

## **BIBB 480 SYLLBUS**

### **BIOLOGICAL BASIS OF PSYCHIATRIC DISORDERS**

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**Course Description:** The goal of the course is to explore the biological basis of neuropsychiatric dysfunction and resulting behavioral syndromes. The contributions of a broad expanse of disciplines in preclinical and clinical arenas to the etiology, diagnosis, treatment, and management of brain dysfunction will be presented. Emphasis is placed on critical evaluation of research strategies and hypotheses. A key thematic thread throughout the course will be the parallel evolution of our understanding of the organization and function of the brain, theories of the pathophysiological basis of neural dysfunction, and research methodologies used in the investigation of neural mechanisms involved in the control of complex behaviors.

**Course Objectives:** The following objectives will be achieved through lectures, reading of scientific literature, class discussions, large and small group exercises, individual and group presentations, and written assignments.

1. Student will understand the current state of knowledge regarding the demography, clinical phenomenology, diagnosis, etiology, pathology and treatment/management of psychiatric disorders.
2. Student will critically evaluate reports of original research with regard to the rationale, hypothesis, research design, sources of error and variability, and significance of findings.
3. Student will recognize the strengths and weaknesses of a diverse range of methodologies – animal models, neuroimaging, neurogenetics, neuroanatomy, neurophysiology, neuropharmacology, neuroendocrinology and clinical trials – used in the exploration of the biological basis of psychiatric disorders.
4. Student will acknowledge the roadblocks that constrain scientists in the quest to resolve the mystery of brain dysfunction and the pursuit to provide satisfactory treatment for those suffering from these disorders.
5. Student will share informed opinions about the biological basis of psychiatric disorders with peers and recognize constructive contributions of all participants in the discourse.

**Prerequisites:** Successful completion of BIBB 109 or an equivalent is required for this course. The presentation level of course material assumes that all students have mastered the content in the prerequisite courses. Texts used in these prerequisite courses will be most helpful for review and as additional resources for this course.

**Course Format:** This seminar class will meet once a week for three hours. In addition to lectures and class discussions of assigned reading, learning activities will include weekly written assignments, small group work sessions, and group presentations.

**Required Reading:** The class readings are carefully selected from the vast literature available on topics related to the biological basis of psychiatric disorders. Assigned journal articles will be available either in the biomedical library or on-line via Penn Library e-journals. Students are encouraged to explore the scientific literature as they locate specific assigned articles.

**Grading:** There will be no formal exams in this seminar class. Semester grades will be based on performance in the following:

- ¼ **Class participation (required each week)**
- ¼ **Weekly written assignments (approximately 5 single-spaced pages)**
- ¼ **Group project and presentation**
- ¼ **Final (take-home essay ~10 pages)**

This grading scheme provides the opportunity for students to demonstrate mastery of course content in a variety of modalities including formal and informal oral and written assignments as well as interaction with peers in large and small group discussions, projects, and presentations. **Students who attend class and participate fully in relevant and collaborative ways in class discussions and activities will receive higher grades.** Grading is at the discretion of the faculty. Students may petition to have their grade re-evaluated by submitting a written rationale for the change of grade. The faculty will then have the option to increase, decrease or keep the grade the same.

**Participation in Class Discussions:** Participation in class discussions is required. Students who prepare for and participate fully in relevant and collaborative ways in class discussions and activities will receive higher grades. Most of the important questions about the pathophysiology and treatment of neuropsychiatric and neurodegenerative disorders do not have answers, thus, uncertainty and speculation will characterize our class discourse. Rigorous preparation of the weekly assignments will provide sufficient background for meaningful contribution to class discussions. If you are having trouble understanding a concept, please raise the issue in class. Chances are your classmates will have similar questions. If you are concerned that you do not understand the concepts, please schedule an appointment during my office hours prior to the class meeting so that you can be prepared to participate in class discussions.

**Weekly Written Assignments:** The weekly written assignments (approximately 5 single-spaced pages) are designed as extensions of the classroom learning experiences, as guidance for reading the scientific literature in a meaningful and efficient manner, and as preparation for class discussion. Rigorous preparation of these assignments will assure that you will be prepared to make significant contributions to the class discourse. As the neuroscience background varies greatly, the assignments should be used as a guide to pursue the assignment topics at your individual level of understanding. Weekly written assignments and class participation are graded separately.

**Group Projects:** Students will work together to develop a presentation and homework assignment on a topic assigned by the faculty. The group project is an opportunity to demonstrate excellence in several areas: collaboration with peers; utilization of an array of scientific resources to discover the specifics of an unfamiliar topic; ability to organize information in a visual manner for presentation; and finally oral presentation skills.

**Final Exam:** The final exam will be a 10-page take-home research paper on a topic assigned by faculty. Students who have accumulated a grade of A on all written submissions, class discussions, and group projects will be exempt from the final exam.

**Attendance:** Regular attendance is essential; absences are discouraged. Contribution to class discussion is of paramount importance in this class. Neuroscience is a rapidly evolving and exciting field and class discussions will cover many results that are hot off the presses. Regular attendance is essential for students to fully assimilate the course material. Much of what we do in class cannot be obtained or replicated outside of class. Each student is expected to have completed and thought critically about the readings and assignments, You must come to class prepared to contribute to class discussions. Students who attend class regularly will receive higher grades. If circumstances - family or personal health issues, family celebrations or gatherings, deaths in the family, car accidents or dysfunction, work conflicts, or interviews for graduate/medical/vet/dental school - cause you to miss classes, I suggest that you withdraw from the course and resume in a semester when you can devote full participation to the course.

**Collaboration:** You are encouraged to develop knowledge and ideas from a large variety of resources throughout this course. Most scientists get valuable ideas and feedback from conversations with colleagues and collegial conversation is strongly encouraged on all assignments. In addition to discussions with your classmates, you should also contact authors of your papers and faculty members at this university or others involved in the research we are exploring.

**Deadlines:** Assignment deadlines are absolutely FIRM; assignments will not be accepted after the deadline. Sports, other academic commitments, work and social/volunteer activities are unacceptable excuses for late work or extension requests.

**Backing Up:** A computer crash is devastating, but not an acceptable excuse for late submissions. Get in the habit of backing up your work regularly. You must retain electronic copies of all submitted work until after you have received your course grade for the semester. I strongly recommend that you have a foolproof back-up method for storing and retrieving your coursework.

**MAC-PC Compatibility:** All written submissions and group presentations must be accessible/readable on my Dell PC and the classroom computer. If you submit a file that cannot be read on my Dell PC or the classroom computer system and I have to send it back to you for reformatting, it will be considered late and all deadline penalties will apply. It is unacceptable to submit a powerpoint presentation that cannot be read, in its entirety on a PC.

**Citations:** In all written and PowerPoint submissions, you must provide complete citations so that the reader has the necessary information to locate your primary sources. Plagiarism is an academic violation with severe consequences. Please do not take risks with citation issues; consult faculty if you are uncertain when citations are necessary. The assigned scientific papers provide excellent examples of proper citation form. Select one form and use it consistently throughout the semester. In addition, the university provides tutorial services in writing research papers and you are encouraged to avail yourself of these resources if you are not comfortable with your skills in this area.

**IMPORTANT NOTE:** I will communicate with the class through Blackboard email. Communications may include changes or cancellations in class, office hours, meeting rooms or times, and/ or assignments. Please go into your personal profile in Blackboard and confirm that the email address listed is the email you will be reading on a daily basis. The class topics and reading assignments are subject to change with a weeks notice. These changes will be announced in class, posted on BB and confirmed by email.