

QUANTITATIVE METHODS

830:200:B2

Instructor	Email	Office Location & Hours
Caitlin Bronson	cab490@psych.rutgers.edu	Webex by appointment

Course Objectives

By the end of the course, students should be able to:

- Explain the concepts underlying null hypothesis testing
- Recognize the appropriate statistic to compute based on research designs common in the behavioral sciences
- Conduct descriptive and inferential statistical analyses
- Convey the results of statistical analyses without jargon to a broad audience
- Formulate a research results report following the American Psychological Association's (APA) guidelines

This course has been certified as satisfying both Quantitative and Formal Reasoning Learning Outcome Goals (QQ and QR) of the SAS Core Curriculum. Specifically, students will be able to:

1. Formulate, evaluate, and communicate conclusions and inferences from quantitative information (QQ)
2. Apply effective and efficient mathematical or other formal processes to reason and to solve problems (QR)

Course Structure

This course requires you to complete video lectures, assignments, quizzes, and a final project. In addition, you are required to take three Unit exams.

This course is divided into three units:

- UNIT 1: Descriptive Statistics and Comparing Two Groups
- UNIT 2: ANOVA, Within-subjects Design, and Non-parametric Tests
- UNIT 3: Relational Tests

Grading

Requests for grade changes will not be fulfilled. Grades will be **earned** based on:

- Assignments.....20%
- Quizzes.....20%
- Final Project.....10%
- Exams.....50%

<u>Grading Scale</u>	
A	90% or above
B+	84.5-89.99%
B	79.5-84.49%
C+	74.5-79.49%
C	69.5-74.49%
D	59.5-69.49%
F	59.49% or below

Assignments

You will have 12 assignments to complete. Each assignment is worth 10 points. Assignments will be graded for correctness. You can resubmit assignments **multiple** times before the due date. Only the highest score will be counted towards your grade.

Every assignment must be submitted by **11AM** on the day it is due. Late assignments are accepted **within 24 hours from the original due date** but incur a 2.5-point deduction for lateness. If you do not turn in the assignment during the 24-hour late window, your assignment will **not** be accepted (expect for students who have a *documented* excuse and email me for an extension)!

You **can** use outside sources to complete the assignments (e.g., notes, lecture slides, etc.). You **are** encouraged to ask about questions you are stuck on in Piazza and other students **are** welcome to help you get the correct answers. The assignments are intended to boost your grade, not hurt you!

Quizzes

There are 6 quizzes worth 20 points each. Each quiz can be submitted **multiple** times before the due date. Only the highest score will count towards your grade.

Quizzes must be submitted by **11AM** on the day they are due. Late quizzes are accepted **within 24 hours from the original due date** but incur a 5-point deduction for lateness. If you do not turn in the quiz during the 24-hour late window, your quiz will **not** be accepted (expect for students who have a *documented* excuse and email me for an extension)!

You **can** use outside sources to complete the quizzes (e.g., notes, lecture slides, etc.). You **are** encouraged to ask about questions you are stuck on in Piazza and other students **are** welcome to help you get the correct answers. Quizzes are based off lectures and designed to prepare you for your exams.

Final Project

The final project involves writing up an APA style results section using data output from a commonly used statistical program (SPSS). You will **not** need SPSS to complete this project. You must turn in (1) a first draft for 40 points, and (2) a final draft incorporating instructor

feedback for 60 points. The drafts are expected to be 1-2 pages. A rubric will be provided for you.

First drafts will be accepted late within 24 hours of the original due date but suffer a 10-point deduction. However, **final drafts will not be accepted late!**

The first and final draft will both be submitted through Turnitin. **Plagiarism will be taken seriously.** Review the Academic Integrity section below for more information. You are responsible for knowing what counts as plagiarism. If in doubt, ask me.

Exams

Each of the 3 Units has a conceptual *and* a computational portion of the exam covering material from that particular unit. The conceptual and computational portions for each Unit are added together to form a Unit exam grade out of 100 points. There is also a cumulative, optional final exam worth 100 points. If you take the final exam, your lowest exam grade will be dropped (e.g., if you scored a 66/100 on your Unit 2 exam and a 85/100 on your final exam, the final exam grade will replace the Unit 2 exam grade). If you are satisfied with your Unit exam grades, then you do **not** need to take the final exam!

Late exams will NOT be accepted! If you miss a Unit exam without a well-documented excuse, then you will have to take the final exam.

- **Conceptual Exams:** Consist of 40 multiple choice questions and account for 40% of your Unit exam grade. You will have **1 hour** to complete the conceptual exam. Conceptual exams will open on Canvas from 11AM-1:35PM. You may begin taking the exam at any time between 11AM-1:35PM but note that if you begin your exam later than 12:35PM you will have *less than an hour* to complete the exam. If you begin your exam later than 12:35PM, you will have until 1:35PM when the exam will close to complete your exam. You can go back to previous questions on the exam.
 - **No** outside help is permitted on your conceptual exam! You may **not** use other classmates, notes, lecture slide, online sources of any kind, etc.
 - If you have technical issues during the exam, document evidence of the issue and immediately email me (cab490@psych.rutgers.edu).
- **Computational Exams:** Consist of 4-6 computational questions and account for 60% of your Unit exam grade. The computational exam is take-home style. You will 36 hours complete the computational exam. Computational exams will open on Canvas from 11AM on the conceptual exam date and are due by 11PM the next day.
 - You **can** use notes during your computational exam! It is highly recommended that you make a computational cheat sheet with all the formulas you will need for your computational exam. You will also need a calculator and the critical tables (shared on Canvas) to take your computational exam.
 - You must show all your work on the computational exam!
 - You should complete your exam on notebook/computer paper, and then take photos or scan your answer sheet to upload it on Canvas. Only exams submitted

through Canvas can count towards your grade (i.e., do not email me your exams).

- If you have technical issues during the exam, document evidence of the issue and immediately email me (cab490@psyhc.rutgers.edu).
- **Final Exam:** The final exam will be cumulative. Anything covered in the course can appear on the final. The final will consist of 20 conceptual, multiple choice questions (40% of the grade) and 4 computational questions (60% of the grade).
 - - The final exam will open on Canvas at 11AM on the last day of class (7/2) and be due by 11PM the next day (7/3).
 - Once you start the final exam, you will have **3 hours** to submit it.
 - You **cannot** go back to previous conceptual questions.
 - You **can** use a formula sheet, calculator, and the critical tables (on Canvas) to complete the final exam.
 - You **cannot** use other classmates, notes, lecture slides, online sources of any kind, etc.
 - You must upload a photo of your computational answers to Canvas when asked to on the exam.

Extra Credit

Extra credit can be earned by completing the Review Quiz 4. You can earn up to 20 points of extra credit by submitting correct answers on the cumulative quiz (that is the potential to increase your grade by a little over 3%). You can only take the extra credit quiz **once!** **No** late submissions will be accepted for the extra credit quiz. You can **not** ask other classmates for help or use outside sources (e.g., lecture slides, notes, etc.) to complete the Review Quiz 4.

Late Policy

- Assignments: Within 24 hours from the original due date. 2.5-point deduction.
- Quizzes: Within 24 hours from the original due date. 5-point deduction.
- Final Project First Draft: Within 24 hours from the original due date. 10-point deduction.
- Final Project Final Draft: **No late submissions** (unless special arrangements have been made in advance or an extreme circumstance occurs). For an extreme circumstance, an excused absence from the Dean of Students office is also required.
- Exams: **No late submissions** (unless special arrangements have been made in advance or an extreme circumstance occurs). For an extreme circumstance, an excused absence from the Dean of Students office is also required. If you miss a Unit exam, you will not take a make-up exam, instead you must take the cumulative final.

Required Text

There is no required textbook for the course. You may want a copy of [Publication Manual of the American Psychological Association](#) (7th ed) to help with your final project. However, copies of the relevant pages will be uploaded to Canvas. Also, you will need a reliable calculator, reliable internet access, and a device capable of uploading photos of your computational exams/final exam.

Academic Integrity

Cheating or plagiarism will not be tolerated. All work turned in must be the student's own work. You are encouraged to collaborate with others on assignments and quizzes, but exams, the final project, and extra credit Review Quiz 4 must be completed individually. Any and all sources must be appropriately cited in all written work. Refer to the APA style manual for how to properly reference sources. If you plagiarize or cheat, which includes failing to properly cite sources, collaborating on exams or the final project, or turning someone else's work in as your own, at the very least **you will receive a failing grade in the course**. More severe consequences are possible. Refer to Rutgers' policy on [academic integrity](#) for more information. You are responsible for knowing what constitutes plagiarism or cheating.

Students with Disabilities

Any student with a documented disability may contact the Office of Disability Services to determine the appropriate accommodations. Students with disabilities requesting accommodations need to follow the appropriate procedures. Further, all video lectures have closed captions and the course has been designed following Universal Design for Learning guidelines. If you have any concerns, please email me.

Course Schedule*

Date	Topic	Due
5/26	<ul style="list-style-type: none"> • Lecture 1: Terminology • Lecture 2: Descriptive Statistics 	
5/27	<ul style="list-style-type: none"> • Lecture 3: Distributions • Lecture 4: Z Tests 	
5/28	<ul style="list-style-type: none"> • Lecture 5: Single Sample t Tests 	
6/1	<ul style="list-style-type: none"> • Lecture 6: Independent Sample t Tests 	
6/2	<ul style="list-style-type: none"> • Lecture 7: Confidence Intervals 	
6/3	<ul style="list-style-type: none"> • Lecture 8: Exam 1 Review 	
6/8	<p>EXAM 1</p>	<p>By 11AM:</p> <ul style="list-style-type: none"> • Assignment 1 • Assignment 2 • Assignment 3 • Assignment 4 • Assignment 5 • Assignment 6 • Terms Quiz • Distribution Quiz • Review Quiz 1 <p>FROM 11AM-1:35PM</p> <ul style="list-style-type: none"> • Conceptual Exam 1
6/9	<ul style="list-style-type: none"> • Lecture 9: One-way ANOVA 	<p>BY 11PM:</p> <ul style="list-style-type: none"> • Computational Exam 1
6/10	<ul style="list-style-type: none"> • Lecture 10: Factorial ANOVA 	

6/11	<ul style="list-style-type: none"> Lecture 11: Within-subjects Design (Paired Samples t Tests) 	
6/15	<ul style="list-style-type: none"> Lecture 12: Chi Square Tests 	
6/16	<ul style="list-style-type: none"> Lecture 13: Writing APA Style Results 	
6/17	<ul style="list-style-type: none"> Lecture 14: Exam 2 Review 	
6/22	<p style="text-align: center;">EXAM 2</p>	<p>BY 11AM:</p> <ul style="list-style-type: none"> Assignment 7 Assignment 8 Assignment 9 Assignment 10 Research Design Quiz Review Quiz 2 <p>FROM 11AM-1:35PM</p> <ul style="list-style-type: none"> Conceptual Exam 2
6/23	<ul style="list-style-type: none"> Lecture 15: Correlation 	<p>BY 11PM:</p> <ul style="list-style-type: none"> Final Project First Draft Computational Exam 2
6/24	<ul style="list-style-type: none"> Lecture 16: Fisher's Z 	
6/25	<ul style="list-style-type: none"> Lecture 17: Simple Linear Regression 	
6/29	<ul style="list-style-type: none"> Lecture 18: Multiple Regression 	
6/30	<ul style="list-style-type: none"> Lecture 19: Exam 3 Review 	
7/1	<p style="text-align: center;">EXAM 3</p>	<p>BY 11AM:</p> <ul style="list-style-type: none"> Assignment 11

		<ul style="list-style-type: none"> • Assignment 12 • Review Quiz 3 <p>FROM 11AM-1:35PM</p> <ul style="list-style-type: none"> • Conceptual Exam 3
7/2	FINAL EXAM (Optional)	<p>BY 11PM</p> <ul style="list-style-type: none"> • Computational Exam 3
7/3		<p>BY 11PM</p> <ul style="list-style-type: none"> • Final Project Final Draft • Extra Credit Final Review Quiz 4 • Final Exam

*The syllabus and due dates are subject to change. Please frequently check your email and the Announcements to stay informed of any changes. You are responsible for familiarizing yourself with the syllabus and any changes. If you have a question about the syllabus or the course, please email me (cab490@psych.rutgers.edu).