

PSYC 5294 (CRN#[95445](#)): PSYCHOPHYSIOLOGY

FALL 2005

TUES/THURS 9:30-10:45 AM Williams 309

Syllabus

Instructor: Bruce H. Friedman, Ph.D. **Office:** Williams 221 **Phone:** 1-9611

Office Hours: M 10-11, W 9-12, or by appt.

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Home page: <http://www.psyc.vt.edu/faculty/faculty.asp?f=bhfriedm>

Course home page: on Blackboard

Textbook: Stern, R.M., Ray, W.J., & Quigley, K.S. (2001). *Psychophysiological recording* (2nd ed.) Oxford U.P. The text will be supplemented by readings that will be announced in class.

This course is intended to survey the basic theoretical, methodological, and applied issues in the field of *psychophysiology*. Psychophysiology takes an integrative perspective on the mind-body relationship that involves the synthesis of cognitive, affective, behavioral, and physiological variables. Psychophysiological methodology has been traditionally characterized by non-invasive electrophysiological measures of central and autonomic nervous system activity (e.g., heart rate, EEG, and skin conductance), taken in conjunction with psychological and behavioral indices. Contemporary psychophysiologicalists may also employ brain imaging techniques such as fMRI as well as endocrine measures such as cortisol. Psychophysiology is therefore a theoretical exploration of the mind-body relationship with a characteristic methodology to address that relationship. This course addresses fundamental issues that historically have driven the field, and also covers applications of psychophysiology to cognitive, clinical, developmental, social, and personality psychology. Moreover, the relationship between psychophysiology and cognate fields will be considered (e.g., behavioral and psychosomatic medicine, cognitive neuroscience) and various other domains in the general realm of biological psychology.

The two primary aims of this course are: (1) to become acquainted with basic theory, methodology, and empirical research in psychophysiology, and (2) to apply this knowledge to your own particular interests in psychology. This is not a course on nervous system anatomy and physiology, but we will spend a little time reviewing these topics. It is assumed that you have a basic familiarity with these areas through previous coursework, and you can review further them as you see fit (a solid foundation in these areas is *essential* to becoming a good psychophysiologicalist). This is also not a hands-on, technical course in psychophysiological recording; an in-depth consideration of that area exceeds the scope of the course. Again, such technical knowledge is critical, and it will be addressed to some degree, but expertise in this area is generally better acquired *after* one has a basic knowledge of the fundamentals of psychophysiology.

Course assignments are primarily geared towards professional activity in research and teaching settings. Grading is based on (1) a term paper, weighted as 40% of your final grade, (2) two in-class presentations, each weighted as 20% of your final grade, (3) the total score on five of six 10-pt. quizzes (the lowest score will be dropped) weighted as 15% of your final grades, and (4) class participation, weighted as 5% of your final grade.

Note: **THERE ARE NO MAKEUPS FOR QUIZZES!** If you should happen to miss a quiz, for whatever reason, that score (zero) will be dropped. If missing a second quiz becomes necessary, please bring the matter up with me personally.

Your term paper, which will be approximately 15-20 pages in length, is due on the last day of class. You will get the opportunity to submit a brief (1-2 pages) preliminary outline of your paper, due about halfway through the course. I will give you feedback on your outline and make suggestions for the final paper. One class presentation will be a distilled version of your term paper, which will be either a research proposal or an integrative literature review. Your other presentation will entail your leading a discussion on an article that the entire class will read. Details on all of the above assignments will be provided at a later date.

Class participation points will be partially based on your actively taking part in class discussions, including the question and answer periods of your classmates' presentations. *Informed* participation in class discussions requires reading the assigned material in *advance of the class*. Attendance is expected, and is also part of class participation; please see me ahead of time if you anticipate having to miss class.

Grading scale

310-333 pts.	A
300-309	A-
290-299	B+
276-289	B
267-275	B-
257-266	C+
243-256	C
233-242	C-

Tentative Schedule

NOTE: The following schedule is tentative; the extent to which topics will be covered depends on the pace to which the class adapts. The number of sessions devoted to student presentations will depend on the final class roll. Any changes or adaptations to the schedule will be announced in class. Students are responsible for knowing about any such announced modifications.

August

- T 23 Introduction: What is Psychophysiology? (**Ch. 1**)
- Th 25 Neurons and Muscles: The Sources of Psychophysiological Recordings (**Ch. 2**)
- T 30 **Quiz 1**; Equipment Used in Psychophysiological Recording (**Ch. 3**)

September

- Th 1 Psychophysiological Recordings (**Ch. 4**)
- T 6 **Quiz 2**; Some Basic Principles of Psychophysiology (**Ch. 5**)
- Th 8 Safety and Ethics in Psychophysiological Laboratory (**Ch. 6**)
- T 13 **Quiz 3**; Brain: Electroencephalography and Imaging (**Ch. 7**)
- Th 15 Muscles: Electromyography (**Ch. 8**)
- T 20 **Quiz 4**; Eyes: Pupillography and Electrooculography (**Ch. 9**)
- Th 22 “
- T 27 “
- Th 29 Cardiovascular System: Heart Rate; Cardiac Output; and Blood Pressure, Volume, and Flow (**Ch. 12**); **Quiz 5**

October

- T 4 **Biosocial studies of antisocial behavior in children and adults** (Sara Haden)
- Th 6 Topic to be announced
- T 11 **Paper outline due**; Skin: Electrodermal Activity (**Ch. 13**)
- Th 13 **EEG Methodology and Research with Infants and Young Children** (Martha Ann Bell); **Quiz 6**
- T 18 Anxiety and cardiac vagal tone

Th 20 Student paper discussion

T 25 Student paper discussion

Th 27 Student paper discussion

November

T 1 Student paper discussion

Th 3 Student paper discussion

T 8 Student paper discussion

Th 10 Student paper discussion

T 15 Student paper discussions

Th 22 Student paper presentations

T 22 **Thanksgiving break**

Th 24 **Thanksgiving**

T 29 Student paper presentations

December

Th 1 Student paper presentations

T 6 Student paper presentations; **Paper Due**