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### PUBH 512.50: Neuroepidemiology

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## **PUBH 512 – Neuroepidemiology**

Instructors: Craig A. Molgaard, Ph.D., M.P.H., Professor and Chair  
Kathryn Fox, J.D.

School of Public and Community Health Sciences  
College of Health Professions and Biomedical Sciences  
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**Format:** Online with Moodle. Course procedures and expectations are those normally used in the online MPH program at the University of Montana. If questions arise contact Julie Stevens, [julie.stevens@umontana.edu](mailto:julie.stevens@umontana.edu), or Tracy Jones at [tracy.jones@mso.umt.edu](mailto:tracy.jones@mso.umt.edu) or (406)243-2571.

For purposes of assignments and class activities, the week starts on Monday 12:01 a.m. and ends on Sunday at midnight. Office hours will be established the first week of the semester, during which time Kathryn Fox will be available for phone calls or immediate email responses. Outside office hours, she will respond to emailed questions within 48 hours unless prior notice has been given to the class.

**Moodle Help:** UOnline has made available an interactive tutorial for using Moodle as a student. UOnline 101 can be found at:

<https://umonline.mrooms3.net/course/view.php?id=3927>.

Additional Moodle resources can be found

at: <http://umonline.umt.edu/Moodle%20Tip%20Sheets/tipsheetandvideosstudents.aspx>.

### **Contact Info:**

[kathryn.fox@umontana.edu](mailto:kathryn.fox@umontana.edu)

Phone: (770)315-0634

### **Required Texts:**

1. Nelson, Lorene, et al. Neuroepidemiology. New York: Oxford University Press, 2004.
2. Sacks, Oliver. The Island of the Colorblind. New York: Vintage Books, 1996.
3. Sacks, Oliver. Hallucinations. New York: Vintage Books, 2012.

**Other readings as assigned will be available online via the Moodle classroom.**

### **Course Description:**

This course focuses on the epidemiology of neurological diseases. Students will learn about special considerations researchers incorporate into studying neurological diseases. In addition, students will write a literature review on a particular disease and create their own study about that disease with these considerations in mind.

### **Program Public Health Competencies Addressed in Course:\***

1. Prepare Community Data for Public Health Analyses and Assessments
2. Contribute to Public Health Program and Policy Development
3. Communicate in Public Health Settings
4. Practice Public Health with People from Diverse Populations

5. Collaborate with the Community in the Practice of Public Health
6. Base Public Health Practice on Scientific Evidence
8. Exercise Public Health Leadership and Systems Thinking
9. Respond to Public Health Issues in Rural Settings
10. Use Global Insight in Responding to Local Public Health Issues

**\* For a listing of learning objectives corresponding to each competency**

see <http://publichealth.health.umt.edu/sites/publichealth.health.umt.edu/files/documents/CompetenciesStudentVersion.pdf>

**Online Format:** Readings from the textbooks and discussion questions from the texts and the instructor will form the basis of weekly class postings on the online discussion board. There will also be two exams given throughout the semester, one at midterm and one near the end of the semester. The course will conclude with a final term paper.

**Course Evaluation:** Weekly postings to the discussion board will make-up class participation, which constitutes 30 percent of the course grade. The mid-semester literature review will constitute 30 percent of the overall grade and the final term paper will constitute 40 percent of the overall grade.

**Student Assessment:**

Class participation:	30%
Mid-semester project:	30%
Final project:	40%

**Discussion Questions**

During weeks 1-5, the instructors will post discussion questions. Each week after week 6, discussion questions will be posted by students. During week 6, students will identify one article that they find interesting, published in the past few months, and post a discussion question regarding it. Students will also choose two discussion topics to respond to during week 6. Articles for week 6 will need to be posted as an attachment on the discussion board by **Thursday at midnight the week prior**. In subsequent weeks, students will identify one disease chapter from the Nelson text and lead a discussion on it in conjunction with presenting a literature review on that disease to the class. Other students will respond to the discussion questions and critique the literature review. The discussion questions on particular diseases will need to be posted **on Monday of the student's assigned week** along with the literature review. The instructors will assign students to specific weeks during the first week of class. The instructors will also assign additional readings based on the diseases chosen by students.

**Weekly postings to the discussion board**

All students are required to post a response to discussion questions posted by Thursday, midnight Mountain Standard Time of the assigned week. This format necessitates completion of readings as well as participation in the discussion board every week during the week. Class participation constitutes 30% of the grade, and both discussion questions and responses will be graded on a 1-3 pt scale. A score of 1 represents an inadequate response. A score of 2 represents an adequate response, and a score of 3 represents an excellent response.

**Mid-semester project:**

Choose a neurological disease to which a chapter is devoted in the Nelson text. Write a literature review, focusing on important research advances in the past five years, using relevant journal articles in the field. Choose a topic that you would like to design a research study on as well, as you will be doing your final project on the same disease. Include in your write-up the descriptive epidemiology of the disease as well as any interesting facts and its biological and chemical effects on an individual's brain and nervous system. Review at least 6 articles and compare and contrast the articles to each other.

**Final project:**

Use the same disease that you used in the mid-semester project. Develop a research question(s) and create a study to examine it (or them). Be sure to acknowledge strengths and weaknesses of your study as well as any possible research questions that may be collaterally answered. Also address what other studies have already determined and note, when applicable, how you have based the assumptions or methods of your study on their findings.

**Course Schedule:**

**Week 1**

The Island of the Colorblind, Book I

**Week 2**

The Island of the Colorblind, Book II

**Week 3**

Fundamental Considerations of Neuroepidemiology  
Study Design, Measures of Effect, and Sources of Bias  
Readings:

- Nelson, chs. 1-2
- Tsuang, Debby, et al. "GBA mutations increase risk for Lewy body disease with and without Alzheimer disease pathology." *Neurology*. 79.19(2012):1944-1950.
- Molgaard, C. and Golbeck, A. "Mad Cows and Englishman: bovine spongiform encephalopathy (BSE)." *Neuroepidemiology*. 9(1992):285-286.
- Washington Post Article on Nobel Prize winner D. Carleton Gadjusek: J. Gillis and J. Spinner. "A Life of Rare Purpose and Passion." *Washington Post*, Friday April 26, 1996.

Assignment:

- Choose a disease chapter from the Nelson text, chs. 5-15, on which you will focus your midterm and final projects and let Kathryn know which disease you have chosen (no two classmates may choose the same disease).
- Start working on literature review, due Week 6.

**Week 4**

Measurement and Analysis  
Genetic Epidemiology of Neurologic Disease  
Readings:

- Nelson, chs. 3-4

- Baranzini, Sergio E. and Dorothee Nickles. "Genetics of multiple sclerosis: swimming in an ocean of data." *Current Opinion in Neurology*. 25.3(2012):240-245.
- Chen, X., et al. "ApoE and CYP2D6 polymorphism with and without parkinsonism-dementia complex in the people of Chamorro, Guam." *Neurology*. 47.3(1996):779-84.
- Kurtzke, J.F. and Heltberg, A. "Multiple sclerosis in the Faroe Islands: an epitome." *J. Clin. Epidemiol.* 54(2001):1-22.

## **Week 5**

Hallucinations

## **Week 6**

Current Neurology Issues

Readings:

- Browse a recent (past 5 months) issue or two of *Neurology Today*, *Neurology*, *Neuroepidemiology*, *Lancet Neurology*, etc.

Assignment:

- Post a discussion board topic discussing one article that you found particularly interesting, why, and identify strengths and weaknesses with the arguments and research strategies employed in the article
- While each student must post a different article with a few comments about the article, students need only respond to two other postings.

## **Week 7**

Disease discussions begin

Readings:

- Relevant chapter chosen by classmate

Assignment:

All literature reviews due

Critique classmate's literature review on his or her chosen disease

## **Week 8**

Readings:

- Relevant chapter chosen by classmate

Assignment:

Critique classmate's literature review on his or her chosen disease

## **Week 9**

Readings:

- Relevant chapter chosen by classmate

Assignment:

Critique classmate's literature review on his or her chosen disease

## **Week 10**

Spring Break

## **Week 11**

Readings:

- Relevant chapter chosen by classmate

Assignment:

Critique classmate's literature review on his or her chosen disease

### **Week 12**

Readings:

- Relevant chapter chosen by classmate

Assignment:

Critique classmate's literature review on his or her chosen disease

### **Week 13**

Readings:

- Relevant chapter chosen by classmate

Assignment:

Critique classmate's literature review on his or her chosen disease

### **Week 14**

Final projects due

### **Week 15**

Present final project to class

Critique and comment on classmates' final projects

**Plagiarism:** All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php).

Plagiarism is the representing of another's work as one's own. It is a particularly intolerable offense in the academic community and is strictly forbidden. Students who plagiarize may fail the course and may be remanded to Academic Court for possible suspension or expulsion. (See UM Student Conduct Code).

Students must always be very careful to acknowledge any kind of borrowing that is included in their work. This means not only borrowed wording but also ideas.

Acknowledgment of whatever is not one's own original work is the proper and honest use of sources. Failure to acknowledge whatever is not one's own original work is plagiarism.

(Source: <http://libguides.lib.umt.edu/plagiarism>)

**Accommodation:** In accordance with University of Montana's mission to provide equal educational opportunities for all students, necessary accommodations for students with disabilities will be made whenever possible. If you require accommodations, please provide written information regarding your disability from the Disability Services as soon as possible so that accommodations can be made.