Course Information

Lead Instructor:  Kari North
Office:  Suite 306, Bank of America Building
Lecture:  2:00 – 3:15 T/Th Rosenau (PH) - Rm 0230

Required Texts:


2. Additional Readings: Readings will be made available the week before each lecture is delivered, https://sakai.unc.edu/portal

Office:  Suite 306 Bank of America Building
Office Hours:  By appointment
Phone:  966-2148

Purpose: The purpose of this course is to examine the concepts and methods of genetic epidemiology relevant to the study of complex human diseases.

Course Description: Genetic Epidemiology is a field of study that deals with the genetic etiology and distribution of diseases in populations. This course will provide students with a focused exposure to genetic analysis, with a major emphasis on association analysis. Topics will include different approaches to measuring the association of genes with disease: family history, heritability, and genetic association, how to model gene-by-environment interactions, epigenetics, and Mendelian Randomization as an approach to causal inference. Students will be exposed to the tools needed to critically review the literature in genetic epidemiology and human genetics.

Course Learning Objectives: At the end of this course, the student will be able to:

- Critically evaluate and summarize the genetic epidemiological literature
- Properly use genomic terminology
- Use internet-based resources for genetic epidemiologic and public health genomic information
- Identify limitations and omissions in the literature and design a study to fill those gaps
- Communicate public health genomic information by creating and presenting a scientific poster
**Course Co-Requisites:** Enrollment is open to all Epidemiology, Nutrition, and Biostatistics graduate students that have taken EPI 715 and BIOS 545. For all other cases, permission of the instructor is required.

**Requirements:** Grades will be based on the following:

<table>
<thead>
<tr>
<th>Event</th>
<th>Value</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>Project Topic:</td>
<td>50 points</td>
<td>2/7</td>
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<tr>
<td>Project Background</td>
<td>50 points</td>
<td>3/28</td>
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<tr>
<td>Final Project (written review/oral presentation)</td>
<td>100 points</td>
<td>4/25</td>
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<tr>
<td>Exam Questions</td>
<td>200 points</td>
<td>1/31, 2/21, 3/9, 4/11</td>
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<tr>
<td><strong>Total Points</strong></td>
<td><strong>400 points</strong></td>
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**Grading:** Letter grades are assigned according to the following scale: H (90 – 100%), P (60 – 89%), and L (50 – 60%), calculated from the requirements listed above.

**Honor system:** The Honor and Campus Codes embody the ideals of academic honesty, integrity and responsible citizenship and have governed the performance of all academic work and student conduct at the University for the past 100 years. Enrollment at this University presupposes a commitment to the principles embodied in these codes and a respect for this tradition.

**Note:** No make-up examinations will be given unless the instructor is notified before the exam is given.

**Exam Questions:** All exams will be short-answer and long-answer essay questions. Questions will be taken from the lectures and readings. There will be 4 exams that are due on 01/31, 02/21, 03/9, and 04/11. Assignments will consist of identification, short-answer essay, and long-answer essay questions. Each exam is worth 50 points.

**Course Project:** The final project is a power point presentation in which your peers and other scientists will be informed about your chosen research topic. You are to choose an article from the NHGRI website. All students will submit their final project (Powerpoint file) via Sakai on April 25th. The structure of the presentation must include:

a. **Title and Author Banner**
b. **Background** (what is the existing literature on this topic? What is the public health relevance?)
c. **Research Question/Study**
d. **Study Design/Approach** (Study design, population, measurements, analysis approach including sample size)
e. **Results and Public Health Impact**

**Oral Presentation:** Students will make their presentations on April 25 or April 27. This will be in the style of a moderated poster session; the presenter will give a 10-15 minute summary of the information. A short question and answer period will follow from the audience.