Data Analysis in Criminal Justice 47:202:302:02  
Professor: Valerio Baćak, Ph.D.  
Fall Semester 2017

Course Information  
Meeting times: Mon 2:30 pm—3:50 pm & Wed 1:00 pm—2:20 pm  
Location: Smith Hall Room 245 (SMT-245)  
First day of class: Wednesday, September 6th, 2017  
Number of credits: 4

Contact Information  
Email: valerio.bacak@rutgers.edu  
Office hours: By appointment  
Office: Room 545, School of Criminal Justice, 123 Washington Street

Teaching Assistant: Christiane Schwarz  
Email: cs1215@scarletmail.rutgers.edu  
Office hours: Wed 3:00 pm – 4:00 pm  
Room: TBD

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

In the course, we will learn how to extract and evaluate information from quantitative data related to crime and the criminal justice system. We will study topics including research design and sampling; types of variables and measurement levels; data visualization; measures of central tendency and dispersion; statistical inference; and measures of association between variables. In the course, we will use both hand calculation and statistical software. Mathematical details will be kept to a minimum except when necessary to facilitate an explanation of statistical concepts.

Prerequisites  
Criminal Justice majors must take 202:102 & 103, 47:202:301 and the basic undergraduate math requirement before registering for this course.

Learning Goals
Upon completion of this course, students should be able to:
✓ Define the main characteristics of different research designs
✓ Distinguish the levels of measurements and types of variables
✓ Choose, apply and correctly interpret summary measures (e.g., mean)
✓ Visualize distributions of continuous and categorical variables
✓ Calculate and interpret measures of association (e.g., correlation)
✓ Understand the principles of statistical inference
✓ Test hypotheses using bivariate analytic techniques
✓ Conduct basic statistical analyses by hand and using computer software.

Required Readings

We will also use parts of the R for Data Science textbook by Garret Grolemund and Hadley Wickham. The book is freely available online: [http://r4ds.had.co.nz/](http://r4ds.had.co.nz/).

I put together webpages with information on how to use R. We will go over them in class but it will be helpful if you review the material in advance: [https://rpubs.com/vbacak](https://rpubs.com/vbacak).

Computing
We will use the free software for statistical analysis R via RStudio. The software will be available on lab computers and you can also install it for free on your personal computers.

Course Requirements

*Participation (10%)*
Students are expected to participate in class exercises, discussions, and in general be an active participant in the classroom. In group assignments, every student needs to contribute equally.

*Homework Assignments (50%)*
There will be 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.

*Mid-Term Exam (20%)*
The exam will be in-class and will encompass material covered in the textbook readings, lectures, and homework assignments. Students are required to work independently on the exam, with no assistance from their peers.

*Final Exam (20%)*
The exam will be in-class and will encompass material covered in the textbook readings, lectures, and homework assignments. Students are required to work independently on the exam, with no assistance from their peers.
The following scheme will be used to award the final course grade:

- A = 90.0% - 100.0%
- B+ = 85.0% - 89.9%
- B = 80.0% - 84.9%
- C+ = 75.0% - 79.9%
- C = 70.0% - 74.9%
- D = 60.0% - 69.9%
- F = 59.9 and below

Late or Missing Assignment Policy
Late homework assignments will not be accepted, unless the student has given prior notification and approval has been granted by the instructor.

Course Structure
The course will be delivered using a combination of lectures and hands-on exercises. You will be expected to use the computer on a regular basis and write simple code for the purposes of statistical analysis of datasets related to crime and criminal justice.

Extra Credit Policy
There will be no extra credit opportunities in this class. Plan accordingly by attending class, participating, and doing homework assignments and exams so that they reflect the final grade you hope to achieve.

Announcements
As needed, Blackboard will be used to make course announcements (e.g., class cancellation due to weather, change in class content) as well as to provide general feedback and instructions related to homework assignments, exams, and other activities. All the materials for the class will be posted on Blackboard.

Attendance Policy
Students are expected to regularly attend class meetings and come prepared by reading the assigned chapters and doing the exercises. Attendance will be taken at the beginning of the class. If you expect to miss one or two classes, please use the University absence reporting website [https://sims.rutgers.edu/ssra/](https://sims.rutgers.edu/ssra/) to indicate the date and reason for your absence. An email is automatically sent to course instructor. But also send the TA an e-mail directly to inform us of your future absence. You are allowed to miss one class without having to provide an explanation.

Academic Integrity Policy
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](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.

Students with Disabilities
Rutgers University is committed to providing equal educational opportunity for persons with disabilities in accordance with the Nondiscrimination Policy of the University and in compliance with § 504 of the Rehabilitation Act of 1973 and with Title II of the Americans with Disabilities Act of 1990. For additional information please visit the website https://ods.rutgers.edu/ or contact the representative for the Newark Campus:

Kate Torres
Coordinator of ADA Services and Academic Support
Robeson Campus Center, Suite 352
350 Martin Luther King Jr. Boulevard
Newark, NJ 07102
Phone: 973.353.5300
Fax: 973.353.5666
E-mail: kate.torres@rutgers.edu
Website: https://ods.rutgers.edu/

Rutgers Learning Center (for tutoring assistance)
The Rutgers Learning Center exists to support your studies by offering tutoring assistance and resource materials in a variety of subjects, including statistics. You may schedule an appointment by visiting the TutorTrac website or the Learning Center’s office, which is open Monday through Friday from 9:00 a.m. to 5:00 p.m. and located in Bradley Hall, room 140. Additionally, you may access a range of online tutorials and links from the Center.

Psychological and Counseling Services
If you experience psychological or other difficulties as a result of this course, or because of other issues that may interfere with your performance in the course, please contact the university’s psychological and counseling service center (http://www.counseling.newark.rutgers.edu; 973-353-5805), which is located in Blumenthal Hall, room 101. The center offers a variety of free, confidential services to part-time and full-time students who are enrolled at Rutgers.

The Writing Center
If you need assistance with completing a writing assignment in this course or any of your other courses, the Writing Center offers tutoring and writing workshops to all undergraduate students currently enrolled in classes at Rutgers-Newark. Writing Center tutors are available to help students: clarify an assignment, generate ideas and writing, review and revise drafts, improve grammar and usage, and strengthen reading and editing skills. For more information about finding a tutor or registering for a writing workshop, visit http://www.ncas.rutgers.edu/writingcenter.
What Next?
If you are interested in finding out more about the Accelerated Master’s Program (B.S. / M.A.) or the Criminal Justice National Honor Society (Alpha Phi Sigma), please refer to the [School of Criminal Justice’s website](#). The website also contains information about the M.A. and Ph.D. programs in Criminal Justice.