Nutritional Epidemiology
EPI 645 - Spring 2016

Time: Tuesdays 12:30pm –3:15 pm

Location: A-122 Drachman Hall

Instructor:
Elizabeth T. Jacobs, Ph.D. – Course Director 626-0341 jacobse@email.arizona.edu
Arizona Cancer Center – Room 4985C

Office Hours: By appointment

Teaching Assistant: Not applicable

TA Office Hours: Not applicable

Course Description: Overview of the current issues and methods in assessing nutritional status in epidemiological studies. Issues and methods used in international studies and of chronic disease nutrition will be covered.

Course Prerequisites: EPID 573A. Statistics helpful.

Course Learning Objectives:
• Become familiar with basic concepts in nutritional epidemiology, focusing on methods used in the study of nutrition-disease associations
• Understand the strengths and limitations of different dietary and nutritional assessment methods.
• Become familiar with current trends in nutritional epidemiology.
• Learn how to read and interpret scientific literature in the field of nutritional epidemiology, and to prepare scientific reports on topics in nutritional epidemiology

Epidemiology Competencies:
Domain 1: General Knowledge
• Describes major national and international public health problems
• Describes risk factors for well-established health problems and the evidence in support of these factors

Domain 2: Problem Identification/Planning
• Defines a research or health problem by identifying gaps in the knowledge of a health issue
• Identifies steps needed to accurately assess and understand the health status of populations
• Identifies determinants of health and illness, factors contributing to health promotion and disease prevention, and factors influencing the use of health services

Domain 3: Information Skills
• Retrieves and organizes literature from valid sources of the evidence base
• Judges, critiques, and interprets research findings

**Domain 4: Communication**
• Organizes and delivers oral presentations of research findings or health issues in varying professional formats
• Interprets and presents accurate and effective demographic, statistical, and scientific information for professional and lay audiences, adapting and translating public health concepts to individuals and communities

**Domain 6: Professional Conduct**
• Recognizes and responds appropriately to ethical issues in the conduct of scientific research

**Domain 8: Study Design**
• Identifies an appropriate population and sampling strategy for testing hypotheses

**Domain 9: Study Conduct**
• Identifies issues related to successful administration of various survey instruments

**Domain 12: Data Interpretation**
• Evaluates the integrity, comparability of data, and limitations of data
• Makes relevant inferences from data analyses
• Understands and applies the principles of causality
• Identifies areas of further research

**Course Notes:** Course materials can be found on the D2L course page.

**Recommended Texts/Readings:** See each class assignment.

**Course Requirements:**
Students are expected to attend each class and participate in class discussions. This is a very interactive class that requires input from all students. **All assignments are required to be completed on or before the due date, and are to be handed in during the class period. Please do NOT email assignments.** If you need to turn an assignment in early, please drop it off at my office prior to the scheduled class. **A penalty of one point will be deducted for each day that an assignment is late, with one additional point being deducted if it is turned in after the class period during which it is due.**

**Grading/Student Evaluation:** Class participation 30%; Assignments 70%

**Grading Scale:**
- A: 89.5-100
- B: 79.5-89.4
- C: 69.5-79.4
- D: <69.5

**Class Attendance/Participation:**
All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion. Absences pre-approved by the UA Dean of Students (or Dean’s designee) will be honored. Please arrive in class on time. Late arrivals are distracting to other students as well as to the instructor, and may result in deduction of participation points.

**Course Schedule:**

**Jan. 19** Nutrition and Disease

**Dr. Jacobs**
Jan. 26  Dietary Intake Assessment/Arizona Food Frequency Questionnaire  
**Introduce assignments # 1 & 2**  

**Readings:**  
- Volkert D. Curr Opin Clin Nutr Metab Care. 2013 Sep;16(5):534-40

**Discussion:** You need to conduct a study of dietary fat intake and risk of breast cancer in women over the age of 60. What intake assessment tool will you choose?

Feb. 2  Introduction to Dietary Recommendations & Establishment of Nutritional Guidelines  

**Readings**  
- Yates AA J Nutr 131:(4s):1331s-1334s 2001  
- Murphy SP Public Health Nutr 5:843-849 2002  

Feb. 9  Nutritional Surveillance Systems and Interpretations of Nutritional Guidelines  

**Assignment #1 DUE**  

**Readings:**  

Feb. 16  The Epidemic of Obesity  

**Readings:**  

**Discussion:** What strategies do you propose to combat obesity?

Feb. 23  Biochemical Indicators of Intake  

**Enjoy a reading-free week!**

Mar. 1  Nutrition Among the Elderly  

**Readings:**  
Discussion: What are the best techniques to improve nutrition among the elderly in Tucson?

Mar. 8  Anthropometric and Body Composition Measurements  Dr. Jacobs

Readings:
Pak. Economics and Human Biology 2: 511-521, 2004

Mar. 15  SPRING BREAK

Mar. 22  International Nutrition  Assignement #2 Due  Dr. Jacobs

Readings

Discussion: What programs would you propose for improving international Food security? How would programs differ in the US vs. developing countries?

Mar. 29  Part I: Communicating Science  Dr. Jacobs
Part II: Nutritional Intervention Trials

Readings:
Shelby A. Hum Vaccin Immunother. 2013 Aug;9(8):1795-801
Bohannon, Chocolate for Weight Loss Abstract

Discussion: Is the internet good or bad for communicating science? What are some strategies for improving how we talk about science to the general public?

Apr. 5  Physical Activity  Dr. Garcia

Apr. 12  Fortification of the Food Supply  Assignement #3 DUE  Dr. Jacobs

Readings:
Rycyna K et al. Urology. 2013 Dec;82(6):1197-203

Discussion: Overall, do the benefits of folate fortification outweigh the potential risks?

Apr. 19  Vitamin D Adequacy vs. Danger of Sunlight Exposure  Drs. Foote & Jacobs
(in-class debate)

**Readings:**

**Apr. 26**  
Dietary Supplements  
**Xiao et al.,** JAMA Internal Medicine, 173(8):639-646, 2013  
**Thomas et al.,** JAMA Internal Medicine, 173(5):386-388, 2013  
**Martinez et al.,** JNCI, 102 (10): 732-739, 2013

**Discussion:** Who should use dietary supplements? What is the best public health recommendation regarding supplement use?

**May 3**  
In-class presentations

**Academic Integrity:** Students are expected to abide by the University of Arizona Code of Academic Integrity found at [http://w3.arizona.edu/~studpubs/policies/cacaint.htm](http://w3.arizona.edu/~studpubs/policies/cacaint.htm). In this course, if plagiarism or other cheating is detected on an assignment, it will result in automatic failure for that assignment as well as a written warning and a report to the Section Head, the Dean of the College of Public Health, and the Dean of Students. A second offense will result in automatic course failure and a report to the Section Head, the Dean of the College of Public Health, and the Dean of Students. This policy is in place for this class because scientific writing is a fundamental skill at both the undergraduate and graduate level in this field, and for this course. Plagiarism or other cheating demonstrates that the skills necessary for this course have not been mastered by the student, and thus the assignment will be automatically failed on the first violation, and the class will be automatically failed on the second.

If you feel you are unsure as to what might constitute plagiarism, please see me after class and/or set up an appointment so we can discuss it. There are also numerous resources at the University of Arizona, including the writing lab, to help you understand and avoid plagiarism. Plagiarism can occur when a student copies text word-for-word without quoting, fails to paraphrase, or fails correctly reference materials used for preparing a written assignment. This includes fictitious or incorrect references.

**Classroom Behavior:** Students are expected to be familiar with the UA Policy on Disruptive Behavior in an Instructional Setting found at [http://hr2.hr.arizona.edu/dos/pol_disrupt.htm](http://hr2.hr.arizona.edu/dos/pol_disrupt.htm) and the Policy on Threatening Behavior by Students found at [http://hr2.hr.arizona.edu/dos/pol_threat.htm](http://hr2.hr.arizona.edu/dos/pol_threat.htm). In this class, academic debate is encouraged; however, respect for everyone else in the classroom is expected.

**Laptops and Electronic Devices:** Much like on an airplane during takeoff and landing, laptops and other electronic devices can interfere with this class, so please turn them off. Phones can be left on vibrate if needed, but no phone calls or texting are permitted during class. Laptops should not be used during the class period, unless there is a documented need for their use. For most lectures, hard copies of class notes will be distributed. You may use your laptops prior to the beginning of class or during the break.

**Grievance Policy:** [http://grad.arizona.edu/Current_Students/Policies/Grievance_Policy.php](http://grad.arizona.edu/Current_Students/Policies/Grievance_Policy.php)
Disability Accommodation: Students who are registered with the Disability Resource Center must submit appropriate documentation to the instructor if they are requesting reasonable accommodations:
http://drc.arizona.edu/instructor/syllabus-statement.shtml

UA Smoking and Tobacco Policy:
The University's "Smoking and Tobacco Policy" is designed to promote the health and wellness of all members of the University community, including visitors to campus, and it will prohibit the use of tobacco- and nicotine-containing products on property owned or controlled by the UA. This includes the main campus, the Arizona Health Sciences Center, the Phoenix Biomedical Campus, UA South, all satellite campuses, University vehicles, and any property leased by the UA. Smoking cessation aids, such as nicotine gum, patches, and nasal sprays, will be permitted, but all other forms of tobacco or nicotine - including pipes, cigars, cigarettes and e-cigarettes, all types of smokeless tobacco, and water pipes - will be prohibited. The latest version of the policy is available at: http://policy.arizona.edu/sites/default/files/Tobacco-Free.pdf

Syllabus Changes: Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate.

ASSIGNMENTS

First, a word about class participation. As you can see from the grade breakdown, class participation is an imperative part of this class. Please come to each class session prepared to discuss the readings, as this will account for a full 30% of your grade.

Assignments: 70% of course grade

Assignment #1 Due February 9, 2014          10 points

Dietary Guidance: MyPlate.gov
This assignment is meant to familiarize you with online resources from the USDA to help consumers with dietary choices. Log onto the ChooseMyPlate.gov website and click through Interactive Tools>>SuperTracker>>Food Tracker. Enter your day's food and beverage intake. Then log into the Physical Activity Tracker and enter your physical activity information.

To turn in:  1) Copy of your nutrient intake results.
2) Copy of your activity results.
3) A brief one-page review of the experience of using the ChooseMyPlate.gov resources. How 'user-friendly' is the resource for consumers? What did you learn? How would you improve it? Although there is no right or wrong to an opinion, as an investigator your review should be well-written, using correct grammar and spelling.

Assignment #2 Due March 22, 2014          25 points

Designing a Nutritional Epidemiology Study
This assignment will require the use of what you have learned so far about dietary intake assessment. This assignment should be four pages, maximum, with five references that were not
used in class. You will design a study that will investigate the role of the trace mineral selenium on the risk of colorectal cancer. The following must be included in your study design:

1. Write your hypothesis
2. Describe your study design (case-control, cohort, clinical trial, etc.) and its strengths and limitations
3. Provide a rough estimate of population size you think you will need. You do not need to do a sample size calculation.
4. Explain how you will recruit your population
5. Describe how you will evaluate selenium intake
6. Give a general description of how you will analyze your results

Assignment #3 Due April 12, 2014

Folate Fortification Argument

Write a three-page argument regarding the appropriateness/inappropriateness of folate fortification of the food supply to prevent neural-tube defects. For this assignment, you **must** choose a side (either folate fortification is good or it is bad). Please use 5 recent journal articles as references in addition to the ones that were assigned for class.

Assignment #4 In-class presentations, May 3rd

Reporting Nutritional Epidemiology Results

For this assignment, you and a partner will prepare a 20-minute presentation for the class, to include visual aids. The overall concept for this assignment is to find an article regarding nutritional epidemiology in the media (old timey newspaper or online), and to critique its accuracy. After finding the news article, you will then find the scientific article on which the news story was based in a scientific journal, and critique the article. Your presentation must include the following elements:

1. The title and basic idea of the news article
2. The rationale, objectives, methods, results, and conclusions of the scientific article
3. A comparison of the news article and the scientific article and whether the news article accurately reflected the scientific article
4. How the news article might have been improved
5. To reiterate, the article that you choose must be related to NUTRITIONAL EPIDEMIOLOGY. This can include clinical trials or observational studies, but it must be related to nutrition.
6. It is a good idea to have a fairly recent article, within the last calendar year
7. If you can find discussions of the article online you can add that information to your presentation.
8. BRING YOUR NEWS ARTICLE TO ME NO LATER THAN 2 WEEKS BEFORE YOUR PRESENTATION FOR APPROVAL. This is to ensure that no two groups present on the same article and thereby put everyone to sleep.
Your presentation will be followed by a 5-minute question and answer period. Please bring your presentation on a USB drive or have it ready on Prezi or similar.