

CONDITIONING AND LEARNING - LAB

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Instructor

Bruno Sauce

Email

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Office

Busch Psych, room 315

When and Where: Tuesday, 3:20-6:20 PM, at PSY-361A (Busch Psychology Building)

Office hours: By appointment or if you can catch me inside the Psych Building
(For simpler questions, send me an email or ask during class)

Textbook: None. Required readings are on Sakai

Course Description

With this course, my aim is to give you a hands-on understanding of the scientific method, as well as familiarity with behavioral analyses in the field of learning. These two main themes of the course are, as I argue below, extremely important, and have the extra advantage (and it is not a trivial one) of being awesome.

On the Scientific Method: science is not just a collection of facts. Instead, science is an ongoing process with methods that allow us to understand and manipulate reality. From understanding why things have mass (through the discovery of the Higgs boson) to saving millions of lives from diseases (through antibiotics and vaccines)! And contrary to the stereotype shoved down by popular media, science is not a mechanical and dry process performed by robot-like humans. Most of the time, science is an organic and creative process performed by passionate people. Sadly, however, almost no one understands how science works. In a democratic society absolutely dependent on science and technology, I believe that a basic understanding of the scientific method is critical in shaping competent professionals and conscientious citizens.

On Learning: from an academic/poetic angle, learning is what allows life to represent the universe, and to adapt to local regularities on the small scale of a lifetime. From a practical angle, learning is what makes you able to listen to music while driving, able to avoid sunburns during noon, and able to be (shamefully) afraid of bunnies. Whichever angle you might prefer to see it from, learning does influence every aspect of what we think and do; sometimes in perplexing ways. In addition, since many of these learning processes are fairly general, a lot can be induced from one species to other animals. And when I say “animals”, I do not mean only rodents, birds, and dogs, but also naked apes known as humans.

Specifically, when this course is over, you should (hopefully!) be able to:

- have a basic understanding of the methods and techniques used in animal learning research
- understand the procedures for collecting data in animal learning research
- interpret the results of statistical analyses
- produce an APA-style empirical paper



Moreover, this course has been certified as satisfying four of the Writing and Communication Learning Outcome Goals (including WCR and WCD) of the SAS Core Curriculum. Among other things, you will learn how to: 1) Analyze and synthesize information and ideas from multiple sources to generate new insights; 2) Respond effectively to editorial feedback from peers, instructors, and/or supervisors through successive drafts and revision (WCR); 3) Communicate effectively in modes appropriate to a discipline or area of inquiry (WCD); 4) Evaluate and critically assess sources and use the conventions of attribution and citation correctly.

Welcome and I hope you enjoy the ride.

Grading

I want engagement from all of you, and the grading system for this course is based on that desire. The course has three scientific reports (based on the experiments in class), presentations, and assignments that I call “constructive feedback” and “creative extensions”.

Scientific Reports: Two reports (one for experiment “Renewal”, and another for experiment “Social Transmission”) to be done individually. You have to write it following the APA format, and submit a digital version on Sakai (under “Assignments”). And remember: although the experiments are a group activity, these reports are not! Late submissions lose 10% of the points for that report for each day it is late.

Constructive Feedback: You have to revise a scientific report from one of your colleagues (chosen randomly) following the guidelines given in class. I, then, grade the quality of the feedback, and the author receives the revision back (this does not change the original grade for the report itself, so no need for you to be nice). Like the Scientific Reports, this assignment is individual. There are two in total; one for each Scientific Report.

Creative Extensions: Each group has to write a page proposing a fictional extension to the experiments from the course. Imagine that you are all scientists (with limitless resources like Tony Stark – the Iron Man), and design an experiment that you would like to perform in order to solve an interesting question. While writing it, you should discuss the question to be solved, the methods to be employed, and the potential results. This is a group assignment in class, and there are three in total. The only limitation is that the proposal needs to be relevant to its topic. Besides this, no other strings attached. Be creative!

Grade calculation

The maximum total is 100.

Assignment	Maximum Points
Scientific Report #1	20
Scientific Report #2	30
Constructive Feedback	20 (10 each)
Creative Extensions	30 (10 each)

Course Schedule

Like any other complex phenomenon, the development of this course has a considerable degree of uncertainty. Therefore, the course schedule might change. Keep up!

Date	Content	Stuff due
January 28th	Course introduction. OSHA surveys. Plagiarism Overview of the scientific method Experimental design. Care and handling of lab animals	Nothing
February 4th	Scientific writing: Introduction Introduction to experiment "Habituation" Data collection for experiment "Habituation": Week 1	Nothing
February 11th	Scientific writing: Method Section, Title page, References Data collection for experiment "Habituation": Week 2 Creative extensions for experiment "Habituation"	Read experiment "Habituation" articles
February 18th	Review of statistics Discussion of results for experiment "Habituation"	Nothing
February 25th	Scientific writing: Results, Figures, Discussion Introduction to experiment "Renewal" Data collection for experiment "Renewal": Week 1	Nothing
March 4th	Data collection for experiment "Renewal": Week 2	Read experiment "Renewal" articles
March 11th	Review of the data for experiment "Renewal" Creative extensions for experiment "Renewal"	Nothing
March 18th	Spring Break No class!	Enjoy the week
March 25th	Introduction to experiment "Social Transmission" Data collection for experiment "Social Transmission": Week 1	Scientific Report #1
April 1st	Constructive Feedback #1 Data collection for experiment "Social Transmission": Week 2	Read experiment "Social Transmission" articles
April 8th	Data collection for experiment "Social Transmission": Week 3	Nothing
April 15th	Review of the data for experiment "Social Transmission" Creative extensions for experiment "Social Transmission"	Nothing
April 22nd	Optional class to consult me	Scientific Report #2
April 29th	Constructive Feedback #2	Nothing

Academic Integrity

You are required to abide by the Rutgers policy on academic integrity; please familiarize yourself with this policy, you can view it at <http://academicintegrity.rutgers.edu/integrity.shtml>

Plagiarism is a violation of academic integrity. I will use “Turnitin” to check for plagiarism in the Scientific Reports.

Additional Stuff

If you want to do extra work in order to get a better grade, do it during the course, not after it is over. Study, ask questions, prepare for the assignments, and get engaged!

If you miss any assignment, you need to provide me with a reasonable explanation in order to replace it. Depending on the circumstances, I might ask for a note from the Dean’s office.

Mistreating or mishandling of the rats will result in a dismissal from the class and an ‘F’.

At last, since you had the patience to read this syllabus, here is a quote for your delight:

“The truth may be puzzling. It may take some work to grapple with. It may be counterintuitive. It may contradict deeply held prejudices. It may not be consonant with what we desperately want to be true. But our preferences do not determine what's true. We have a method, and that method helps us to reach not absolute truth, only asymptotic approaches to the truth — never there, just closer and closer, always finding vast new oceans of undiscovered possibilities. Cleverly designed experiments are the key.”

– Carl Sagan, in "Wonder and Skepticism". Skeptical Inquirer 19 (1), 1995.