CANCER EPIDEMIOLOGY AND PATHOGENESIS (EPID 770)

FALL 2009

Tues/Thurs 12:30-1:45, McGavran Greenberg 1304
Instructor: Melissa Troester, Ph.D., M.P.H.
Office: 2104H McGavran Greenberg
Phone: (919) 966-7408
Email: troester@unc.edu

COURSE OBJECTIVE

The objective of this course is to provide fundamental knowledge about the epidemiologic and biological concepts of cancer epidemiology, and then to encourage critical thinking about these concepts. The course will cover cancer statistics, major risk factors for cancer, mechanisms of carcinogenesis, biomarkers in cancer research, as well as some current controversies in cancer research. Students will gain a background knowledge of cancer biology and epidemiology needed to interpret and critique cancer epidemiology research.

RECOMMENDED TEXTBOOKS

There is no assigned textbook for the course, but there are a few optional texts available in the bookstore that may be useful as references:


ASSIGNED READINGS

Assigned readings and study questions will be provided for each class. These readings and questions will be available through blackboard.
COURSE REQUIREMENTS

Class participation & study questions (20%)

Written Assignments (2 X 20% each)

Final Exam (40%)

WRITTEN ASSIGNMENTS

Two peer-review critiques will be written during the semester on an assigned article. The article will be taken from the current literature and the written critique should resemble a critique that would be written as a reviewer for a scientific journal. The review should begin with a summary of the purpose/scientific objective of the article and proceed to discuss strengths as well as areas for improvement. It is often helpful to divide the review into major and minor criticisms. Where appropriate, page, paragraph, and line numbers should be indicated for each major and minor point made in the critique. Students wishing to receive feedback on their first critique may submit the critique two weeks prior to the due date.

FINAL EXAM

A final exam will be administered on the last day of class during the regularly scheduled class time. The in-class exam will cover readings and lectures from the semester and will consist of multiple choice, true-false, and short answer questions. It will be open-book, but timed and must be completed within the regular class period.
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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Tues Aug 25</td>
<td>Course Introduction</td>
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<tr>
<td>Thurs Aug 27</td>
<td>Cancer Statistics: Overview</td>
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<td>Tues Sep 1</td>
<td>Cancer Statistics: Incidence</td>
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<td>Thurs Sep 3</td>
<td>Cancer Statistics: Mortality</td>
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<td>Tues Sep 8</td>
<td>Cancer Statistics: Survival</td>
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<td>Thurs Sep 10</td>
<td>Induction and Latent Periods (Millikan)</td>
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<td>Tues Sep 15</td>
<td>Cancer Risk Factors: Age</td>
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<td>Thurs Sep 17</td>
<td>Cancer Risk Factors: Family History</td>
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<td>Tues Sep 22</td>
<td>Cancer Risk Factors: Tobacco</td>
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<td>Thurs Sep 24</td>
<td>Cancer Risk Factors: Alcohol</td>
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**Assignment 1 due**

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<tr>
<td>Tues Sep 29</td>
<td>Cancer Risk Factors: Radiation (Richardson)</td>
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<td>Thurs Oct 1</td>
<td>Cancer Risk Factors: Hormones</td>
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<td>Tues Oct 6</td>
<td>Cancer Risk Factors: Obesity (Cleveland)</td>
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<td>Thurs Oct 8</td>
<td>Cancer Risk Factors: Infectious Agents (Smith)</td>
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<tr>
<td>Tues Oct 13</td>
<td>Animal Models (Millikan)</td>
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<td>Thurs Oct 15</td>
<td>Mutations in Cancer</td>
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<td>Tues Oct 20</td>
<td>Epigenetic Mechanisms – Methylation (Swift-Scanlan)</td>
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Thurs Oct 22  Fall Break
18  Tues Oct 27  Epigenetic Mechanisms -- microRNA
19  Thurs Oct 29  Field cancerization/ intraepithelial neoplasia

BIOMARKERS IN CANCER EPIDEMIOLOGY
20  Tues Nov 3  Biomarkers: Overview
21  Thurs Nov 5  Biomarker Example: In Class Group Discussion
22  Tues Nov 10  Biomarkers: Design and Biases (Ransohoff)

Assignment 2 due

CONTROVERSIES IN CANCER PATHOGENESIS
23  Thurs Nov 12  Observation vs. Experimentation
24  Tues Nov 17  Microarrays
25  Thurs Nov 19  Communicating Genomic Risks (Noel Brewer)
26  Tues Nov 24  Chemoprevention
       Thurs Nov 26  Thanksgiving Holiday
27  Tues Dec 1  Stem Cells
28  Thurs Dec 3  Course Summary and Future Directions
29  Tues Dec 8  Final Exam
READING LIST

COURSE INTRODUCTION


CANCER STATISTICS

Overview


Incidence


Mortality


Survival


Induction and Latent Periods


CANCER ETIOLOGY

Age


Family History


Tobacco


Alcohol


