PSB 6089 – BRAIN AND MIND: FACT AND FANTASY -- 3sh

Course Syllabus

Fall 2004, Aug. 23-Dec. 10

(29 class meetings, plus double final exam class; holidays are 9/6, 11/11, 11/25-26)

A Seminar with Dr. Jay E. Gould
Department of Psychology, UWF

Office: Building 41, Room 216/219  Classroom: Building 41 Room 115
Office Hours: Mon/Wed 2:30-5:00pm  Class Hours: Mon/Wed 1:00-2:15 p.m.
Final exam: Wed, 12/8, 11:00–1:30
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(Subject line entry: Advise Re. PSB 6089)  variety of course-relevant materials,
many of which are referred to in class.)

Required Textbooks


Course Description

Brain and Mind: Fact and Fantasy is a graduate seminar course covering often controversial issues regarding the relationship between the physical brain and the mental processes that make up the mind. This course will be concerned with, among other things: the psychobiology of perception and consciousness, emotion and reason, intelligence and language, learning and memory—all of which represent aspects of human information processing—as well as the evolution of both brain and mind. Other long-standing and interesting questions that scientific advances have brought us to the brink of resolving, many of which we shall address in this seminar, are: what are the
roles that genetic and environmental factors (nature and nurture) play in determining the structure and function (anatomy and physiology) of brain and mind? How does the brain-body generate a "self"? What is the nature of the "I" inside our heads. How are emotion and reason related? How do we make decisions, deceive ourselves, and dream? Where is God in the brain? Much of our understanding and theorizing about brain-and-mind comes from fascinating studies we shall read about involving neurological patients with, e.g., phantom limbs, neglect syndrome, blindsight, and Capgras’s Syndrome (a disorder in which friends and loved ones are seen as being imposters).

Student-Learning Outcome Objectives

Objectives of this course are that as a result of careful study and fulfillment of the course assignments, students should be able (among other things) to:

1. Describe how neuroscientists go about investigating the nervous system, as well as the endocrine system;

2. Describe the major elements of the nervous and endocrine systems, as well as some of the circuits and interactions both within and between these systems;

3. Describe the major functions of the elements of the nervous and endocrine systems with respect to behavior and experience (i.e., the mental trilogy of cognition, emotion, and motivation), and explain how these functions are carried out;

4. Describe how all human behavior, thought, and feelings are the end result of complex patterns of nervous and endocrine system activity;

5. Describe the roles and interactions of genetic and environmental factors in determining brain structure and function, and thereby the nature of mind;

6. Describe the causes of some major diseases and disorders of the nervous and endocrine systems, and what can be done to treat and perhaps prevent them;

7. Describe how the brain-body might generate a "self," and what might be the nature of the "I" inside our heads;

8. Describe how emotion and reason are related;

9. Describe how we make decisions, deceive ourselves, and dream;

10. Describe where God is in the brain.
Mechanisms

Objectives of this course can be attained through:

1. Carefully studying, analyzing, synthesizing, and critically evaluating the information in the required readings, as well as the additional material discussed in class, and then questioning and theorizing about the implications for potential brain-mind relationships;

2. Actively participating in the class discussions;

3. Conscientiously executing the other assignment(s) described below.

Functions of the class meetings are to:

1. Discuss, clarify, and expand upon material in the required readings, as well as any additional information provided;

2. Answer questions raised by students.

3. Evaluate students' mastery of the course material through oral and written questions and assignments.

When studying the readings, please write down questions about material that you do not understand, or about what you want to know more about. It will be helpful if you indicate the relevant book chapter, section, and page(s). Also write down questions and comments about any additional readings, indicating the specific article. The questions and comments should be given to the instructor at the beginning of each class. Remember, I will depend on you to let me know what parts of the course material you want to spend the most time discussing.

Don't be afraid to ask questions and make comments! If you don't understand something, it is very likely others in the class are having similar problems. And if something interests you, it is almost certainly of interest to others as well.

Learning is facilitated by an active, dynamic involvement in the instructional process: *learning is not a spectator sport!* Therefore, rather than primarily lecturing to students, we will use, as much as possible, the Socratic Method of teaching by asking questions of students. In fact, you will at times be asked to try to answer the questions raised by your classmates. In other words, I want you to learn through *actively thinking about, discussing, and contributing to the course material.*
A seminar is a course where advanced students discuss the information they are learning under the supervision and direction of a professor. The advantage of a seminar is that during a given semester more material usually can be covered than in the typical lecture course, and new ideas and new approaches are formed as the class (not just the professor) analyzes, synthesizes and discusses the course content in a format that is more open and less formal.

What you should be doing in class:

1. **Analyzing, synthesizing, and critically evaluating** the information being discussed, and then **theorizing** about the implications;

2. **Outlining and/or diagramming** the major points being made;

3. **Asking questions** for clarification on what is not completely understood;

4. **Responding to questions** raised by the instructor and other students;

5. **Sharing additional information or insights** when you have something to contribute.

All of this should make the class far more interesting and informative for everyone. I **sincerely want you to find this course both rewarding and productive**. Feel free to let me know ways in which the course mechanics might be improved, and please don't wait until the end of the term. I'm open to all suggestions--even in the form of anonymous notes left with a secretary to be placed in my mailbox.

To aid students in mastering the subject matter of the course, whenever appropriate I will provide **handouts** in class or refer students to material on my **web site**. In addition, I have a **bulletin board** on the first floor of the Psychology Building, where there are posted short articles regarding biological psychology and other subjects that I believe students will find interesting.

Lastly, there are a growing number of great Internet resources relevant to this course. You might want to try some of the following, which I have personally looked at:

- Neurosciences on the Internet at [www.neuroguide.com](http://www.neuroguide.com), and its Best Bets at [http://www.neuroguide.com/bestbets.html](http://www.neuroguide.com/bestbets.html);
- Whole Brain Atlas at [http://www.med.harvard.edu/AANLIB/home.html](http://www.med.harvard.edu/AANLIB/home.html);
- Neuroscience for Kids at [http://faculty.washington.edu/chudler/neurok.html](http://faculty.washington.edu/chudler/neurok.html);
- Interactive Atlases at [http://www9.biostr.washington.edu/da.html](http://www9.biostr.washington.edu/da.html);
- Anatomy of Primates (w/atlases) at [http://spot.colorado.edu/~dubin/bookmarks/b/060.html](http://spot.colorado.edu/~dubin/bookmarks/b/060.html);
- http://www.indiana.edu/~pietsch/home.html;
- http://www.med.harvard.edu/AANLIB/home.html;

Assignments

Required Readings:

We will be reading, discussing, and elaborating on the two required books for the course. We will cover the two books in the order that they are listed on the first page of this syllabus, and at a rate of about 2 chapters per week.

Concept Maps:

During the semester students will produce concept maps. These are charts/diagrams used to summarize and illustrate the hierarchical and cross relationships that exist among concepts, such as those covered in a portion of the required readings and in the class presentations. I will make available one or more handouts on concept mapping, along with examples, and illustrate the technique in class. There are many Internet sites that cover concept mapping, and these can be readily located with a computer and Internet search engine, such as Google.com. An excellent site that contains free software for concept mapping is provided by the UWF Institute for Human and Machine Cognition at http://cmap.coginst.uwf.edu/. You will also find instructions there for constructing concept maps that complements my handout by Joe Novak. There is also commercial software. I use Inspiration, which I think is excellent. This is usually available for a 30-day free trial, and can be found at http://www.inspiration.com/productinfo/Inspiration/index.cfm.

Oral Reports and Written Materials:

The required books for the course will provide a solid base of knowledge. In addition, however, we will delve deeper into the subject matter of this course through analysis, synthesis, evaluation, and discussions of the theoretical implications and practical applications of other contemporary, as well as notable historic scientific publications.

After the instructor covers the preface and first chapter of Phantoms in the Brain, we will cover the remaining required book readings by having each student take prime responsibility for leading the class in discussions on a chapter of each of the two books. The student leader will integrate into the discussions one or more research or theoretical scientific articles that illustrate, clarify, and/or expand on the material in the required book readings. This should be done with particular emphasis regarding the relation between brain and mind, and whether the relationship appears to be fact or fantasy. To guide the class discussions, the student leader will prepare concept map
transparencies and handouts of the material being covered. The information in the additional research/theoretical scientific articles should not only be integrated but also critically evaluated (compared and contrasted) with respect to related material in the required book readings for the course. Since the instructor will frequently want to further elaborate on the required readings through discussion and/or use of videos, the student led discussions should be planned to last about 45 minutes.

As aids to finding appropriate articles or other books, see the suggested readings and references in the required books for the course. Computer databases such as PsychInfo, PsychLit, Social Science Citation Index, and Current Contents are, of course, other important resources for finding useful material.

Assignment of chapters for which students will lead discussions can be done randomly, unless some students have a strong desire to be assigned specific chapters. In that case, if there is overlap in the chapters desired, then students can try to work it out through discussions with each other. If that is not successful, then students will be required to submit their first, second, and third chapter choices for each of book, and the instructor will then make the decisions as fairly as possible.

Before the class meeting of a led discussion, the student should give to the instructor:

1. A printed, detailed concept map (an example will be provided by the instructor) of the course book material being covered. This should also help the presenter. At the top of the concept map should be the book title, the chapter number and title, followed by the student’s name and presentation date.

2. A good photocopy of the additional research/theoretical journal article(s) that will be integrated into the discussion, or in the case of a book, a photocopy of several important summary pages as well as the book’s cover pages;

3. A quiz of ten typed, multiple-choice questions, with approximately the first half based on the major points covered in the chapter to be discussed, and the rest based on the additional material to be integrated into the discussion. Each question should have four alternative answers, and the correct answer for each question should be clearly indicated at the very bottom of the page. Note that the alternative potential answers to each question should be written in as parallel and clear a fashion as possible to avoid giving away the answer and to avoid ambiguity. Developing the quiz will be a useful learning exercise, and the quizzes will actually be used to test classmates on their mastery of the discussed material.
At the class meeting when the discussion will be led, the student should bring:

1. Copies for everyone of any useful handouts, such as concept maps;
2. Copies for everyone of the quiz (without the answers indicated), which will be administered after the presentation and then graded in class and turned in to the instructor.

When giving an oral report, the student should:

1. State the major thesis(es), or hypothetical proposition(s), presented by the book chapter’s author, as well as that of the presenter, if different;
2. Briefly review and discuss, using a concept map as a guide, the assigned material in the course book;
3. Support the presenter’s thesis with information from the additional scientific article(s)/book(s), which should be critically analyzed and evaluated, compared and contrasted, and then synthesized with respect the relevant material in the course book chapter;
4. Conclude with a take-home summary message (major points) and a proposal for further research or theoretical work.

Grading/Evaluation System

Student-Led Discussions (50% of course grade):

The instructor (and possibly peers) will evaluate these at their conclusion by using a special form (see example attached at end of this syllabus). Significant weight will be given to the quality of the discussion leadership, the concept map(s), and the quiz questions. Note that all of this will provide valuable teaching experiences for students, as well as insights into the challenges of being an instructor.

Quiz and Oral Questions as well as Take-Home Assignments (50% of course grade):

Because this is a seminar course, I will not be evaluating mastery of the material through the typical formal course exams, each covering several chapters. Instead, as indicated earlier, I will use performance on the quizzes prepared by the student discussion leaders, which will be administered during class meetings (usually at the end of a presentation). This will encourage students to continuously keep up with the material, and to be actively involved in class discussions. In addition, I will ask oral questions during class meetings, and might evaluate the quality of the answers.
Typically, the written and oral questions should focus on *major points* from the required readings, the additional scientific articles discussed by the student leaders, instructor handouts or web postings that are referred to, and videos that are shown. It is intended that the questions will focus on significant conceptual or problem-solving issues. This should reduce student anxiety about what questions might be asked, and should encourage students to *actively and creatively think about the material being studied and discussed*, rather than simply trying to commit to memory numerous minor details. Keep in mind, however, that students will be expected to be able to provide clear, concise definitions of key concepts/terms discussed in the books. Students will also sometimes be asked to answer questions raised by their classmates before the instructor expands on and clarifies the responses, if necessary. Note that in order to illustrate their answers, students might be asked to draw and/or interpret figures, tables, or concept maps.

**Answers to the oral questions and written quizzes will be scored on a 10-point scale,** and 9.0 to 10.0 points will represent the range of A- to A, 8.0 to 8.99 the range of B- to B+, etc. If an oral answer is not entirely accurate or complete, other students might be given an opportunity to provide additional information and receive extra-credit points accordingly. Therefore, it is very important to pay careful attention to what classmates are saying. Moreover, the instructor will provide feedback and elaboration, when appropriate, and subsequent questions may be based in part on this elaborated information.

In addition to making the seminar class meetings very *interactive*, as they should be, and no doubt much more exciting, the *active, dynamic approach to learning and evaluation* that will be used in this course *should result in greater mastery, superior retention, and better future application of the important information covered during the semester.*

**Short, written, pop quizzes** may periodically be administered by the instructor when it is desirable to test all students on some important point not covered by student-generated quizzes. The answers might require generating concept maps, or completing concept maps, e.g., labeling the links between concepts (see example and handout of concept maps).

**Long, formal, written examinations** will be used only if students do not demonstrate mastery of the course material through the above mechanisms. Naturally, we would all very much prefer that this not be necessary.
Take-home assignments might be given during the semester. These would relate to the material being covered in the readings, class discussions, or videos shown. The following are a possible examples:

For the book “Phantoms in the Brain,” generate an outline, by chapter (Roman numerals in the outline), of all the syndromes, with descriptive definitions, what we know about the brain anatomy and/or physiology involved, and what our knowledge about the syndromes indicates/suggests about the operations of the mind. This should be turned in within two weeks after we finish reading the book for the course.

Format example:

I. Chapter #

   A. Syndrome Name

      1. Syndrome Definition
      2. Brain anatomy
      3. Brain Physiology
      4. Operations of the Mind

For the last day of class (Final Exam meeting), students are to prepare a 1/2 to 1 page paper indicating whether they believe that Le Doux adequately supported the thesis of his book *Sympic Self*. The thesis is found, e.g., on pages ix, 12, 301, and 303.

**Integrative Concept Maps:** The construction of concept maps, as you will learn, is challenging but very helpful for organizing, clarifying, mastering, and retrieving bodies of information. That is why you are required to prepare them for leading class discussions. They are also very useful tools for evaluating an individual’s understanding of course material and other information.

Students might be required to prepare concept maps integrating concepts across several chapters of the required readings. These should be done on large poster boards (available at book stores and art/hobby supply stores).

**Exceptional Class Participation:**

In assigning the course grade, the instructor additionally will consider the quality and quantity of participatory contributions that students make to enhance the learning experiences of the class, such as enlightening elaborations or clarifications of information being presented by the instructor or the discussion-leading classmate.
Attendance:

Coming to class for every meeting is obviously critical in a seminar course. Therefore, please be forewarned that having exams in other courses, work conflicts, or more pleasant things to do on the same day as class are not sufficient justification for missing class. On the other hand, illness is of course sufficient justification. If you are unable to come to class, do not call the instructor. Instead, submit a printed statement (e-mail is fine), no later than the next class meeting, which documents the reason for missing class. Missing class without sufficient justification will adversely affect your grade.

Special Arrangements for Assistance: Students with special needs who require specific examination-related or other course-related accommodations should contact Barbara Fitzpatrick, Director of Disabled Student Services (DSS), at (850) 474-2387. DSS will provide the student with a letter for the instructor that will specify any recommended accommodations. Students should attend to this as early as possible. The instructor is not obligated to accommodate a student’s needs unless presented, in a timely fashion, with an official letter from the Office of Disabled Student Services.

Academic Dishonesty: I am very aware that there is a great deal of pressure to do well in college. But that is never an excuse for cheating on an exam/quiz, plagiarizing an assignment, or in any other way being academically dishonest. There are severe penalties for such wrongdoing. Do the right thing and be a good citizen—be honest! You should carefully review the Rights & Regulations section of the UWF Student Handbook, from which the following was excerpted.

Expectations for Academic Conduct/Plagiarism Policy: As members of the University of West Florida, we commit ourselves to honesty. As we strive for excellence in performance, integrity—personal and institutional—is our most precious asset. Honesty in our academic work is vital, and we will not knowingly act in ways which erode that integrity. Accordingly, we pledge not to cheat, nor to tolerate cheating, nor to plagiarize the work of others. We pledge to share community resources in ways that are responsible and that comply with established policies of fairness. Cooperation and competition are means to high achievement and are encouraged. Indeed, cooperation is expected unless our directive is to individual performance. We will compete constructively and professionally for the purpose of stimulating high performance standards. Finally, we accept adherence to this set of expectations for academic conduct as a condition of membership in the UWF academic community.
## REPORT EVALUATION FORM

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<th></th>
<th>A 100-90</th>
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<th>D 69-60</th>
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<td></td>
<td>EXCELLENT</td>
<td>GOOD</td>
<td>FAIR</td>
<td>POOR</td>
<td>FAIL</td>
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1. Understanding of material

2. Clarity and Organization of Material

3. Depth of Information

4. Breadth of information

5. Integration of Research

6. Evaluation of Research

7. Theoretical or Applied Value of Research

8. Poise During Presentation

9. Articulation

10. Enthusiasm for Subject

OVERALL (Numeric Value)

CONSTRUCTIVE COMMENTS:

PRESENTER: __________________________   DATE: _______________   EVALUATOR: ____________