This semester’s biobehavioral seminar will take an in-depth look at models of conditioning and associative learning that have followed Rescorla and Wagner (1972). We will begin by looking at the Rescorla-Wagner model, and then examine important findings and alternative models that have steadily improved on it. I will assume that students share my belief that classical conditioning is important as both a phenomenon that is deeply involved in many other psychological phenomena (including anxiety disorders, substance abuse, operant conditioning, etc.) and a method for studying the basic associative processes that are involved in learning, emotion, and cognition. (It is also increasingly used as a tool for studying how the brain is involved in these processes.) The goal of the course will therefore be to arrive at a deeper understanding of conditioning and associative learning, how good theories and models are developed, how theory and data interrelate, and how scientific knowledge accumulates. I personally believe that the models we will cover this semester may constitute the major achievement of Learning Theory over the past 30 years.

Requirements. The course readings have been selected with care. Students will play the essential role of presenting each reading to the rest of the class. Half of a typical class will be devoted to the presentation of a target article (often a citation classic) that describes a theory or model; the second half of the class will involve the presentation of several empirical papers reporting data that shed more light on the model. Each student will present his or her share of both the longer target articles (n = 18) and shorter empirical articles (n = 30). The last class will involve discussion of a number of very short articles that will hopefully lead us to reflect on what we have learned over the semester. As a further stimulus for integration, I will assign a short (5-page) “capstone” paper that puts the themes of the course together with the readings for that class.

All readings will be available at least two weeks ahead of time in the department xerox area.

Let me say a little more about the class presentations. Most of the target articles will be given 75 minutes total class time. They should be presented in 60–65 minutes, leaving 10-15 more minutes for questions and discussion. Timing will be important, and this will take thoughtful planning and editing. I would like to meet with you two weeks before you present a target article. Empirical articles should be presented in 20 minutes, with an additional 5 minutes for discussion. These will also require careful planning, and I would be pleased to meet with you a week before you present one, although this should be considered optional. Please pay particular attention to your visual aids and how to best convey and teach the work to the rest of us in the time allotted.

Background. This course will be challenging, but I hope it will be stimulating and fun. My section of Proseminar will be adequate background for the course. However, as additional background, I will make available a chapter that reviews several of the models from a book I am writing on Learning Theory. I am also providing an Annual Review of Psychology paper (Pearce & Bouton, 2001) that summarizes some of the course material at a more advanced level.
CLASS MEETINGS

Please do the reading before each class. T = target article; E = empirical article.

January 24: The Rescorla-Wagner model


Or:


January 31: The Mackintosh attention model


February 7: No Class

February 14: The Pearce-Hall attention model


**February 21: Wagner’s short-term memory model**


**February 28: Associations and occasion setting**


**March 7: SOP and its “affective extension” (AESOP)**


**March 14: Pearce configural learning model**


**March 21: SPRING BREAK**

**March 28: Some issues surrounding stimulus representation**


**April 4: Perceptual learning**


**April 11: Conditioning and associative learning in humans**


[Skim comments that follow by Wiens & Ohman and by Manns, Clark, & Squire]

**April 18: Comparator theory**


**April 25: Timing versus association in conditioning**


**May 2: Incentive learning and operant conditioning**


**May 9: Party and final discussion**

We will discuss a recent Special Section in *Current Directions in Psychological Science, 2001, 10*, 124-150 on the relative merits of associative versus computational models of learning.

The special section includes brief articles by:

Leslie, A. M. Learning: Association or computation?: Introduction to a special section
Dickinson, A. Causal learning: association versus computation
Church, R. M. A Turing test for computational and associative theories of learning
Killeen, P. R. The four causes of behavior
Miller, R. R., & Escobar, M. Contrasting acquisition-focused and performance focused models of acquired behavior
Gallistel, C. R., & Gibbon, J. Computational versus associative models of simple conditioning