

# PSYC200: Research Methods & Statistics

Spring 2024: M/W 10-11:20am; Founders 220 Common Room

**Professor:** Ryan Lei, PhD (he/him/his)  
Please feel free to call me “Ryan,” or “Professor Lei”  
**Contact:** rlei1@haverford.edu

**Office hours:** By Appointment on Wednesdays or email me to schedule  
**Office:** KINSC Sharpless 412 or via Zoom

**When:** **Lecture:** MW 10:00-11:25am, Founders 220 Common Room  
**Lab:** Thursday, 11:30am-12:55pm  
Thursday, 2:30pm-3:55pm

*\*\*Labs are taught by **Mikayla Carson, MS** and there will be a separate lab syllabus that you will receive from her. **Please attend only the lab you registered for.** \*\**

**TA:** Rachael Fitzgerald (HC '25)  
Pronouns: She/her/hers  
Contact: [rmfitzgera@haverford.edu](mailto:rmfitzgera@haverford.edu)  
Drop in hours: Monday 8:50-9:50am or by appointment (email to schedule)  
Office: Psych Lounge (4th floor Sharpless) or by zoom

**Suggested Text:** Pelham, B.W., & Blanton, H. (2019). Conducting research in psychology: measuring the weight of smoke (5<sup>th</sup> edition).  
Rental ~\$18 / eBook ~\$45 / Paperback: ~\$65  
*If you can find older editions for cheaper, that is fine! This text is also available on reserve in the Science Library.*

**Other Readings:** *Please note that many of the course readings come from [“Concepts and Applications of Inferential Statistics”](#), which is a free online stats textbook via VassarStats, or [“Online Statistics Education,”](#) which is a free online stats book via Rice University. Links for these free online statistics resources are provided via Moodle.*

## **COURSE DESCRIPTION AND LEARNING OBJECTIVES**

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This course serves as an introduction to research methods in Psychology coupled with an in-depth treatment of statistics as applied to psychological research. Statistical topics include principles of probability, central tendency, variability, hypothesis testing, and statistical inference. Lab exercises focus on designing studies, collecting data, applying statistical methods (using Jamovi software), and presenting data through various written assignments.

After finishing the course, students should be able to:

- think critically about psychological research methods
- understand statistical tests frequently employed in psychological research and when/how to use them
- use statistical software (Jamovi) to run these tests
- design psychological studies
- communicate research findings using APA style

## **CLASS POLICIES**

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Missed Classes: If you have to miss a class for a planned reason, it is ultimately your responsibility to learn the content covered in the class. Additionally, if there is an activity that we complete in class as part of the participation grade, you will not be able to make it up unless you have notified me a week in advance you plan on missing the class.

Extension Policy: Things come up for everyone, which is understandable. You can have 5 days' worth of extensions, no questions asked. If you need more than that please talk with both your Dean and me to arrive at a practical and workable plan for completing the work.

Other Classroom Policies: Please silence your phones and put them away during class. Students may use laptop computers to take notes, but please refrain from using your devices for non-class-related activities during class. Please do not audio-record any portion of my lectures without explicit permission to do so. Questions and discussions are welcome and encouraged. Please be respectful of your classmates.

Exams: There is one midterm exam one final exam. Exams are (generously) timed and self-proctored. For each exam, you will have access to any necessary statistical tables or handouts, as well as a calculator. You will turn in your note sheet with your exam.

Research Paper: In the lab portion of this course, you will work in groups to design a research study, collect data, and analyze/interpret your data. At the end of the semester, you will write an APA-style research report detailing your findings. You will have an opportunity to get feedback on drafts of your rationale abstract, introduction, and methods, and revise them before the final paper is due. More information about the paper will be given during class.

Homework: Throughout the semester, you will complete Jamovi exercises, in which you use open-source, online software to do statistical calculations. In addition, you will complete other homework assignments including an annotated bibliography, a methods flow chart, a study materials assignment, and online training (CITI) about human subjects research.

Academic Integrity: You are expected to abide by Haverford's Honor Code. Do not use AI (e.g. ChatGPT) to answer exam questions or other written assignments.

Accommodations Statement: I am committed to partnering with you on your academic and intellectual journey and recognize that you bring many strengths, perspectives and

strategies as you navigate this journey. I encourage you to think proactively and strategically about leveraging these strengths, in partnership with the many resources on campus. These resources include CAPS (free and unlimited counseling is available), Office of Academic Resources, Writing Center, Student Diversity Equity and Access Team, Health Services, Professional Health Advocate, Religious and Spiritual Life, the GRASE Center, and the Advising Deans. At times you may experience challenges or stressors that impact your ability to fully engage intellectually. If the stressors are academic, I welcome the opportunity to discuss and address those stressors with you in order to find solutions together. If you are experiencing challenges or questions related to emotional health, finances, physical health, relationships, learning strategies or differences, or other related topics, I hope you will consider reaching out to the many resources here on campus. Additional information can be found at <https://www.haverford.edu/deans-office-student-life/offices-resources>.

Additionally, Haverford College is committed to creating a learning environment that meets the needs of its diverse student body and provides equitable access to students with disabilities. If you have (or think you may have) a disability related to mental health, chronic health, neurological state, and/or physical condition – please contact the Office of Access and Disability Services (ADS) at [hc-ads@haverford.edu](mailto:hc-ads@haverford.edu). It is never too late to request ADA accommodations – our bodies and circumstances are continuously changing. Please know that all inquiries and health-related information is handled in a sensitive and confidential manner.

Students who have already been approved to receive academic ADA accommodations and want to use these in this course should share their accommodation letter and make arrangements to meet with me as soon as possible to discuss how their accommodations will be implemented in this course. Please note that accommodations are not retroactive and require advance notice in order to successfully implement.

If, at any point in the semester, a disability or personal circumstances affect your learning in this course, please do not hesitate to reach out to me. I want to be sure you are aware of the full range of resources and options available to you.

*It is a state law in Pennsylvania that individuals must be given advance notice that they may be recorded. Therefore, any student who has a disability-related need to audio record this class must first be approved for this ADA accommodation by Access and Disability Services and then must communicate approval to me. I will then make a general announcement to the class that audio recording may occur while respecting students' right to privacy by not identifying the individual(s).*

**Title IX Statement:** Haverford College is committed to fostering a safe and inclusive living and learning environment where all can feel secure and free from harassment. All forms of sexual misconduct, including sexual assault, sexual harassment, stalking, domestic violence, and dating violence are violations of Haverford's policies, whether they occur on or off campus. Haverford faculty are committed to helping to create a safe learning environment for all students and for the College community as a whole. If you have experienced any form of gender or sex-based discrimination, harassment, or violence, know that help and support are available. Staff members are

trained to support students in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more.

The College strongly encourages all students to report any incidents of sexual misconduct. Please be aware that all Haverford employees (other than those designated as confidential resources such as counselors, clergy, and healthcare providers) are required to report information about such discrimination and harassment to the Bi-College Title IX Coordinator: <https://www.haverford.edu/users/ktaylor4>

Information about the College's Sexual Misconduct policy, reporting options, and a list of campus and local resources can be found on the College's website: <https://www.haverford.edu/sexual-misconduct>

## GRADING AND ASSIGNMENT INFORMATION

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Exam I	15%
Exam II	15%
Participation in class	5%
Research Paper Drafts <ul style="list-style-type: none"> <li>- Abstract</li> <li>- Intro 1<sup>st</sup> draft (revision allowed)</li> <li>- Methods</li> <li>- Posters</li> </ul>	20%
Homework <ul style="list-style-type: none"> <li>- Jamovi lab exercises</li> <li>- Annotated Bibliography</li> <li>- Method flow chart</li> <li>- Study Materials</li> <li>- CITI Training</li> </ul>	25%
Research Paper - Final	20%
<b>TOTAL</b>	<b>100%</b>

### Grading Scale:

94.00% - 100.00%	=	4.0	73.00% - 76.99%	=	2.0
90.00% - 93.99%	=	3.7	70.00% - 72.99%	=	1.7
87.00% - 89.99%	=	3.3	67.00% - 69.99%	=	1.3
83.00% - 86.99%	=	3.0	60.00% - 66.99%	=	1.0
80.00% - 82.99%	=	2.7	59.99% and below	=	0.0
77.00% - 79.99%	=	2.3			

**Understanding appropriate sources for citations:** For all assignments and exams, the following are considered appropriate and valid sources for citations and references:

- Published journal articles, both in on-line and paper formats.

- Professional handbook chapters and reviews (i.e., edited volumes with chapters written by psychological researchers).
- Academic books (i.e., books written by psychological researchers).

The following are **not to be used** as citations in your work:

- Information found on the internet, unless it is the on-line version of a scientific journal (e.g., accessing an electronic version of a journal on-line is fine). **This includes Wikipedia and/or any other webpages.**
- Any undergraduate-level textbook

*In short, you should always be working with the primary literature written by psychological researchers. If you have questions about a particular source, please ask.*

## TENTATIVE COURSE SCHEDULE

*NOTE: This schedule is subject to change!! Our **moodle site** will function as a “live syllabus” and will be updated as we adjust the schedule to accommodate the pace of this semester.*

P&B refers to the Pelham and Bell Textbook (Measuring the Weight of Smoke).  
Links to the Vassar and Rice chapters are also provided on Moodle.

DATE	TOPIC	READINGS	WEB RESOURCES	ASSIGNMENTS
<b>Week 1</b>				
M 1.22	Course Introduction			<i>Please fill out beginning of semester survey on Moodle</i>
W 1.24	Overview of research methods in psychological science	P&B 1		
<b>Week 2</b>				
M 1.29	Research Methods	P&B 2		
W 1.31	Threats to valid inference making & Measurement	P&B 5		
<b>Week 3</b>				
M 2.5	Research Ethics,	P&B 3,4		
W 2.7	Racism in Psychology			
<b>Week 4</b>				
M 2.12	Basics of Research Design	P&B 6,7		
W 2.14				
<b>Week 5</b>				
M 2.19	Descriptive statistics		<a href="#">Vassar Ch 1 (Parts 1-2)</a>	
W 2.21	Central tendency		<a href="#">Vassar Ch 2 Part 1</a>	
<b>Week 6</b>				
M 2.26	Variability		<a href="#">Vassar Ch 2 Part 2</a>	
W. 2.28	Z-scores		<a href="#">Vassar Ch 2 Part 3</a>	<b>Exam 1 distributed</b>
<b>Week 7</b>				
M. 3.4	Review			
W 3.6	No Instruction – Exam 1 time			<b>Exam 1 due</b>
<b>Week 8</b>				
M 3.11	No Class Spring Break			
W 3.13				
<b>Week 9</b>				
M 3.18	Probability and sampling		<a href="#">Vassar Ch 6</a>	
W 3.20	Hypothesis testing		<a href="#">Rice Section XI, Vassar Ch 9 (Parts 1-3)</a>	
<b>Week 10</b>				
M 3.25	One-sample t-test		<a href="#">Vassar Ch 10</a>	
W 3.27	Comparing two means ( <i>t</i> statistic)		<a href="#">Vassar Ch 11</a>	
<b>Week 11</b>				
M 4.1	Correlation		<a href="#">Vassar Ch 3 (Parts 1-3), Rice Section XIV</a>	
W 4.3	Correlation cont'd and regression			
<b>Week 12</b>				

M 4.8	Similarities between t-test and regression			
W 4.10	Guest Lecture: Carol Howe, Science Librarian, Zotero Citation Management Software		Download Zotero from zotero.org and bring your computer to class	
<b>Week 13</b>				
M 4.15	Analysis of variance (ANOVA) and the <i>F</i> statistic		<a href="#">Vassar Ch 12</a>	
W 4.17			<a href="#">Vassar Ch 13</a> <a href="#">Vassar Ch 14 (Parts 1-2)</a> , <a href="#">Vassar Ch 16 (Parts 1-5)</a>	
<b>Week 14</b>				
M. 4.22	ANOVA con'td		<a href="#">Vassar Ch 15 (Parts 1-3)</a>	
W 4.24	Thinking about research designs and Review Session			<b>Exam 2 distributed</b>
<b>Week 15</b>				
M 4.29	Meta-analysis, Non-parametric tests	P&B 11	<a href="#">Vassar Ch 8 (Parts 1-3)</a> , <a href="#">Rice Section XVII</a>	
W 5.1	No class			<b>Exam 2 due</b>
<b>Week 16</b>	<b>NO CLASS - FINALS WEEK</b> , Final Paper due Friday, <b>5/17</b> by noon ( <b>5/11</b> for seniors)			<i>Please fill out End-of-Semester Survey on Moodle</i>