possible. Please make sure you have access to Mason's virtual computer lab before class. JASP is another program that we might use in class. It's free to download from the web.

Here are some other options for getting access to SPSS outside of class:
1) Use SPSS in the computer labs on campus (no cost; but you need to reserve it ahead of the time and it might not be convenient for you).
2) Use Mason's Virtual Computing Lab for distance access to SPSS through Mason's server on your own computer.
3) Purchase and download SPSS from the web. For example, you can get IBM SPSS Statistics 29, Standard GradPack (PC or Mac) with a 6-month license or 12-month license from http://www.onthehub.com/spss/ (6-mo ~$45.95; 12-mo ~$72.95).

**JASP is an alternative that we could use. But you can only do some minor data manipulation in JASP. Data cleaning or data processing cannot be done using JASP. You can download JASP for free from the following website.
https://jasp-stats.org/

4. Homework (400 points):
   There will be homework assignments covering the variety of topics during the course.
5. Examination (400 points):
   There will be two exams throughout the semester. It will be administered during the class time.
5. Final Course Project (200 points):
   For the **data analysis project,** you will complete an original multivariate analysis of a primary or secondary dataset. The project can address any issue you're interested in and you need to select an appropriate statistical approach covered in our class for your project. For those of you who have formulated a topic for your masters thesis, this project may serve as the empirical section "attached" to a thesis proposal or the actual thesis using pre-existing data. Thus, the intention is that you will actually work with the data that you intend to use in your thesis. Of course, this might not be possible due to many complications. It is also possible that the dataset might be too large and complicated. Thus, you could to use a small subset of the data, or a related, more accessible dataset. The point of the project is not to

finish your thesis, but rather to get you started, and give you some practice working with data within the context of a problem.

6. Extra Credit/Late Policy:

    There will be NO extra credit given in this course. Do not ask for it. No late work will be accepted! You must turn in all assignments before the due time/dates.

7. Grading:

Assignment	Maximum Points	% of total grade
Homework	400	40.00%
2 Exams	400	40.00%
Data Analysis Project	200	20.00%

Total Points Possible: 1000

Earned Points	Approximate Percent	Grade
970-1000	97%-100%	A+
900-969	90%-96.99%	A
800-899	80%-89.9%	B
700-799	70%-79.9%	C
600-699	60%-69.9%	D
599 and Below	below 59.9%	F

Required Text:

Weisburd, Wilson, Wooditch, and Britt. (2022). Advanced Statistics in Criminology and Criminal Justice. Springer. ISBN 978-3-030-67737-4

Other required readings will be provided via Blackboard.

Recommended Texts

1) Agresti (1990). Categorical Data Analysis. Wiley & Sons
2) Barbara G. Tabachnick and Linda S. Fidell (2007). Using Multivariate Statistics (5th Edition).

3) John Fox (2008). Applied Regression Analysis and Generalized Linear Models (2nd edition).

Students with Disabilities: If you are a student with a disability and you need academic accommodations, please inform the instructor and contact the Office of Disability Resources at 703.993.2474. All academic accommodations must be arranged through that office. See http://ods.gmu.edu for more information.

Course Website: Blackboard 9.1 will be used for this course. The course syllabus, lecture outline, and important announcements will be posted on Blackboard. Students will submit their answers to quizzes and their final policy papers via Blackboard. You can access the site at http://mymasonportal.gmu.edu.   Login and click on the "Courses" tab.

Visit the IT Services Knowledge Base for help and FAQs about using this Blackboard site. Walk-in assistance is also available at the Collaborative Learning Hub (CLUB), 311 Johnson Center, from 9-5 Mon-Thur (but they prefer that you seek support remotely if possible).
NOTE: Username and passwords are the same as your Mason email account. You must have consistent access to an internet connection in order to complete the assignments in this course through Blackboard (http://mymason.gmu.edu). Note the technology requirements for the course in your Blackboard course menu—it contains details of minimum technology requirements.

Cell Phones and technology: All cell phones, pagers and other forms of communication must be silenced during the class period. If you need to have your device on for emergency purposes inform the professor as well as take steps to minimize the disturbance to the class. This includes texting as well as speaking. Students who use laptops should use them for class purposes, as other uses can be a distraction for other students in the course.

Statement on Academic Integrity: I expect adherence to the University Honor Code. If I witness any violations of the Honor Code, I will follow the standard reporting procedures as outlined in the University Handbook. Most forms of cheating are self-evident and need no elaboration here. Plagiarism is not always well understood by students. Plagiarism is representing another's work as one's own. This extends to ideas as well as words. That is, if you paraphrase the ideas expressed in something you have read, you need to cite the author and source. Exact phrases, sentences, etc. from someone else's writing must be quoted and proper citation given.

FINAL COMMENTS

This course has a reputation of being difficult for some students. It is imperative that you keep up with weekly readings and assignments in order to do well. While the distance learning might be the future norm, I understand there's limitation of the learning style and I will try to work with students to make the learning process easier. If you find yourself falling behind or struggling with the material, do not hesitate to take advantage of the office hours and TA's help sessions available to you. My goal as an instructor and your goal as a student are one and the same – for you to do well in this course by learning to grasp abstract statistical concepts in a way that allows you to understand their importance for the field of criminology and criminal justice. We are all in this together, and our success and failure depends on our ability to work together.

<div align="center">**COURSE OUTLINE**</div>

<div align="center">**<u>Ordinary Least Square Regression</u>**</div>

01/16	**Introduction and Simple Regression**
	Reading: Textbook Chapter 1
01/23	**Simple Regression and Assumptions**
	Reading: Textbook Chapter 2
01/30	**Multiple Regression**
	Readings: Textbook Chapter 2; Fox Chapter 5
02/06	**Running Regression Models with Statistics Program**
	(Paper Topic due)
02/13-02/20	**Additional Topics in Regression (Interaction, Moderation, and Mediation Effects and Model Diagnostics)**
	Readings: Textbook Chapter 3; Fox Chapter 6; and supplementary readings
02/27	**Exam 1**

<div align="center">**<u>Categorical Data Analysis</u>**</div>

03/05	**Spring Recess (no class)**
03/12-03/19	**Logistic Regression**
	Reading: Textbook Chapter 4
03/26-04/02	**Other Generalized Linear Models**
	Reading: Textbook Chapter 5-6; Agresti Chapter 4; and supplementary readings

Other Topics

04/09   **Multilevel Modeling**
               Reading: Textbook Chapter 7; and supplementary readings

04/16   **Exam 2**

04/23   **Multilevel Modeling II and a Brief Introduction to Structural Equation Modeling (using JASP) (or Factor Analysis)**
               Reading: TBD

04/30   **Reading Week**

FINAL PROJECT DUE: May 07th

05/07   **In-Class Presentation**

**Please note that the topics are subject to change after the initial discussions in class. But I will try to cover important statistical approaches in this class.

Campus Closure or Emergency Class Cancelation/Adjustment Policy

- If the campus closes, or if a class meeting needs to be canceled or adjusted due to weather or other concern, students should check Blackboard for updates on how to continue learning and for information about any changes to events or assignments.
- Rules and Expectations

In correspondence/communication students will be expected to:
- Be professional and respectful in correspondence
- Make reasonable requests of the instructor. We will be happy to clarify course material and answer legitimate questions; however, please exhaust other information sources (e.g., syllabus, Blackboard) for answering your question before contacting me and remember, "Poor planning on your part does not constitute an emergency on my part"

Notice of Mandatory Reporting of Sexual Assault, Interpersonal Violence, and Stalking

Notice of Mandatory Reporting of Sexual Assault, Interpersonal Violence, and Stalking

I am always available to support you if you need to discuss any issues that may be affecting your participation in class. However, please be aware that as a faculty member I am a "Responsible Employee" and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason's Title IX Coordinator per University Policy 1412. The following resources are available if you require confidential assistance:

- Student Support and Advocacy Center: (703) 993-3686
- Counseling and Psychological Services: (703) 993-2380
- Student Health Services: (703) 993-2831

You can also seek assistance from Mason's Title IX Coordinator directly by calling (703) 993-8730 or emailing titleix@gmu.edu.