BIOLOGICAL PSYCHOLOGY, PSYC 330

Instructor: Vincent Markowski, Ph.D.

Tuesdays and Thursdays, 2:30-3:45pm

Bailey 105

 Spring 2016

COURSE SUMMARY: This course will help students understand the relationships between the anatomy of the nervous system, the electrical and chemical communication systems in the brain, and the production of complex human and animal behavior. Major topics include the biological basis of movement, eating, sexual behavior, drug abuse, and emotion. The emphasis on brain-behavior relationships will encompass several special interest issues and recurring themes:

1. Since genes direct the production of proteins, how can they influence behavior? *Complex interactions between genome and environment*
2. Pause and consider your five sensory systems… This is probably the last one you thought of and the one you know the least about, yet it’s the most important. *Somatosensation, the underappreciated sensory system*
3. When do body movements begin and when do they end? *Planning, refining, and carrying out motor movements*
4. How might stem cells be used to treat neurodegenerative diseases?
5. Can we curb the obesity epidemic by understanding how the brain controls appetite? *Neural basis of hunger, eating, and satiety*
6. Although men and women are equal, are they the same? *Organizational and activational effects of gonadal hormones on cognition*
7. How firm is the evidence for a physiological basis of homosexuality?
8. Artistic or analytical? Right-brained or left-brained? *Evidence supporting brain lateralization and hemisphere dominance*
9. Why are some drugs abused? *Physiological basis of reward*
10. How does the brain produce and interpret nonverbal information? *Neural basis of emotion*
11. Experiments of nature: extraordinary cases of accidental trauma, disease, loss and recovery of function

LEARNING OUTCOMES: As a result of their learning experiences, students are expected to know, think, or be able to perform the following by the end of the semester:

* understand the relationship between psychological theory and empirical findings
* understand how basic research, which often involves animal experimentation, leads to significant advances that apply to the human condition
* be able to critically evaluate many of the assumptions about behavior and brain function presented to them by family members, peers, mass media, or by psychologists themselves
* be able to identify at least 10 brain structures and describe their roles in the production of behavior
* understand the distribution of the classical neurotransmitters and describe their roles in the control of behavior

COURSE FORMAT AND STUDENT RESPONSIBILITIES: A portion of each class will be devoted to lecture on important terms and concepts introduced in the textbook. Outlines of the lecture topics will be available online.Students are encouraged to develop a worthy notebook to use as a study guide and they are expected to attend class having read the textbook material outlined on the schedule. Students are also expected to introduce and discuss relevant issues, literature, and data that they have discovered through their own research, library reading, or life experiences.

Class Participation: Each student will purchase an “I-Clicker” and bring it with them to the lectures. The I-Clicker will be used to answer student assessment questions delivered at various times throughout the lecture. Each correct answer on the student assessment questions will be worth a percentage of 20 class points. Students should email their I-Clicker identification number (located on the back) to the instructor prior to the second class meeting.

**Left: The current version of the I-Clicker.**

**Middle: An earlier version of the I-Clicker. Either one will work for our class.**

**Right: Location of identification number.**



Oral Presentation: Each student will partner with at least one classmate and they will give a formal oral presentation during the semester. The oral presentation will be worth 30 class points. The presentation topic will be arranged during an office hours meeting and will involve a summary of an original research report published in a peer-reviewed neuroscience journal. The date of each presentation will be scheduled to coincide with the appropriate lecture topic. After a topic is selected, a good place to begin a literature search for the presentation is the Milne library’s “Academic Search Complete” link at [**http://library.geneseo.edu/**](http://library.geneseo.edu/%20) Original research reports typically contain sections with subtitles such as “Abstract”, “Introduction”, “Methods”, “Results”, “Discussion” and “References”. If an article is not formatted in this fashion, it probably is not suitable for the assignment. Although there are many databases that could provide reference material, “MEDLINE” and “ScienceDirect” are often very useful. Students who are not experienced with digital searches of the scientific literature should schedule a meeting during office hours for an overview.

Oral Presentation Format: Student presentation teams will deliver a PowerPoint overview of their article to the class. The oral presentation should be 15-minutes in length and each member of the team will take a turn presenting key aspects of the article. Teams will email a digital copy of their journal article (pdf preferred) and their PowerPoint to the instructor no later than 1 day before the oral presentation. The instructor will then post the journal article on myCourses for review by fellow classmates. Briefly, each student should meet the following objectives during their presentation:

1. Discuss the background and purpose of the study.

2. Identify the experimental hypotheses.

3. Summarize the basic methodology.

4. Summarize the most important results.

5. Discuss strengths and weaknesses in the research.

6. Discuss the significance of these findings to the field of physiological psychology.

7. And most importantly… **Do NOT read direct quotations** during your presentation. **EVERY** statement must be your own words.

APA-style Paper: The content of this paper is more important than its style or format. First, thoroughly read and understand your oral presentation article. Identify a weakness or shortcoming in the oral presentation article. Perhaps there isn’t a significant weakness but the findings raise interesting new questions. Design a piece of “follow-up” research that will resolve a weakness or answer a question. Support your research proposal with a background section that contains appropriate citations from the literature. Include a brief Methods description as well as an anticipated Results section. Conclude your paper with a discussion of the significance of your proposed research to the field of psychology. The paper should be 5-7 pages, double-spaced, with APA-style citations, and a reference page.

Exams: There will be four unit examinations during the semester. Each exam will be composed of questions that will test your ability to apply the concepts that have been discussed in class. In other words, these questions will be challenging and will assess your ability to think rather than memorize. Please note that information presented by your classmates during their oral presentations will be used in the exams. The exam schedule is found on the last page of this syllabus. The testing period will begin promptly at the beginning of class.

Please note that there will be **NO make-up examinations**. Since only three exams scores will count towards the final grade, a student can miss or perform poorly on one exam without penalty. If a student is absent for two or more exams, course withdrawal is strongly recommended. Please plan your personal and professional commitments accordingly.

COURSE GRADE: Class participation will be worth 20 class points, the oral presentation will be worth 30 points, and the paper will be worth 30 points. Each unit exam will be worth 40 class points, however only the three highest exam scores will be counted towards your final grade. The course grade will be based on a simple sum of participation, oral presentation, and exam points. A letter grade will be assigned using the scale below.

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| --- | --- | --- | --- |
| A | 186 points or above | C | 146-155 |
| A- | 180-185 | C- | 140-145 |
| B+ | 176-179 | D+ | 136-139 |
| B | 166-175 | D | 120-135 |
| B- | 160-165 | E | 119 points or below |
| C+ | 156-159 |  |  |

REQUIRED TEXTBOOK: Biopsychology, 9th Edition by John P.J. Pinel, ISBN:  0205994709

OPTIONAL BOOK: The Man Who Mistook His Wife For a Hat and Other Clinical Tales by Oliver Sacks, ISBN: 0060970790

CONTACT INFORMATION

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OFFICE HOURS

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| --- | --- | --- |
|  | **Morning Hours** | **Afternoon Hours** |
| **Monday** | 10-11am | 2-3pm |
| **Tuesday** | 10-11am | By appointment |
| **Wednesday**  | By appointment | By appointment |
| **Thursday** | 11am-noon | 12-12:45pm |

*Policy on the Use of Cellular Phones in Classroom:* The use of cellular phones in a small classroom is disruptive, discourteous, and is not permitted. Please shut off your cellular phone’s ringer before entering the classroom. Students whose cell phones ring during the class will lose 10 points from their course total.

*Academic Dishonesty:* Plagiarism will result in a grade of E for the assignment and/or final grade. For further information please see <http://www.geneseo.edu/dean_office/dishonesty>

*Students with Disabilities:* SUNY Geneseo will make reasonable accommodations for persons with documented physical, emotional or cognitive disabilities. Students should contact the Director in the Office of Disability Services (Tabitha Buggie-Hunt, 106A Erwin) and their faculty to discuss needed accommodations as early as possible in the semester.

**WEEKLY SCHEDULE OF TOPICS, EVENTS, AND EXAMS**

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| Jan 19, 21 | Course overview, Introduction to the field – Chap. 1 & 2 |
| Jan 26, 28 | Introduction to the neuron - Chap. 4 |
| Feb 02, 04 | Communication between and within neurons, Events at the synapse - Chap. 4 concluded |
| Feb 9, 11, 16 | Overview of neuroanatomy - Chap. 3 |
| Feb 18 | **EXAM 1** on chapters 1-4 |
| Feb 23, 25 | Somatosensation – selections from Chap. 7, Optional - “The Disembodied Lady” and “The Man Who Fell Out of Bed” |
| Mar 01, 03 | Motor control and Parkinson’s Disease – selections from Chap. 8, Optional – “Phantoms” and “On the Level”; Methods of physiological psychology - Chap. 5 (reading assignment only, we will not discuss Chap. 5 in class) |
| Mar 08, 10 | Eating behavior – Chap. 12 |
| Mar 15, 17 | **No Classes, Spring Break** |
| Mar 22 | **EXAM 2** on chapters 7, 8, 5 & 12; **Deadline #1 for paper assignment** |
| Mar 24, 29, 31 | Neuroendocrine effects of hormones, Sexual behavior - Chap. 13, Optional – “Cupid’s Disease”; |
| Apr 05, 07 | Drugs of abuse and CNS reward – Chap. 15, Optional – “The Lost Mariner” |
| Apr 12 | **EXAM 3** on chapters 13 & 15 |
| Apr 14 | Brain lateralization and language – Chap. 16, Optional – “The President’s Speech” and “Reminiscence” |
| Apr 19 | **No Classes, GREAT Day** |
| Apr 21, 26 | Emotion – Chap. 17 |
| Apr 28, May 03 | Schizophrenia – selections from Chap. 18 |
| Fri. May 06 | **Deadline #2 for paper assignment** (by 9am) |
| Wed. May 11 (3:30-5:30pm) | **EXAM 4** on chapters 16-18 (8-10am) |
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 “Men ought to know that from the brain, and from the brain only, arise our pleasures, joys, laughter and jests, as well as our sorrows, pains, griefs and tears. Through it, in particular, we think, see, hear, and distinguish the ugly from the beautiful, the bad from the good, the pleasant from the unpleasant…:”

Hippocrates

Fifth Century, B.C.