



**OTRP** online

Office of Teaching Resources in Psychology

## **LEARNING AND MEMORY**

### **PSYCHOLOGY 215**

**Fall 2005**

**4 credits**

215:SylFall05

**Instructor:** Dr. Larry Sensenig

**Office:** SC 158

**Phone:** 5152

**E-mail:** [sensenig@morningside.edu](mailto:sensenig@morningside.edu)

**Office hours:** MWF 9:00-10:00 a.m., TTh 10:00-11:00 a.m.

**Class time:** (includes lab) MWF 1:45-3:15 p.m.

**Classroom:** SC 107      **Lab:** SC 107

**Pre-Req:** Psych 101

### **COURSE DESCRIPTION:**

The aim of this course is to provide a rigorous data oriented introduction to behavioral psychology. It is therefore primarily concerned with investigating the principles of classical and operant conditioning and how these principles are applied in explaining such varied phenomena as drug addiction, formation and treatment of phobias, depression and memory processes.

### **COURSE OBJECTIVES:**

Upon the completion of this course, students will:

- a. increase their knowledge base of psychology. Students will understand more completely the concepts of classical conditioning, operant conditioning and memory issues, and will be able to use these concepts to account for psychological phenomena.
- b. be able to explain classical and operant research methods including design, data analysis, and interpretation. Additionally, students will follow the APA Ethics Code for the treatment of animal subjects.
- c. be able to critically think about how the theories and concepts of this course apply to issues of everyday life.

- d. demonstrate their computer skills in running laboratory research and in word processing.
- e. demonstrate their effective writing skills in the context of APA style.

**TEXTS:**

The following texts are available at the Morningside College Bookstore:

- a. Chance, P. (2006). *Learning and behavior (active learning edition)*. (5th ed.). Belmont, CA: Thomson/Wadsworth.

**Note:** This text has a companion website at [www.wadsworth.com](http://www.wadsworth.com). Then click *discipline (psychology)*, click *student book companion sites (on left)*, click *Learning & Memory*, Click *Chance*.

- b. Pryor, K. (1999). *Don't shoot the dog*. (Rev. ed.). New York: Bantam.
- c. Sensenig, L. (2004). *Operant psychology: A manual of laboratory exercises*. (Rev. ed.). Sioux City, IA: Morningside College Press.
- d. Additional outside readings will be assigned to the class in conjunction with the topics covered in class.

**EXAMS:**

Five exams will be given throughout the semester. The form of these exams will be multiple choice, true-false, and short answer. Final grades will be determined by your performance on the five major exams, announced quizzes, laboratory work, laboratory notebook, and occasional homework assignments. Final grades are determined by the total number of points accumulated throughout the semester.

A = 100 - 92%	A- = 91 - 90%	B+ = 89 - 88%
B = 87 - 82%	B- = 81 - 80%	C+ = 79 - 78%
C = 77 - 72%	C- = 71 - 70%	D+ = 69 - 68%
D = 67 - 62%	D- = 61 - 60%	F = Below 60%

**Tentative test arrangements:**

Test 1:	Ch. 1, 2
Test 2:	Ch. 3, 4
Test 3:	Ch. 5, 10, 7
Test 4:	Ch. 6, 9
Test 5 (final)	Ch. 8, 11.12

**Make-up Exams:** Your eligibility to take a make-up exam will be determined on a case-by-case basis. You should contact me in advance if you know that you will be absent on an exam date. If, for some unforeseen circumstance (i.e., illness, family emergency, etc.), you miss an exam, you must contact me ***within 48 hours*** after the exam was given in order to schedule a make-up exam. I reserve the right to request documentation verifying your excused absence (i.e., doctor's note, etc.).

**Final exam:** TBD. Keep in mind that the emphasis of the final exam is a "unit exam" and not a "comprehensive exam". However, I do reserve the right to ask some questions of a comprehensive nature on the last exam.

### **QUIZZES:**

Announced quizzes may be given periodically throughout the semester. Missed quizzes cannot be made up except for absences due to illness. Documentation of the illness must be presented to the instructor before the make-up quiz.

### **STUDY OBJECTIVES:**

To assist you with the text material, you will be given study objective questions for each chapter. The answers to these questions will not be submitted formally to the instructor, but the instructor reserves the right to use these questions on the exams.

### **REQUIREMENTS FULFILLED:**

Learning & Memory can be used as a "laboratory-based course" elective for the General, Counseling, and Industrial/Organizational Psychology majors. It is a required course for Biopsychology majors. Psychology minors may use the course as an elective to fulfill the "laboratory-based" research requirement.

### **EXPECTATIONS:**

The instructor has the following expectations of his students:

- a. To be present, punctual, prepared, and attentive during each class.
- b. To be willing to participate positively and constructively in class.
- c. To understand and abide by the procedures, regulations, and schedules described in this syllabus.
- d. To assume ownership of one's ideas, opinions, values, etc.

The students can have the following expectations of their instructor:

- a. To be present, punctual, prepared, and enthusiastic during each class.
- b. To be genuinely concerned about his students' ability to perform well.
- c. To remain faithful to the procedures, regulations, and schedules described in this syllabus.
- d. To provide a class structure to encourage student learning.

- e. Be a co-learner in the education process.
- f. To be sensitive to student and group needs.

### **RESPONSIBILITY:**

Students are responsible for all information that is presented in class, regardless of their attendance.

### **ATTENDANCE:**

Regular attendance is expected in this class. Students are expected to attend class and to be there on time. I make no distinction between “excused” and “unexcused” absences. If you cannot be in attendance, please notify me prior to the start of the class (I have voice messaging). Valid reasons for absence include:

- Illness
- Bereavement
- Official school-assigned functions
- Severe road conditions (if travel is required)

Jobs, going home early and appointments are usually invalid. Students are responsible for making up any work missed by the absence, so be sure to check with me or your classmates to see if you missed any assignments.

### **ASSIGNMENTS:**

All assignments are expected to be returned on the due date. Assignments returned after the due date will not receive full credit. Students have one week to make up late work. Beyond one week, no credit will be given.

### **WRITTEN ASSIGNMENTS:**

#### Laboratory Notebooks:

At the end of the semester, all of the lab data collected (graphs etc.) will be turned in in the form of a notebook, such that there will be a comprehensive overview of the student's work throughout the semester. A written narrative will accompany the data in the notebook.

#### APA Paper:

Students will be expected to write a research paper in APA format. The content of this paper is based on the laboratory results (data) collected throughout the semester. More specific information on this paper will be given during the last half of this course.

## **CODE OF ACADEMIC INTEGRITY:**

Morningside College, as an academic institution, is based on assumptions of academic integrity shared not only by faculty and staff, but also students. Violating these assumptions not only produce individuals with weakened knowledge and ethics, but also tarnish the image of the institution and defraud those who rely on their abilities and honesty.

The following are examples and explanations of academic dishonesty.

1. Cheating: Using or attempting to use unauthorized materials, information, or study aids to gain an unfair advantage over other students in any academic exercise.
2. Plagiarism: Representing the words or ideas of another as one's own in any academic exercise.
3. Multiple Submission: Submitting the same assignment in two or more courses without receiving instructor's permission.
4. Fabrication: Falsifying or inventing information or citations in an academic exercise.
5. Misuse of Materials: Abusing or unauthorized possessing of academic materials from the library or any other campus location.
6. Misrepresentation: Presenting false excuses or using deception to receive a higher grade or to avoid fulfilling the requirements of an assignment or course.
7. Facilitation of Academic Dishonesty: Helping another student violate any provision of this code.

Students are encouraged to support this code and the atmosphere of integrity by avoiding any of the above acts and discouraging others by informing the instructor when they occur.

## **STUDENTS WITH SPECIAL NEEDS:**

If you are a student with a special need (e.g. dyslexia) or have a physical or medical disability (e.g. epilepsy) please inform your instructor of this fact privately outside of class. Special accommodations may be available.

## **FINAL NOTE:**

The above schedule and procedures are subject to change in the event of extenuating circumstances. The class will be informed of any changes as early as possible.

## GENERAL LABORATORY INFORMATION AND PROCEDURES

All students are expected to participate in the laboratory experience. Each lab project is designed to give the student hands-on experience with procedures and concepts discussed in class. For the best lab results, short multiple lab sessions are preferred to one or two longer hourly or weekly sessions. Therefore, a minimum of three ½-hour sessions are required per week. Your lab schedule planning should be made as early in the semester as possible.

### Assigned Labs:

These labs are class projects assigned by your instructor. Each student will work on their projects independently and when completed will move on to a new project. The more assigned labs you complete the better your grade will be.

### Be Familiar With Procedures:

It is extremely important that you familiarize yourself with all the material available and know precisely what you will be doing during a particular lab session. This means do your homework. Before starting any laboratory session read the entire chapter that applies to that lab session.

Errors due to poor, sloppy preparation will be recorded in your animal's behavior. Each laboratory session requires that records be kept, noting any deviations from the standard feeding and training schedules, and that all performance data be plotted before proceeding to the next step.

Each student bears sole responsibility for his/her animal. Please familiarize yourself with "Guiding Principles for the Humane Care and Use of Animals" which appears in the laboratory.

### When Absent From Class:

Students shall inform the instructor if dropping the course or missing a class which would result in the neglect of the animal. Such behavior is criminal and is punishable under law. If conditions make your absence necessary, call the instructor (5152) or the psychology department secretary (5275) and leave a message for the instructor.

### Maintaining Cleanliness:

It is also the responsibility of the student to maintain the home cage and the experimental chamber in sanitary condition. Bedding material in the home cages should be changed once a week. Following each experimental session, the operant chamber should be sprayed with disinfectant and wiped dry with a paper towel. Disease in the rat colony can destroy months of your work and healthy animals learn faster and perform better. CLEAN UP! THIS MEANS YOU.

### Illness in the experimental animal:

Notify the instructor at the first sign of disease or disability in your animals.

## LABORATORY PROCEDURES

The general laboratory routine is approximately the same for each session. It is presented below in outline form so that it can be used as a checklist.

1. **Preliminary Study of the Exercise**  
Each exercise should be thoroughly studied before placing the rat in the experimental chamber. If, after study, there is any doubt about the procedures, ask the instructor.
2. **Apparatus Check**  
It will be to your advantage to test each component of the apparatus before putting the rat inside of the chamber. For instance, make sure that the food delivery mechanism is working properly by pressing the lever manually.
3. **Inspection of Home Cage**  
Before removing the animal from her home cage make a visual inspection of the cage condition. If there is anything unusual, this should be noted in your laboratory record. The water bottle should not be empty. If it is, fill it and allow the animal to drink before beginning the exercise. There should be no food in the cage. The presence of food implies either that she was given too much on the preceding day, or if given the correct amount, that she did not eat it all, in which case the animal may be sick. The lab instructor or assistant should be informed of either of the above conditions, or if the animal's behavior or physical appearance is unusual in any way.
4. **Weight Determination**  
Remove the animal from the home cage and weigh her before beginning the exercise. Record the weight in your notebook. If the animal's weight shows a drastic change, it may be necessary for you to change your feeding practices. This should be discussed with the laboratory instructor.
5. **Performing the Exercise**  
Once the animal is in the chamber, external noise and light changes should be kept to a minimum. A criterion performance is described for each exercise. When the animal's behavior conforms to this criterion, the lab instructor or assistant should be summoned to observe.
6. **Maintenance Feeding**  
As soon as the work with the animal is finished, and before the lab record is completed, the animal should be returned to her home cage. In general, it is highly undesirable for the animal to be in the experimental chamber at any time other than the actual performance of the exercise. Unprogrammed contingencies involving either reinforcement or extinction are likely to be detrimental to further work with the animal.

Place the appropriate amount of food in the home cage and make sure that the proper feeding instruction card (Free Feed or Food Deprive) is showing. Check the water bottle.

7. **Preparation of the Laboratory Record**

A laboratory record form is provided for each exercise. By the time the animal has been returned to the home cage, you will have already filled in portions of this form. Complete it at this time.

8. **Clean Up**

Before leaving the laboratory, you are expected to clean the experimental station for the next student.

***“The tendencies to respond eventually correspond to the probabilities of reinforcement.”***

**~ B. F. Skinner**

## REFERENCES

- Baldwin, J., & Baldwin, J. (2001). *Behavior principles in everyday life*, (4th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Barker, L. (2001). *Learning and behavior* (3rd ed.). Upper Saddle River, NJ: Prentice-Hall.
- Catania, A. (1998). *Learning*. (4th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Catania, A. (1968). *Contemporary research in operant behavior*, Scott Foresman.
- Chance, P. (2003). *Learning and behavior* (5th ed.). Belmont, CA: Wadsworth.
- Domjan, M. (2003). *The principles of learning & behavior* (5<sup>th</sup> ed.). Belmont, CA: Wadsworth.
- Epstein, R. (Ed.). (1982). *Skinner for the classroom: Selected papers*. Champaign, IL: Research Press.
- Fantino, E., & Logan, C. (1979). *The experimental analysis of behavior*, San Francisco, CA: Freeman.
- Ferster, C., & Culbertson, S. (1982). *Behavioral principles* (3rd ed.) Englewood Cliffs, NJ: Prentice-Hall.
- Flora, S. R. (2004). *The power of reinforcement*. Albany NY: SUNY Press.
- Holland, J., & Skinner, B. (1961). *The analysis of behavior*. New York: McGraw-Hill.
- Honig, W. (Ed.). (1966). *Operant behavior: Areas of research & application*. New York: Appleton-Century.
- Honig, W., & Staddon, J. (Eds.). (1977). *Handbook of operant behavior*. Englewood Cliffs: Prentice-Hall.
- Klein, S. B. (1991). *Learning: Principles and applications*. (3<sup>rd</sup> ed.). New York: McGraw-Hill.
- Lieberman, D.A. (2000). *Learning behavior and cognition* (3rd ed.). Belmont, CA: Wadsworth.
- Lutz, J. (2005). *Learning & memory*. Long Grove, IL: Waveland Press.
- Malott, R., Malott, M., & Trojan, E. (2000). *Elementary principles of behavior* (4th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Mazur, J. E. (1998). *Learning and behavior* (4th ed.). Upper Saddle River, NJ: Prentice-Hall
- Pearce, J. M. (1997). *Animal leaning and cognition: An Introduction*. (2nd ed.). East Sussex,

UK: Psychology Press.

Purdy, J., Markham, M., Swartz, B., and Gordon, W. (2001). *Learning and memory*. (2<sup>nd</sup> ed.). Belmont, CA: Wadsworth.

Rachlin, H. (1991). *Introduction to modern behaviorism*. (3rd ed.). New York: Freeman.

Reynolds, G. (1975). *A primer of operant conditioning*. (Revised) Glenview, IL: Scott Foresman.

Schwartz, B., & Robbins, S. (1995). *Psychology of learning & behavior* (4th ed.). New York: Norton.

Schwartz, B., & Lacy, H. (1982). *Behaviorism, science, & human nature*. New York: Norton.

Tarpy, R. (1997). *Contemporary learning theory and research*. New York: McGraw Hill.

Terry, W. S. (2000). *Learning and memory*. Needham Heights, MA: Allyn & Bacon.

## LEARNING AND MEMORY Lab Information

<b>Lab Hours:</b>	8:30 a.m. - 4:30 p.m. Monday thru Friday
<b>Species:</b>	Female Long-Evans (Blue Spruce) Hooded Rats obtained from Harlan, Indianapolis, IN
<b>Colony Room Temp:</b>	68-75 degrees F
<b>Food:</b>	Purina Lab Chow (or equivalent) Bioserv "Dustless" Pellets
<b>Lighting:</b>	Lights are kept on an automatic 12/12 day/night schedule. You do not have to turn room lights on or off.
<b>Water:</b>	Bottle stopper and bottle must be kept clean. Wash once a week. The water tube must be in stopper guard. Change water often.

Keep the testing environment clean by cleaning up your mess.

Home cage bedding must be changed at least once a week.

One sign of illness in rats is a dramatic weight loss. If this occurs, contact the instructor.

Keep loud noises and talking to a minimum during data collection sessions.

After all testing sessions, weigh animals to the nearest whole gram and fill in data sheets.