RUTGERS School of Criminal Justice

47:202:302:02: Data Analysis in Criminal Justice

Fall 2020

COURSE INFORMATION

Instructor Information:

Instructor: Professor Valerio Baćak, PhD
Email: valerio.bacak@rutgers.edu
Virtual Office Hours: By appointment.
Meeting Times: The course will be taught online and asynchronously.

Teaching Assistant: Lorena Avila Jaimes
Email: lorena.avila@rutgers.edu
Virtual Office Hours: By appointment.

Course Overview:

This course examines the various types of data used within criminal justice and the fundamentals of statistics and data analysis. It also provides an introduction to the appropriate use of data, the limits of various statistical methods, how data is collected, and how to interpret findings. Policy implications of data will also be discussed.

Credits: 4

Prerequisites: 21:62:202:301 and the basic undergraduate math requirement.

B.S., Criminal Justice Program Learning Goals: Upon completion of the B.S. in Criminal Justice at Rutgers University-Newark, students should be able to:

1. Describe the development and functions of major criminal justice institutions (e.g., police, courts, corrections, and juvenile justice), the activities of actors within these institutions, and how they relate to one another as well as the broader social, political, and economic world.
2. Describe the mechanisms, correlates, theoretical underpinnings, and situational contexts of crime, criminal behavior and opportunity, and techniques for prevention and treatment.

3. Apply and analyze theories related to the policies and practices of the criminal justice system and its major institutions.
4. Demonstrate the ability to gather, explain, and apply empirical research in the field of criminal justice.
5. Obtain a comprehensive knowledge about the process of conducting criminal justice research, and develop the skills to conduct criminal justice research with appropriate methodologies.

Course Learning Objectives:

Upon completion of this course, you should be able to:

1. Define the main characteristics of research designs
2. Distinguish the levels of measurements and types of variables
3. Choose, apply and correctly interpret summary measures
4. Visualize distributions of continuous and categorical variables
5. Calculate and interpret measures of association
6. Explain the principles of statistical inference
7. Test hypotheses using bivariate analytic techniques
8. Conduct basic statistical analyses by hand and using computer software.

Required Readings:

Gau, J. (2016). Statistics for Criminology and Criminal Justice. London: SAGE Publications.

We will use the second edition, but any edition is acceptable. You can buy a used copy or rent one online; prices start at $2.99. Chapters for the first two weeks will be available for download on Canvas as PDF files. Additional reading materials will be made available on Canvas.

Computing:

We will use the free software for statistical analysis R via RStudio:

Download R: https://www.r-project.org/
Download R Studio: https://www.rstudio.com/

To help you with installing R and R Studio on your personal computers, see these instructions:

https://rstudio-education.github.io/hopr/starting.html

Course Structure:

The course will be taught online and asynchronously. All the course materials will be posted on Canvas on a weekly basis as modules. The modules will be made available at <u>noon Monday of each week</u>. Lectures will pre-recorded and posted on Canvas.

<u>Course Schedule (subject to change)</u>

Week	Class Topic	Readings
1	Statistics and data analysis in criminal justice and criminology	Chapter 1
2	Data, variables, levels of measurement, causality	Chapter 2
3	Organizing, displaying, and presenting data	Chapter 3
4	Averages or measures of central tendency	Chapter 4
5	Variation in the data or measures of dispersion	Chapter 5
6	Introduction to R and data analysis	TBA
7	Data management in R	TBA
8	Data visualization in R	TBA
9	Probability distributions	Chapter 6
10	Population, sample, and sampling distributions	Chapter 7
11	Point estimates and confidence intervals	Chapter 8
12	Hypothesis testing: A conceptual introduction	Chapter 9
13	Hypothesis testing with two population means or proportions	Chapter 11
14	Hypothesis testing with two continuous variables: Correlation	Chapter 13
15	Introduction to regression analysis	Chapter 14

<u>Course Assessment and Grading</u>

The final grade will be assessed based upon your performance on the following:

<u>Weekly quizzes (25%):</u>

Students are expected to do the readings and watch lectures regularly—on a weekly basis. Knowledge of these materials will be tested using weekly quizzes on Canvas. All the quizzes have to be completed by <u>Friday noon of the week</u> during which the module was released.

<u>Homework assignments (25%)</u>

There will be multiple homework assignments during the semester. Students are allowed to work in pairs or in small groups on the assignments. While joint results may be reported, each student must provide his or her own interpretations of the findings. Some of the assignments will include programming using R software.

<u>Midterm exam (25%):</u>

The exam will include material covered in the readings and lectures. Students are required to work independently on the exam.

<u>Final exam (25%):</u>

The exam will include material covered in the readings and lectures. Students are required to work independently on the exam.

The following grading scale will be used for this course:

A	4.0	90-100%	Outstanding
B+	3.5	87-89%	
B	3.0	80-86%	Good
C+	2.5	77-79%	
C	2.0	70-76%	Satisfactory
D	1.0	60-69%	Poor
F	0.0	<60%	Failure

<u>Late or Missing Assignment Policy:</u>

Late assignments will not be accepted, unless the student has given prior notification and approval has been granted by the instructor or the teaching assistant.

COURSE POLICIES

<u>Academic Integrity</u>

As a member of the Rutgers University community you are not to engage in any academic dishonesty. You are responsible for adhering to basic academic standards of honesty and integrity as outlined in the Rutgers University Policy on Academic Integrity for Undergraduate and Graduate Students http://studentconduct.rutgers.edu/academic-integrity

Your academic work should be the result of your own individual effort, you should not allow other students to use your work, and you are required to recognize and reference any material that is not your own. Violations of the university's policy will result in appropriate action.

<u>Academic Resources and Support</u>

Rutgers University Newark (RU-N) is committed to the creation of an inclusive and safe learning environment for all students and the University as a whole. RU-N has identified the following resources to further the mission of access and support:

For Help with Technology. You can find resources and help to prepare yourself for technological aspects of taking an online course here: https://runit.rutgers.edu/technology-launch-pad/.

For Individuals with Disabilities: The Office of Disability Services (ODS) is responsible for the determination of appropriate accommodations for students who encounter barriers due to disability. Once a student has completed the ODS process (registration, initial appointment, and submitted documentation) and reasonable accommodations are determined to be necessary and appropriate, a Letter of Accommodation (LOA) will be provided. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at ods.rutgers.edu. Contact ODS at (973)353-5375 or via email at ods@newark.rutgers.edu.

For Individuals who are Pregnant: The Office of Title IX and ADA Compliance is available to assist with any concerns or potential accommodations related to pregnancy. Students may contact the Office of Title IX and ADA Compliance at (973) 353-1906 or via email at TitleIX@newark.rutgers.edu.

For Absence Verification: The Office of the Dean of Students can provide assistance for absences related to religious observance, emergency or unavoidable conflict (e.g., illness, personal or family emergency, etc.). Students should refer to University Policy 10.2.7 for information about expectations and responsibilities. The Office of the Dean of Students can be contacted by calling (973) 353-5063 or emailing deanofstudents@newark.rutgers.edu.

For Individuals with temporary conditions/injuries: The Office of the Dean of Students can assist students who are experiencing a temporary condition or injury (e.g., broken or sprained limbs, concussions, or recovery from surgery). Students experiencing a temporary condition or injury should submit a request using the following link: https://temporaryconditions.rutgers.edu.

For English as a Second Language (ESL): The Program in American Language Studies (PALS) can support students experiencing difficulty in courses due to English as a Second Language (ESL) and can be reached by emailing PALS@newark.rutgers.edu to discuss potential supports.

For Gender or Sex-Based Discrimination or Harassment: The Office of Title IX and ADA Compliance can assist students who are experiencing any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking. Students can report an incident to the Office of Title IX and ADA Compliance by calling (973) 353-1906 or emailing TitleIX@newark.rutgers.edu. Incidents may also be reported by using the following link: tinyurl.com/RUNReportingForm. For more information, students should refer to the University's Student Policy Prohibiting Sexual Harassment, Sexual Violence, Relationship Violence, Stalking and Related Misconduct located at http://compliance.rutgers.edu/title-ix/about-title-ix/title-ix-policies/.

For support related to interpersonal violence: The Office for Violence Prevention and Victim Assistance can provide any student with confidential support. The office is a confidential resource and does not have an obligation to report information to the University's Title IX Coordinator. Students can contact the office by calling (973) 353-1918 or emailing run.vpva@rutgers.edu. There is also a confidential text-based line available to students; students can text (973) 339-0734 for support.

For Crisis and Concerns: The Campus Awareness Response and Education (CARE) Team works with students in crisis to develop a support plan to address personal situations that might impact their academic performance. Students, faculty and staff may contact the CARE Team by using the following link: tinyurl.com/RUNCARE or emailing careteam@rutgers.edu.

For Stress, Worry, or Concerns about Well-being: The Counseling Center has confidential therapists available to support students. Students should reach out to the Counseling Center to schedule an appointment: counseling@newark.rutgers.edu or (973) 353-5805. If you are not quite ready to make an appointment with a therapist but are interested in self-help, check out TAO at Rutgers-Newark for an easy, web-based approach to self-care and support: https://tinyurl.com/RUN-TAO.

For emergencies, call 911 or contact Rutgers University Police Department (UPD) by calling (973) 353-5111.

If you are interested in finding out more about
- Accelerated Master's Program (B.S. /M.A.)
- Criminal Justice National Honor Society (Alpha Phi Sigma)

Please refer to the School of Criminal Justice website http://rscj.newark.rutgers.edu/

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