

1 ask a question

- what do you want to know about the world?
- why do you want to know it?
- how can science help you answer the question?

2 do your research

- see if anyone has asked your question before
- research similar questions
- ask others for advice

3 form a hypothesis

- what do you think is the answer to your question?
- why do you think it's the answer?
- can your prediction be tested?

4 Test your hypothesis

- design an experiment
- perform your experiment carefully
- record your data

5 analyze your data

- make a chart or graph
- compare your data to others'
- see if your data fits your hypothesis

6 draw conclusions

- what did you learn from the experiment?
- was your hypothesis correct?
- what questions do you have now?

scientific method

PSY 490
Advanced Research in Psychology

Tuesday | Thursday
1:00pm - 3:20pm
New Science 323

SPRING 2018

Course Description

In this course, we will experience the research process firsthand and gain an appreciation for how it advances our understanding of behavior.

In Advanced Research, we will take what you learned in Psych Stats, Research Methods, lower-level courses, and upper-level seminars to produce an interesting, original experiment. Be prepared to work hard, collaborate effectively, and write, write, write!

The overarching goals of this section of Advanced Research are twofold:

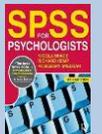
- Learn about a variety of applications from the field of learning and memory, while exploring methodologies used by researchers in this field.
- Work through the entire research process, including a critical reading of the literature, formulation of problems into testable hypotheses, solid experimental design, analyses of data, and finally, interpretation and presentation of results.

RECOMMENDED READING

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, D.C.



Brace, N., Kemp, R. & Snelgar, R. (2009). *SPSS for Psychologists* (4th ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.



Articles: We will read several research articles during the semester. You can find these posted on Canvas.



CONTACT INFORMATION

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[Email is the best way to reach me.]

To schedule a meeting, click [HERE](#)

[Meeting times will be updated weekly.]

Course Goals

Over the course of the semester, students will work to refine their skills in:

- **Critical analysis and synthesis of empirical literature**
- **Leading discussion and presentation**
- **Collaboration with peers**
- **Formal and informal writing**

To accomplish these goals, students will:

- Learn the major terminology used in the field of human learning and memory and be able to use it in conversation and formal writing.
- Become knowledgeable about the various methodologies used to examine learning and memory.
- Conduct an extensive literature review on a topic related to human learning and memory.
- Design a study to examine that topic.
- Gain IRB approval and then run participants.
- Analyze data using appropriate statistical tests in SPSS.
- Write up results using APA style.
- Publicly present their findings at Psychology Day.

Requirements of the Course

RESEARCH GROUPS

Students will work in groups of two or three to conduct an original research project on a topic concerning human learning and memory. After compiling a comprehensive literature base, your research group will then design and run your study, followed by data analyses (using SPSS). Your research group will present the details of your study at Psychology Day. Much of this project will be a collaboration between the members of your group. However, some aspects of this project need to be carried out individually. Brief descriptions of the assignments that will facilitate this process are discussed next.

GROUP ASSIGNMENTS

Article Presentations: Each group will lead discussion on three articles. The primary goals for group article presentations are (1) for groups to provide a thorough description of the study they read for the class, and (2) for the class to “brainstorm” with the discussion leaders regarding potential issues with the paper and directions for future research. These discussions will not be formally graded, but will provide valuable feedback to student groups.

Methodology Presentation: Each group will give a 15 to 20 minute presentation to the class describing their proposed study. This presentation will include (1) basic background literature, (2) clear hypotheses, (3) very detailed Method, (4) proposed statistical analyses, and (5) expected results. The Group Methodology Presentation will be worth 20 points.

Institutional Review Board (IRB): All groups will need approval from the IRB before they can begin collecting any data. This is not a graded assignment, but rather a critical step in the successful completion of your project. The sooner you get this done, the better. More details will be provided in class.

Data Collection and Analyses: All group members will participate to an **equal extent** during data collection and data analysis. **IMPORTANT: If a member of your group is not pulling their weight on this project, please let me know as soon as possible.** You will need to solicit participants for your study from the Psychology Department participant pool and from other approved locations. More details concerning participants will be provided in class. Again, no specific grade for this component will be given, but if you don't have data, then...?

Psych Day "Prep" Presentation: All groups will present their Psych Day presentation to the class prior to giving their talk at Psych Day. These presentations will not be formally graded, but will provide extensive feedback to presenters prior to giving their formal presentation at Psych Day.

Psych Day Presentation: All groups are required to give a formal oral presentation of their research study at Psych Day. Grades will be based on (1) organization, (2) content, (3) oral communication skills, and (4) clarity of PowerPoint slides. More details about the presentation will be discussed in class. The Psych Day Presentation will be worth 50 points.

INDIVIDUAL ASSIGNMENTS

Critical Analysis and Synthesis Papers: In an attempt to spark an interest in a topic for your research project, we will start the semester by reading several empirical articles. In addition to providing the fodder for research ideas, these articles will give us opportunities to work on critical analysis and synthesis skills (a big part of your final paper). All students will be responsible for turning in ten critical analysis/synthesis papers. *These papers will only be accepted in hard copy form during class* (not late submissions). Guidelines and a sample analysis paper are posted on Canvas. These short papers will be worth 50 points total (5 points each).

Introduction Draft: This draft should include a clear literature review with appropriate hypotheses. Rely heavily on the guidelines for this section (to be discussed in class and posted on Canvas). Please spell/grammar check this document before you turn it in.

Method Draft: This draft should consist of a comprehensive description of the methods being employed in your study. Be sure to rely heavily on the guidelines for this section (to be discussed in class and posted on Canvas). Also, be sure to include copies of any items/instruments being used in the study (in an Appendix), if possible. And as always, check for spelling and grammar issues before submitting your draft.

Results & Discussion Draft: The Results section of this draft should carefully walk the reader through your findings, including appropriate statistical analyses and figures/tables. The Discussion section should explain how your results are consistent (or not) with the literature discussed in your Introduction section, confounds present in your study, and future directions for this research. Rely heavily on the guidelines for this section (to be discussed in class and posted on Canvas). Again, please carefully spell and grammar check your draft before submitting it.

Final Draft: All students will submit a complete draft of their paper that includes all components agreed upon in the guidelines for the APA-Style paper. It is VERY important that feedback from your reviewers be incorporated into the final submission. Please also submit your initial draft (along with the feedback you received) when submitting your final draft. The Final Paper will be worth 100 points.

Statistics Oral Exam: Upon completion of group data collection and data analyses, all students will complete a one-on-one oral exam with Dr. Gotthard. The exam will be approximately 15-20 minutes in length and will cover the data analyses you completed and interpretation of your final data. More details regarding the exam will be provided in class. The exam will be worth 40 points.

EDITORIAL TEAMS

Separate from your Research Group, all students will be assigned to an Editorial Team consisting of two or three members. Peer Reviewers will provide feedback for key components of the final paper. All reviews will be carried out according to a formal “journal review” format that includes:

- **Executive Summary:** An overview of the main points of the document.
- **Major Concerns:** Careful discussion of two or three of the main problems you see with the document, and suggestions for improvement.
- **Minors Concerns:** A point-by-point listing of the minor problems with the paper. This is often accomplished via ‘comments’ inserted directly into the document.

A handout further describing peer reviews is posted on Canvas and will be discussed in class. Several editorial assignments will be carried out during the semester, and will include:

- **Introduction Review** (15 points)
- **Method Review** (15 points)
- **Results & Discussion Review** (30 points)

LEARNING OUTSIDE THE CLASSROOM (LOC)

All students enrolling in Advanced Research are required to participate in at least **two research studies** (LOC-R) being conducted by students in the **Research Methods** course, or to complete an alternate assignment, if they do not want to participate in research (see Dr. Gotthard for details about the alternate assignment). I will keep you posted about participation opportunities as they become available. You are not required to complete LOC forms for this assignment. Click [here](#) for more information about LOC-R requirements.

Accommodations

If you have a documented disability, please let me know what I can do to facilitate your learning in this class.

Students requiring special accommodations for this course must first contact the Office for Disability Services (Director: **Pamela Moschini, Ext. 3825**).

Provide me with the appropriate documentation and I will make every effort to meet your needs.

Graded and Non-Graded Assignments

Group Assignments	Points	Individual Assignments	Points
<input type="checkbox"/> Article Presentations	0	<input type="checkbox"/> Critical Analysis and Synthesis Papers	50
<input type="checkbox"/> Methodology Presentation	20	<input type="checkbox"/> Outline: Introduction	10
<input type="checkbox"/> IRB	0	<input type="checkbox"/> Draft: Introduction	0
<input type="checkbox"/> Data Collection	0	<input type="checkbox"/> Draft: Method	0
<input type="checkbox"/> Data Analyses	0	<input type="checkbox"/> Draft: Results & Discussion	0
<input type="checkbox"/> Psych Day "Prep" Presentation	0	<input type="checkbox"/> Final Paper	100
<input type="checkbox"/> Psych Day Presentation	50	<input type="checkbox"/> Statistics Oral Exam	40
		<input type="checkbox"/> Peer Review: Introduction	15
		<input type="checkbox"/> Peer Review: Method	15
		<input type="checkbox"/> Peer Review: Results & Discussion	30
		<input type="checkbox"/> LOC	10
Total Group Points	80	Total Individual Points	260

IMPORTANT: Each assignment listed above is an important component of this course, whether it is formally graded or not. Please make sure you check off each assignment on this sheet by its allotted due date. Failing to complete any of the above tasks will lower your final grade in this class.

Grade	%	Grade	%	Grade	%	Grade	%
A	94-100	B+	87-89	C+	77-79	D+	67-69
A-	90-93	B	84-86	C	74-76	D	63-66
		B-	80-83	C-	70-73	F	0-62

The Fine Print

Be an active participant

Being an active participant in this seminar means that you will:

- **Come to every scheduled class and group meeting.**
- **Consistently contribute to class activities and discussions.**
- **Turn in graded and non-graded work on time.**

Active engagement in class is a key factor in learning, and therefore, your participation in this course will play an important role in grades. *Failure to participate (as defined above) will result in a lower grade in this class (by as much as one letter grade).*

Bottom line: Come to class prepared and be an active participant!

Turn in assignments and take exams on time

Be sure to plan accordingly so that you turn in all assignments on time. Critical Analysis papers are due in hard copy form by class time and will not be accepted late. Plan ahead for any printing issues. Most other assignments will be submitted electronically (see Schedule for assignments and due dates). Any of these electronically-submitted assignments that are late will lose one letter grade per day.

If you know that you will need to miss class for a legitimate reason (leaving early for break or for a vacation is NOT a legitimate excuse), please let me know early, so that we can arrange for you to turn things in before you leave.

Leave your cell phone and laptop at home

The use of electronic devices *during our discussions* is NOT permitted (including cell phones, laptops, and tablets). It is incredibly disruptive when students interact with a cell phone or laptop during class discussions.

Furthermore, it is clear from research that:

- **Performance drops significantly when students attempt to multitask with electronic devices during class** [click [HERE](#) for more info].
- **Taking notes by hand produces better understanding and retention than typing notes verbatim on a laptop** [click [HERE](#) for more info].

Therefore, to enhance learning for all students in this class, electronic devices should be shut off. *Once our discussions are done and we're working in groups, you're more than welcome to pull out your laptop or tablet.* If you have a documented disability that requires use of a laptop, please let me know, and I will be happy to make accommodations.

Show academic integrity in your work

All assignments in this class are pledged work under the Academic Integrity Code ([click here for AIC description](#)). I have tried to be clear in this syllabus about the work that needs to be done independently or with your Research Group. Bottom line:

"Individual" assignments need to be done on your own. Furthermore, proper citation is critical in this course. If you are using someone else's work, then paraphrase and cite it (no quoting will be necessary). Students found to be breaking the AIC will receive a zero on the assignment, and depending on the circumstances, will receive a failing grade for the class. If you have any questions or concerns about how the AIC applies to work in this class, I am happy to discuss this with you.

Schedule

Please be prepared to be *flexible* this semester – this is an approximate guide. Material may be added or deleted throughout the semester, as time permits. If changes are made, they will be announced in class and/or via email as soon as possible. ****All assignments due by midnight, unless otherwise noted****

DATE	DAY	TOPICS/READINGS	ASSIGNMENTS DUE
Jan 16	Tues	Course Overview Activity: Critical Analysis and Peer Review Practice	
Jan 18	Thurs	ARTICLE #1: Eichenbaum (2000). A cortical-hippocampal system for declarative memory. [GHG] ARTICLE #2: Holmes, et al. (2009). Can playing the computer game “Tetris” reduce the build-up of flashbacks for trauma? A proposal from cognitive science. [GROUP 1]	<ul style="list-style-type: none"> Groups lead discussion of one article Critical Analyses Due [in class]
Jan 23	Tues	ARTICLE #3: Soeter & Kindt (2015). An abrupt transformation of phobic behavior after a post-retrieval amnesic agent. [GROUP 2] ARTICLE #4: Steinfurth et al. (2014). Young and old Pavlovian fear memories can be modified with extinction training during reconsolidation in humans. [GROUP 3]	<ul style="list-style-type: none"> Groups lead discussion of one article Critical Analyses Due [in class]
Jan 25	Thurs	ARTICLE #5: Bos, et al. (2014). Stress enhances reconsolidation of declarative memory. [GROUP 1] Activity: Library Session w/Jess Denke [Advanced Search Strategies (2:00-3:20)]	<ul style="list-style-type: none"> Group leads discussion of one article Critical Analysis Due [in class]
Jan 30	Tues	ARTICLE #6: Streeter et al. (2010). Effects of yoga versus walking on mood, anxiety, and brain GABA levels: A randomized controlled MRS study. [GROUP 2] ARTICLE #7: Boettcher et al. (2014). Internet-based mindfulness treatment for anxiety disorders: A randomized controlled trial. [GROUP 3]	<ul style="list-style-type: none"> Groups lead discussion of one article Critical Analyses Due [in class]
Feb 1	Thurs	ARTICLE #8: Sherman et al. (2015). Television advertisements create false memories for competitor brands. [GROUP 1] ARTICLE #9: Frenda et al. (2013). False memories of fabricated political events. [GROUP 2]	<ul style="list-style-type: none"> Groups lead discussion of one article Critical Analyses Due [in class]
Feb 6	Tues	ARTICLE #10: Sevenster et al. (2013). Prediction error governs pharmacologically induced amnesia for learned fear. [GROUP 3] Activity: Synthesis of Literature	<ul style="list-style-type: none"> Groups lead discussion of one article Critical Analysis Due [in class]

Feb 8	Thurs	Activity: Group work on Methodology Presentations	
Feb 13	Tues	Activity: Group work on Methodology Presentations	Introduction Outline [to Dr. Gotthard]
Feb 15	Thurs	Methodology Presentations	Methodology Presentation PowerPoint [to Dr. Gotthard by class time]
Feb 20	Tues	Activity: Group Work on IRB Proposal	
Feb 22	Thurs	Activity: Group Work on IRB Proposal	IRB Proposal Draft [to Dr. Gotthard]
Feb 27	Tues	Finishing touches on IRB Proposal [meet with Dr. Gotthard, as needed]	
Mar 1	Thurs	Finishing touches on Introduction Draft [meet with Dr. Gotthard, as needed]	Draft of Introduction [to Peer Reviewer & Dr. Gotthard]
Mar 6	Tues	Spring Break: No Class	
Mar 8	Thurs	Spring Break: No Class	
Mar 13	Tues	Activity: Statistics Practice	
Mar 15	Thurs	Activity: Statistics Practice	Peer Review of Intro Draft [to Author & Dr. Gotthard]
Mar 20	Tues	Activity: Statistics Practice	
Mar 22	Thurs	Finishing touches on Method Draft [meet with Dr. Gotthard, as needed]	Draft of Method [to Peer Reviewer & Dr. Gotthard]
Mar 27	Tues	Data Collection and Analysis [meet with Dr. Gotthard, as needed]	
Mar 29	Thurs	Data Collection and Analysis [meet with Dr. Gotthard, as needed]	Peer Review of Method Draft [to Author & Dr. Gotthard]
Apr 3	Tues	Data Collection and Analysis [meet with Dr. Gotthard, as needed]	

Apr 5	Thurs	Data Collection and Analysis [meet with Dr. Gotthard, as needed]	
Apr 10	Tues	Finishing touches on Data Collection and Data Analysis [meet with Dr. Gotthard, as needed]	
Apr 12	Thurs	Finishing touches on Results & Discussion Draft [meet with Dr. Gotthard, as needed]	Results & Discussion Draft [to Peer Reviewer & Dr. Gotthard]
Apr 17	Tues	ORAL EXAM: Statistics	
Apr 19	Thurs	ORAL EXAM: Statistics	Peer Review of Results & Discussion Draft [to Author & Dr. Gotthard]
Apr 24	Tues	Finishing touches on Psych Day Presentations [meet with Dr. Gotthard, as needed]	
Apr 26	Thurs	Psych Day “Prep” Presentations	Psych Day PowerPoint Presentation [to Dr. Gotthard by class time]
May 1	Tues	Psych Day “Prep” Presentations [if needed]	
May 3	Thurs	Course Wrap-Up	Final Paper [to Dr. Gotthard]
Finals Week		Celebrate!	

ARTICLE DISCUSSION GROUPS

GROUP 1: Isabella Cattori, Melissa Miller, Benjamin Starr

GROUP 2: Caroline Rafizadeh and Mickey Schindler

GROUP 3: Annese Silva and Charles Skoler