

COURSE SCHEDULE

NOTE: BE SURE TO ALWAYS ACCESS THE LIVE VERSION OF THIS SYLLABUS IN THE FUTURE, AS IT IS SUBJECT TO REVISIONS. SO YOU WANT TO BE SURE YOU ARE SEEING AN UP-TO-DATE VERSION. YOU CAN ENSURE THIS BY ALWAYS ACCESSING THE SYLLABUS AND OTHER COURSE MATERIALS VIA THE COURSE'S ONEDRIVE SHARED FOLDER.

**Master of Applied Psychology (MAP)
Graduate School of Applied and Professional Psychology (GSAPP)
Rutgers University
New Brunswick, New Jersey
Spring 2021**

18:844:506 Statistical Methods and Research Design

Credits: 3

Level: Graduate

Class structure:

- Most weeks there will be online lectures via Zoom Th 3:35-6:05 PM
 - Zoom links will be shared each week prior to the class
 - Lectures will be recorded, but live attendance of lectures is required unless non-attendance is approved by the instructor
- There will be a few weeks without lectures where I will instead share a video for you to watch on your own, primarily for SPSS-tutorial parts of the class

Instructor:

Matthew R. Lee

E-mail: matthew.r.lee@rutgers.edu

“Office” Hours: Wednesday 6:05pm-7:05pm (after class) and Thursday 1:45pm-2:45pm (after the CAS addictions-research seminar) but *via Zoom meetings* rather than in person in my office. Other times will also be available, but I'll be sure to set these hours aside for meetings with students in the class.

“Office” Hour Policy: If you plan to have a remote meeting with me during office hours, please make an appointment via e-mail to avoid scheduling conflicts with other students and to let me know in advance what you would like to discuss.

About the instructor:

<https://alcoholstudies.rutgers.edu/people/faculty/matthew-lee/>

https://alcoholstudies.rutgers.edu/wp-content/uploads/matthew_lee_curriculum_vitae.pdf

<https://alcoholstudies.rutgers.edu/research/the-addiction-and-lifespan-development-lab/>

<https://gsapp.rutgers.edu/faculty/matthew-lee>



Course Assistants: [please add your pictures]

Thomas Britton

E-mail: trb114@scarletmail.rutgers.edu

Office Hours: None (meetings available by request)

Thomas Kwan

E-mail: tdk41@scarletmail.rutgers.edu

Office Hours: None (meetings available by request)

COURSE 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 providing services, solutions, and clinical care that help individuals and the local, national, and global communities where they live.

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/>

APA Citation Style:

All papers MUST be written using the APA style (6 ed.).

Student Resources

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

Accommodations due to Disability

If you seek accommodations due to a documented disability, you may arrange for these through the Office of Disability Services, Kreeger Learning Center, 151 College Avenue; dfoffice@rci.rutgers.edu or you can visit: <https://ods.rutgers.edu/students/documentation-guidelines>.

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 a number of 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.

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 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 prepares 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.

MAP Grading Policy:

<u>Grade</u>	<u>Description</u>	<u>Numerical Equivalent</u>
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	

MAP Program requirement: All MAP students must achieve a grade of B- or better and maintain a GPA of 3.0, or academic remediation will be enforced.

COURSE SCHEDULE

Course Description

Course Objectives:

This course provides a comprehensive introduction to research methods in psychology, from both the perspective of a research “consumer” and the perspective of a research “producer.” The course will also provide exposure to statistical techniques used in psychological research, with emphases on understanding purposes of different statistical techniques, performing such techniques in SPSS, and and interpreting results from such statistical techniques.

You will learn how to critically evaluate research studies (the research “consumer” role), including how to:

1. Understand and evaluate the rationale for a given study
2. Evaluate the extent to which a given study’s rationale is actually well-addressed by the research methods and statistical analyses the researchers chose to employ
3. Judge limitations of a given study’s research design
4. Interpret results of statistical tests used in a given study
5. Draw appropriate conclusions from results of a given study, exercise appropriate caution in drawing conclusion, and consider such conclusions in light of the broader research literature (e.g., other pertinent research findings)

You will also learn various skills needed to design your own research studies (the research “producer” role, including how to:

1. Define a research problem to address in your study
2. Develop and state hypotheses for your study
3. Select an appropriate sample for your study
4. Design either an experimental or non-experimental procedure your study will follow
5. Select and conduct appropriate statistical tests of your hypotheses
6. Interpret statistical results in light of your hypothesis and in context of the broader field of research and theory.

This course will not only help prepare you for more advanced methods courses and for conducting research (e.g., research assistantships, student research projects). It will also enable you to be a more critical consumer of information presented to you in the real world. You will develop skills to critically evaluate the claims of others (e.g., media claims, research report claims) that can assist you in your everyday life and in your educational/professional life. Indeed, beyond conveying skills to perform research, this course can help instill a useful way of viewing and understanding the world around you through evidence-based reasoning.

Course Materials:

Here's a link to a shared OneDrive folder that I will maintain to contain all pertinent class materials throughout the semester (e.g., syllabus, assigned-reading PDFs, assignments):
https://1drv.ms/u/s!AldehaL1wX16n_hsMVfL0lt8W6vjjw?e=FLXNdP

Required readings: There is no assigned textbook. All assigned readings will be provided to you as PDFs via the OneDrive shared folder. Assigned readings will include some chapters from an introductory textbook, as well as other more advanced chapters from other books and advanced peer-reviewed articles.

Required Tech Equipment: Attending remote lectures on a laptop is recommended, but a tablet or smartphone can also be used if necessary, although this may limit your ability to participate in some interactive class components (e.g., class polling via PollEverywhere). A computer will be required for SPSS-tutorial components of the class. Please let the instructor know about any challenges related to accessing such equipment.

Course Structure:

Prior to a class on a given week, it will be critically important for you to complete the assigned reading and for you to ensure your understanding of the reading to the best of your ability. If any difficulties arise with the assigned readings, be sure to reach out to the instructor or the teaching assistant prior to the class for which the reading was assigned.

Rather than covering all of the assigned reading, the lecture portion of a class will more selectively focus on particularly challenging concepts from the reading and presenting additional material that complements content from the assigned reading.

Substantial portions of class will be devoted to in-class activities that students will engage in either individually or in groups. These activities will be aimed at developing students' abilities to apply concepts from the assigned reading, including through writing and group conversation.

Grading:

Attendance/Participation Grade: Some classes will include an opportunity to earn an Attendance/Participation credit if the student attends AND completes all in-class activities during that class (simply participating will earn full credit). Also, both practice exams will be an opportunity to earn an Attendance/Participation credit if the student completes the practice exam prior to the deadline. A student's final Attendance/Participation Grade will equal the total number of Attendance/Participation credits the student earned divided by the total number of Attendance/Participation credits that were available to be earned throughout the course. This Attendance/Participation Grade will be worth 20% of your overall final grade.

Out-of-Class Assignments Grade: The average overall score across all out-of-class assignments. There will likely be three out-of-class assignments in total. Your Out-of-Class Assignments Grade will be worth 40% of your overall final grade.

Exam Grade: There will be two open book non-cumulative exams. They will be primarily multiple-choice, although the instructor may decide to also incorporate a few brief short answer questions. Practice exams will be placed on the course site prior to each real exam, thereby providing students with a practice opportunity to fully prepare themselves for the real exams. Further, in addition to the above policy that completing a Practice Exam will earn a student an Attendance/Participation credit, scoring an 85 or better on the practice exam will earn the student a bonus point that will be added to their score on the corresponding real exam. Your total combined score across the two real exams will make up your Exam Grade, which will be worth 40% of your overall final grade.

Recommended Strategy for the Course:

Review this syllabus in detail in order to fully understand the expectations and policies associated with this course. Take up a time management plan for how you will accomplish the requirements of the course in a timely manner. It can be very helpful to make goals including the grades you

would like to receive and the course materials you would like to master. Reward yourself when you reach these goals.

It is critical to keep up with the course on a weekly basis. Again, it is critically important that you complete and ensure your understanding of required readings prior to class, as class activities will be based on the assumption that this is the case. Be sure to reach out to the instructor or the teaching assistant if anything is unclear in the reading or with any other part of the course.

It is helpful to take notes in class, and to revise them within 24 hours to help you remember the material.

It is a good strategy to review the assigned reading and your notes from the previous lecture just before coming to class. This way, if you discover any parts of your notes or the reading that don't make sense, you can ask for clarification in class.

Begin preparing for exams early. Establish study groups, do the practice exams, attend review sessions, and see me during office hours if you need additional help.

Course/Instructor Evaluations:

Please feel free and welcome to provide feedback about the course at any time by contacting me either in person or via email. After each exam, there will also be informal course evaluations you can complete online, providing an opportunity for you to raise any concerns you may have anonymously. You will also be asked to give an official evaluation at the end of course, but your more informal evaluations throughout the course will allow me to make adjustments to improve the course for you along the way.

COURSE SCHEDULE

Week	<ul style="list-style-type: none"> • Before-class prep: Required reading to prep for lecture (read before class Thursday @3:35) 	Assignment to complete earlier in the week before class on Thursday	During-class activities: Class Lecture (Wed 3:35-6:05)	<ul style="list-style-type: none"> • During-class activities: Class Activities 	Assignment to complete later in the week after class on Thursday
Week 1: 1/20/2021	<ul style="list-style-type: none"> • No assigned reading 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Steps of the scientific method • Basic vs. applied research 	<ul style="list-style-type: none"> • Student polling: Research interests/goals • Student polling: Research versus non-research epistemology 	<ul style="list-style-type: none"> • None
Week 2: 1/27/2021	<ul style="list-style-type: none"> • All of Chapter 3 in Morling's Research Methods in Psychology textbook – Chapter 3 (read with emphasis on how the four validities correspond to four different categories of "threats to validity" that can limit confidence in the interpretation of a research study's findings) • Pages 1-12 of Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Chapter 1: Experiments and generalized causal inference. <i>Experimental and quasi-experimental designs for generalized causal inference</i>, 1-32. (read with the idea in mind that this is a more sophisticated discussion of the same issues discussed in Morling's chapter 3 about causality and threats that can limit the inferences that can be drawn from a research study) 		<ul style="list-style-type: none"> • Lecture and discussion about assigned readings 	<ul style="list-style-type: none"> • Reading-related activity 	<ul style="list-style-type: none"> • None
Week 3: 2/3/2021	(no assigned reading)	<ul style="list-style-type: none"> • Think of a topic of interest for the literature search in Assignment 1 • Get SPSS open and working on your own computer by following instructions in step 1 of SPSS Assignment 1 https://1drv.ms/w/s!AIdehaL1wX16n_wX1QQ7vixskyeyRg?e=3FtUT7 	<ul style="list-style-type: none"> • Poll Everywhere on 4 validities: 3:35-4:15 • Lit review training: 4:15-5:00 (watch SPSS tutorial video instead) • Class dismissed early to watch SPSS tutorial video as part of SPSS assignment 1 (but I'll stick around for anyone who has questions about anything, but especially in case anyone wants to talk about their lit searching process so far) 		<p style="text-align: center;"><u>Watch SPSS tutorial video #1</u> https://1drv.ms/p/s!AIdehaL1wX16n_wbaEIK3UJMKZ-euQ?e=AqjLd8 </p>

Week	<ul style="list-style-type: none"> • Before-class prep: Required reading to prep for lecture (read before class Thursday @3:35) 	Assignment to complete earlier in the week before class on Thursday	<ul style="list-style-type: none"> • During-class activities: Class Lecture (Wed 3:35-6:05) 	<ul style="list-style-type: none"> • During-class activities: Class Activities 	Assignment to complete later in the week after class on Thursday
Week 4: 2/10/2021	<ul style="list-style-type: none"> • Ch. 5 (Research Foundations for Any Claim: <i>Identifying Good Measurement</i>) • Ch. 6 (Tools for Evaluating Frequency Claims: <i>Surveys and Observations: Describing What People</i>) (read with focus on practical strategies for achieving construct validity when designing [1] survey items and [2] behavior observations) • At least one more advanced article on measurement issues 				<ul style="list-style-type: none"> • <u>SPSS Assignment 1 due Sunday 2/14/2021</u> https://1drv.ms/u/s!AIdhaL1wX16oJMUZHHNsaJqzDGoDA?e=4LOe28)
Week 5: 2/17/2021	<ul style="list-style-type: none"> • Review chapters 5 and 6 that were assigned for last week (we'll finish related lectures in class this week), especially "VALIDITY OF MEASUREMENT" at the end of chapter 5 (pg. 132-143) and "CONSTRUCT VALIDITY OF BEHAVIORAL OBSERVATIONS" at the end of Ch. 6 (pg. 165-174). 				<ul style="list-style-type: none"> • <u>Writing Assignment 1 due Sunday 2/21/2021 at midnight</u>
Week 6: 2/24/2021			<ul style="list-style-type: none"> • NO CLASS THIS WEEK (watch SPSS tutorial video instead) 		<ul style="list-style-type: none"> • Watch 'SPSS Tutorial #2: Measurement analyses (see the main course-slides PowerPoint after the Week-5 slides) • <u>The corresponding 'SPSS Assignment 2' is also now available, and to offer more flexibility I'll make it due by the end of Spring Break (midnight Sunday 03/21/2021)</u>
Week 7: 3/3/2021	<ul style="list-style-type: none"> • Ch. 7 (Tools for Evaluating Frequency Claims: <i>Estimating the Frequency of Behaviors and Beliefs</i>) (read with focus on practical strategies for achieving external validity when sampling) See highlights in Lee et al. article 		<ul style="list-style-type: none"> • Capter-6- and Chapter-7-related lecture 		<ul style="list-style-type: none"> • <u>Practice Exam 1:</u> <ul style="list-style-type: none"> • <u>Posted by midnight Thursday 03/04/2021</u> • <u>Due Sunday 03/07/2021 at midnight</u>

Week	• Before-class prep: Required reading to prep for lecture (read before class Thursday @3:35)	Assignment to complete earlier in the week before class on Thursday	During-class activities: Class Lecture (Wed 3:35-6:05)	• During-class activities: Class Activities	Assignment to complete later in the week after class on Thursday
Week 8: 3/10/2021	Review in preparation for exam 1		• <u>Real Exam 1 given online during our regular class period 03/10/2021 from 3:35-5:05.</u>		
3/13/2021-3/21/2021: SPRING BREAK					
Week 9: 3/24/2021	Optional reading: Ch. 4 (Research Foundations for Any Claim: <i>Ethical Guidelines for Psychology Research</i>) (simple enough that you can just rely on my brief coverage in the lecture and expect that to cover anything related to chapter 4 that could show up on the exam):	• None	• Chapter-4-related review/lecture	• Research Ethics JEOPARDY!	• <u>Writing Assignment 2 will be posted</u> Sunday 03/28 along with a tutorial video
Week 10: 3/31/2021	Ch. 8. (Tools for Evaluating Association Claims: <i>Bivariate Correlational Research</i>)	• None	Chapter-8-related lecture		
Week 11: 4/7/2021	Ch. 9 (Tools for Evaluating Association Claims: <i>Multivariate Correlational Research</i>) Extra assigned reading TBD on longitudinal research methods	• None	• Chapters-9-related lecture		• <u>Writing Assignment 2 will be due</u> Sunday 04/11/2021
Week 12: 4/14/2021	<u>Ch. 10: Introduction to Simple Experiments</u> • Why experiments support causal claims (277-284) • Independent-groups design (284-288) • Within-groups design (288-295) <u>Ch. 11 More on Experiments: Confounding and Obscuring Variables</u> • Six potential internal validity threats in One-Group, Pretest/Posttest Designs (310-318) Three Potential Internal Validity Threats in Any Study (318-321)	• None	• Chapter-10-11-related lecture		

Week	• Before-class prep: Required reading to prep for lecture (read before class Thursday @3:35)	Assignment to complete earlier in the week before class on Thursday	During-class activities: Class Lecture (Wed 3:35-6:05)	• During-class activities: Class Activities	Assignment to complete later in the week after class on Thursday
Week 13: 4/21/2021	<p><u>Ch. 12 Experiments with More Than One Independent Variable</u></p> <ul style="list-style-type: none"> • Experiments with Two Independent Variables Can Show Interactions (345-346) • Intuitive Interactions (346-347) • Factorial Designs Study Two Independent Variables (347-348) • Interpreting Factorial Results: Main Effects and Interactions (353-362) • Factorial Variations (362-370) 	• TBD	• Chapter-12-related lecture		• <u>Writing Assignment 3 will be posted</u> Sunday 04/25/2021
Week 14: 4/28/2021 (remote SPSS training session)	<p>No assigned reading for this week</p> <p>Instead of required reading, you are required to watch SPSS Tutorial 2. in advance of class Thursday, you are required to download SPSS (note it's been made free on the Rutgers software portal), install it on your device, and be ready at the start of class to run more SPSS analyses. By "be ready," I mean, before class starts, you should have downloaded the SPSS file from the previous session, successfully ran all of the syntax we created and ran in the previous session, and be ready to create and run more syntax in that same syntax file.</p>	• TBD	• SPSS training: correlation, regression, and ANOVA		<u>SPSS Assignment 3 will be posted</u> Sunday 05/02/2021
<p>REGULAR CLASSES END 5/3/2021 READING DAYS 5/4/2021-5/5/2021</p> <ul style="list-style-type: none"> • Practice Exam 2 due 5/5 (will be posted by midnight 5/2) <p>EXAM WEEK 5/6/2021-5/12/2021</p> <ul style="list-style-type: none"> • Real exam 2 done online 5/12/2021 from 3:35-6:05 (Dr. Lee is open to making this due date the last day when grades can be submitted) • SPSS Assignment 3 due 5/12/2021 at midnight Dr. Lee is open to making this due date the last day when grades can be submitted) 					

Additional non-required resources (e.g., supplemental readings):

Cook, T. D., Campbell, D. T., & Shadish, W. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA: Houghton Mifflin.