RUTGERS
Graduate School of Applied and Professional Psychology

Graduate School of Applied and Professional Psychology (GSAPP)
Rutgers University
New Brunswick, New Jersey
Fall 2025

Introduction to Analysis and Single-Case Design
18:820:512
Credits: 3
Level: Graduate
Thursdays 6:15 pm to 8:45 pm at Smithers Hall 219

Instructor: Craig W. Strohmeier, Psy.D., BCBA-D
Office: CSH-RUCARES, 888 Easton Ave, Somerset, NJ 08873
Phone: 848-800-8506
E-mail: Craig.Strohmeier@rutgers.edu
Office Hours: By appointment via Zoom. Please email me to schedule.

Rutgers University Mission

As the premier comprehensive public research university in the state's system of higher education, Rutgers, The State University of New Jersey, has the threefold mission of

- providing for the instructional needs of New Jersey's citizens through its undergraduate, graduate, and continuing education programs,
- conducting the cutting-edge research that contributes to the medical, environmental, social, and cultural well-being of the state, as well as aiding the economy and the state's businesses and industries, and
- performing public service in support of the needs of the citizens of the state and its local, county, and state governments.

Each component of the university's mission reinforces and supports the other two.
As the University of New Jersey®, Rutgers is dedicated to teaching that meets the highest standards of excellence, to conducting research that breaks new ground, and to provide services, solutions, and clinical care that help individuals and the local, national, and global communities where they live.

GSAPP Mission

The mission of GSAPP is threefold: education, research/scholarship, and public service. Its goal is to prepare well-educated, qualified, and competent direct-service psychologists who have a special commitment to direct community involvement and to underserved populations--professionals who can integrate scientific knowledge with innovation in the delivery of psychological services to individuals, families, groups, and organizations. Professionals receiving a doctoral degree in psychology should be capable of extending psychological knowledge and exhibiting the high level of analytic skills and theoretical understanding needed to use existing and emerging psychological knowledge.

Core Values. We are guided by four core values that are apparent in our learning environment, centers, and clinics:

1. **Academic excellence** in preparing students for careers in clinical and school psychology.

2. Commitment to **social justice** and helping **underserved populations**.
3. **Diversity** of students trained, approaches used, theoretical orientations followed, and populations served.
4. **Knowledge generation and dissemination** using contemporary research approaches.

MAP Statement
The program embraces the mission of the school by offering instruction that has an emphasis on civic and global citizenship, social justice, and cultural diversity. This course of study provides students with the knowledge needed to understand individual and collective behaviors; develop quantitative and qualitative statistical analysis and research design needed to analyze the corresponding physical and environmental contributors to human behavior; and a beginning understanding of the analysis and treatment of behavior problems and disorders.

The MAP degree will prepare students with the requisite theoretical knowledge; critical thinking and problem-solving skills needed to successfully participate in employment or scholastic activities. Students will have opportunities to pursue scholarly activities that prepare them to successfully compete for admissions into doctoral-level psychology and related academic programs and pursue master's level career pathways through available concentration and certificate programs (see examples of concentration areas listed below). In addition to completing the required coursework (36 credits), completion of the MAP degree will be marked by a culminating academic experience—Capstone project (either a research project/presentation (3 credits) and experiential learning activity (6-credit practicum training). In general, students will acquire a knowledge base grounded in psychological theory and experiential learning (research or practicum) designed to further advance their personal and professional career development.

Course Description/Overview
This course will introduce the student to the process of analysis using baseline logic and how it applies to single-case methodology. The course will provide an overview of behavior measurement and recording, visual analysis and graphing. Basic single-case designs will be discussed, including general characteristics, strengths, and considerations. General issues regarding internal and external validity will be discussed, as well as ethical considerations for the application of single-case designs in clinical, applied, and research domains. Students will identify best practices for the application of single-case design in clinical and applied work, research design, and interpretation of applied and experimental research literature. Opportunities to develop and practice skills related to single-case design will be offered through class activities and assignments.

Objectives for the Course
The student will be able to:
1. State the principles of baseline logic.
2. Describe the process of planning and directing behavior recording procedures.
3. Identify key features or visual data display and analysis.
4. Identify and describe the advantages and disadvantages of basic single-case designs.
5. Discuss issues in planning, replicating, evaluating and disseminating behavior analytic procedures in research and practice.
6. Describe ethical principles as they relate to behavior analytic research and practice.
7. Interpret single-case designs that appear in the behavior analytic literature.

BACB Test-Content-Outline Items Targeted in this Course

- A.1 Identify the goals of behavior analysis as a science (i.e., description, prediction, control).
- A.5 Identify and describe dimensions of applied behavior analysis.
- C.1 Create operational definitions of behavior.
- C.2 Distinguish among direct, indirect, and product measures of behavior.
- C.3 Measure occurrence.
- C.4 Measure temporal dimensions of behavior (e.g., duration, latency, interresponse time).
- C.5 Distinguish between continuous and discontinuous measurement procedures.
- C.6 Design and apply discontinuous measurement procedures (e.g., interval recording, time sampling).
- C.8 Evaluate the validity and reliability of measurement procedures.
- C.9 Select a measurement procedure to obtain representative data that accounts for the critical dimension of the behavior and environmental constraints.
- C.10 Graph data to communicate relevant quantitative relations (e.g., equal-interval graphs, bar graphs, cumulative records).
- C.11 Interpret graphed data.
- C.12 Select a measurement procedure to obtain representative procedural integrity data that accounts for relevant dimensions (e.g., accuracy, dosage) and environmental constraints.
- D.1 Distinguish between dependent and independent variables.
- D.2 Distinguish between internal and external validity.
- D.3 Identify threats to internal validity (e.g., history, maturation).
- D.4 Identify the defining features of single-case experimental designs (e.g., individuals serve as their own controls, repeated measures, prediction, verification, replication).
- D.5 Identify the relative strengths of single-case experimental designs and group designs.
- D.6 Critique and interpret data from single-case experimental designs.
- D.7 Distinguish among reversal, multiple-baseline, multielement, and changing-criterion designs.
- D.8 Identify rationales for conducting comparative, component, and parametric analyses.
- D.9 Apply single-case experimental designs
- H.1 Develop intervention goals in observable and measurable terms.
- H.6 Make data-based decisions about procedural integrity.
- H.7 Make data-based decisions about the effectiveness of the intervention and the need for modification.

Assignments

Pre-Class Assignments (PCAs)

Prior to most Thursdays, there will be a PCA due on Wednesdays by 11:59 pm. PCAs generally involve 2-5 questions that require you to (a) summarize information from the readings, (b) apply concepts from the readings to novel scenarios or graphs, and (c) reflect on conceptual or ethical issues. Each activity will be worth 10 points and the distribution of points depends on the number of questions and the complexity of each question. These should be completed in a Microsoft Word document and uploaded to the respective Canvas assignment (e.g., Week 2 PCA). I am unable to open Mac documents, so please avoid uploading .Pages documents.

In-Class Assignments (ICAs)

Most classes will involve some form of ICA, including (a) experimental-design exercises, (b) small-group or large-group discussion, and (c) practice of behavior-analytic skills [e.g., data collection, graphing]. These ICAs are the most important component of this class because they give you a chance to practice behavior-analytic skills in preparation for your practicum and the BCBA exam. Some skills might be daunting, like computing interobserver agreement by hand, but I'll be with you each step of the way to help. Each activity will be worth 10 points, though I may deduct or assign bonus points if I notice less-involved participation or exemplary group leadership, respectively. These will be due either at the end of class for physical materials or by 11:59 pm on the night of class for Canvas submissions.

Exams

There will two exams throughout the semester, each with a time limit of 2.5 hr. The first exam will take place in the middle of the course and cover topics from Weeks 2 through 6. The second exam will take place at the end of the course and cover topics from Weeks 7 through 12. To maximize the number of topics we cover during the semester, these exams will take place on Canvas and will be completed outside of class time. These are open-book/note exams. Most questions will involve critical thinking and application of concepts that may not be evident from simply reviewing the reading material or your notes. Questions will be a combination of multiple choice (simulating the BCBA exam), short answer, and essay. Although exams are open-book/note, they must be completed independently. Any evidence of non-independent exam completion will be considered a violation of the Rutgers Academic Integrity policy (see, Academic Integrity below), and will result in 0 points.

Research Proposal

Each student will be required to complete a 4- to 6-page paper (not including references or figures) outlining a hypothetical study derived from a clinical or applied encounter (i.e., based on a practical problem you have encountered in your work, or one you anticipate encountering). Because this is a proposal, you will use the future tense in your writing. These need to be uploaded to Canvas. There will be opportunities to receive feedback on your proposal throughout the semester, once from me and twice from your peers. This pacing and feedback should ensure a high-quality submission by the proposal deadline.

1. Introduction (12 pts)
    - Purpose/Background: Brief description of the purpose of the proposal.
    - State your clinical/applied/research question.
    - Be sure to describe the relevant literature on your target behavior and independent variable.
2. Method (18 pts)
    - Participants/Setting: Where you will conduct the study and with whom?
    - Measurement: What is your operational definition? How will you score it? How will you measure interobserver agreement and treatment integrity?
    - Research Design: Which design did you select (e.g., multiple baseline, reversal) and why?
    - Procedure: How will you conduct sessions?
    - Be sure to incorporate threats to internal validity (and external validity, if you desire).
3. Hypothetical Results (12 pts)
    - Create mock data. Ideally these will be made electronically; however, feel free to scan a hand-drawn graph if necessary.
    - What you think the data might look like? Why would you expect to see that?
    - Be sure to describe the *prediction, verification, and replication* logic we discuss throughout the semester as you explain your results.
4. References (3 pts)

5. Grammar and style (5 pts)

Important Note: Plagiarism essentially means that you cannot use the words and ideas of another person without giving them credit. Therefore, "quotation marks" should be used to indicate the exact words of another. Each time you paraphrase another author you will need to credit the source in the text. If you have any questions about what constitutes cheating or plagiarism, please see me. Students who plagiarize any material will earn a grade of F for the course.

Regarding use of Artificial Intelligence (AI): The use of generative AI is prohibited for developing answers to PCAs and ICAs, or any part of your Research Proposal. For more information, see https://it.rutgers.edu/ai/guidance-on-the-use-of-ai-at-rutgers/ and review the section on academic integrity and AI.

Presentation

Each student will conduct a presentation (approximately 6 min) summarizing their proposal for the class. The presentation should cover the rubric for the paper noted above, albeit in an abbreviated format. When possible, consider using images or a few bullet points in place of lengthy sentences or lots of text on a slide.

Bonus Assignments

Throughout the semester, there may be new articles or compelling topics that come to light that allow students to apply concepts or skills from class within the scope of bonus assignments. I will keep you posted as new opportunities arise.

Policy on Late Assignments

Work should not be late due to poor planning, competing requirements, or other interests. If you foresee having difficulties, we should discuss this beforehand so we can navigate these challenges together. I highly encourage you to submit your assignments well in advance of 11:59 pm to troubleshoot technical issues. In most cases, any submission attempt after the due date will earn a 0.

Assignments and Evaluation Method

Pre-class assignments	110 points
In-class assignments	120 points
Exam 1 (Weeks 2-6)	100 points
Exam 2 (Weeks 7-12)	100 points
Research proposal	50 points
Presentation	20 points
Total	**500 points**

Grades and Grading Policy

Grade	Description	Numerical Equivalent
A	Outstanding	90-100 (4.0)
B+	Intermediate Grade	87-89 (3.5)
B	Good	80-86 (3.0)
C	Average	70-79 (2.0) Grades of C do not count toward graduation
F	Failure	69 or below (0.0)

INC Incomplete
S Satisfactory
U Unsatisfactory
PA Pass
NC No credit given

Program Requirement
All MAP and Graduate Certificate in ABA students must achieve a grade of B or better and maintain a GPA of 3.0, or academic remediation will be enforced.

Required Text
Kazdin, A. E. (2021). *Single-case research designs: Methods for clinical and applied settings (3rd edition)*. Oxford University Press.

Course Outline
- Each week will contain 3-4 assigned readings. I will likely make changes throughout the semester as I find more recent or relevant readings.
- I will also include specific articles in class to illustrate principles of single-case design and science-based practice. Articles reviewed in this manner will be selected for topicality and will not be require review prior to class.
- Canvas modules for the coming week will be posted on Fridays after we have class for the previous week's module. Modules will have the most up-to-date readings and a sneak peek of assignments for that week.
- I will post PowerPoint slides to the corresponding week's module after class.
- To help guide your note taking and retention, I will post optional guided reading questions and guided lecture notes; these do not have to be completed nor turned in. The guided lecture notes will be available by 4:00 pm on the night of class.

<u>See Canvas modules/assignments for specific dates.</u>

Week 1 (9/4/2025)**:** Course Overview
- Baer et al. (1968)

Week 2 (9/11/2025)**:** Introduction to Single Subject Design and Analysis
- Blampied Ch 8
- Kazdin Chapter 1: Introduction and Historical Perspective
- Kazdin Chapter 2: Underpinnings of Scientific Research

Week 3 (9/18/2025)**:** Data-Collection Basics
- Kazdin Chapter 3: Background and Key Measurement Considerations
- Kazdin Chapter 4: Methods of Assessment
- LeBlanc et al. (2016)

Week 4 (9/25/2025)**:** Integrity of Independent and Dependent Variables
- Kazdin Chapter 5: Ensuring the Quality of Measurement
- Peterson et al. (1982)
- Vollmer et al. (2008)
- Cook et al. (2015)
- <u>*Proposal idea due for instructor review*</u>

Week 5 (10/2/2025)**:** Experimental Design Basics – Internal Validity and ABAB Designs

- Kazdin Chapter 6: Introduction to Single Case Research and ABAB Designs
- Pence et al. (2019)
    - Optional reading: Petursdottir & Carr (2018)

Week 6 (10/9/2025)**:** Multiple-Baseline and Multiple-Probe Designs

- Kazdin Chapter 7: Multiple Baseline Designs
- Christ (2007)
- *Exam 1 due by 11:59 pm the Sunday after class.*
- Optional supplemental readings
    - Carr (2005)
    - Gast et al. (2014)

Week 7 (10/16/2025)**:** Changing-Criterion Designs

- Kazdin Chapter 8: Changing-Criterion Designs
- Hartmann & Hall (1976)
    - Optional reading: Klein et al. (2017)

Week 8 (10/23/2025)**:** Multielement/Alternating-Treatment Designs

- Kazdin Chapter 9: Multiple Treatment Designs
- Iwata et al. (1982/1994)
    - Optional reading: Higgins Hains & Baer (1989)

Week 9 (10/30/2025)**:** Additional Designs (Repeated Acquisition, Combinations)

- Kazdin Chapter 11: Additional Design Options
- Kirby et al. (2021)

Week 10 (11/6/2025)**:** Graphical Displays of Single-Case Design Data

- Kazdin Chapter 13: Graphic Display of Data for Visual Inspection (pp. 353–387)
- *Proposal method and results due for in-class peer review.*

Week 11 (11/13/2025)**:** Visual Inspection

- Hagopian et al. (1997)
- Roane et al. (2013) – just the equations/computations
- Hagopian et al. (2023)

Week 12 (11/20/2025)**:** Generality of Single-Case Designs

- Hoagwood et al. (1995)
- Smith et al. (2007)
- Hagopian et al. (2020)
- *Proposal introduction, method, and results due for in-class peer review.*

Week 13 (12/4/2025)**:** Presentations and Social Validity

- Proposal presentations
- Fawcett (1991)
- Wolf (1978)
- Bannerman et al. (1990)
- Optional supplemental readings
    - Hanley et al. (1999)
    - Ferguson et al. (2019)

Week 14: No face-to-face class. *Final proposal due on Sunday 12/14/2025 by 11:59 pm*

Week 15: No face-to-face class. *Exam 2 due by Sunday 12/21/2025 by 11:59 pm*

Academic Integrity
All Rutgers students should review and adhere to the University principles of academic integrity, available at http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers/

Computer/Cell Phone Use in Class
Communicate with the instructor prior to class, and gain instructor approval for any need to send or receive emails, texts, or calls during class, prior to class. All cell phones should be turned off or in silent mode. All computing devices should be used only for the purpose of class-related activities.

APA Citation Style
All papers MUST be written using the APA style (7 ed.).

Student Resources
For more information visit https://gsapp.rutgers.edu/current-students/important-links.

Accommodations Due to Disability
Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: https://ods.rutgers.edu/students/documentation-guidelines. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form (https://webapps.rutgers.edu/student-ods/forms/registration).

Title IX
http://compliance.rutgers.edu/resources/resources-for-facultystaff/

Counseling services
Students often experience personal problems or difficulties during the term that may interfere with learning and their daily activities. If you or someone you know needs to talk to someone regarding such personal issues, the University provides free counseling services through the Counseling and Psychological Services (CAPS) and their information can be found at http://psychologicalservices.rutgers.edu. They also offer several useful workshops for general stress management and techniques for promoting mental health. If you have any questions about CAPS or other services, I am happy to speak with you privately.