Course Objectives: This is an interdisciplinary course focused on population-based research on obesity, including international and national trends in obesity, its determinants, and consequences. The course will provide a broad survey of obesity research, including measurement issues, biological, social and economic etiologies, health and economic consequences, and prevention and treatment of obesity. Upon completion of the course, students are expected to be able to:

1. Describe the assessment of body composition and weight status, including appropriate methodologies and reference data for adults.
2. Describe the global trends in diet, physical activity, obesity, and obesity-related co-morbidities.
3. Describe the social and economic etiologies of obesity.
4. Describe the biology and medical physiology of adiposity.
5. Describe the medical, economic and psychosocial consequences of obesity.
6. Describe the medical and psychosocial criteria used by clinicians to determine if, when and how weight loss is recommended.
7. Discuss the efficacy and limitations of different individual, group, community and large-scale societal prevention and treatment strategies.

Laptop Policy: We welcome the use of laptop computers for class purposes (i.e. note taking), however we expect that students who bring their laptops to class will use them for academic purposes only. Web-based activities like surfing the internet, updating social networking pages, or engaging in any other extracurricular activities will not be tolerated. Please remember that engaging in such activities during class time is disruptive to fellow students who can see your screen. It is also unacceptable for any of our esteemed visiting guest lecturers to see such non-academic activities during class time. Full engagement in the class is part of the class participation component of the final grade.
Work Expectations:

1. **Attendance:** Attendance is an important part of this class, as we feel you’re your presence and active participation contribute greatly to the success of the course. Thus, students are expected to attend all course lectures and actively engage with and participate in class discussions. Students are also responsible for all material and assignments made or discussed in class whether they are in attendance or not. All absences should be reported to the instructors and TA, so that we may keep record of the number of classes you missed, and the reasons for your absence. Under certain circumstances, excused absences (e.g. attending a professional conference) will not count against your attendance grade, but a brief document will need to be completed and submitted to us following your return. Students are expected to be in class on time with **cell phones turned off**. It is distracting to your fellow students and to the presenter when you come in late and/or carry on your own conversations while the presenter is speaking. Similarly, at the end of the scheduled class time students are expected to show respect and professionalism to all guest lecturers and fellow their classmate by not packing up and/or leaving before the lecture/discussion is over. Please understand that if you plan to use public transportation to get to and from campus, you will need to factor in the scheduled 3:50 end time in your transportation planning.

2. **Mid-term Paper:** Each student will write a 5-7 page individual literature review paper on a topic not covered in the syllabus. *Detailed instructions for the paper as well examples from previous years can be found on Sakai under Course documents -> Assignments -> Sample Papers.* Students may choose a determinant or consequence of overweight and obesity or a treatment or prevention approach.
   a. **Topics** should be **approved** by course instructors by **February 2nd**
   b. **Papers** are **due March 1st**
   c. An **abstract** for the paper is **due March 15th**.

3. **Oral Presentation:** Each student will prepare an SHORT oral presentation based on their mid-term paper. Presentations should be roughly 2 minutes on their chosen paper topic, and should contain 3 slides:
   a. Your research question.
   b. The bottom line: what did you find in your literature review?
   c. How strong is the evidence?

The goal of these presentations is provide enough information about the topic and what you found to generate class discussion. In addition, each student will be assigned to one other students’ paper topic and will serve as lead discussant during the presentation. Each student should also prepare a one page handout

4. **Hot Topics Presentations:** Each week we will discuss one or two hot topics around the issue covered that day. Depending on the number of students, each student will be assigned to a specific class day for their hot topic assignment. Each student will be responsible for identifying a relevant hot topic and selecting a research paper on his/her selected hot topic. The student will lead a class discussion relating to the hot topic: why it might be in the news or receiving considerable research attention, whether the topic has scientific integrity or support, and what the implications might be. The student will provide the paper to the class 1 week in advance (and 10 days in advance for professor & TA comment on the topic). All students will be expected to read the hot topic paper and come to class prepared with at least 1 question to ask the leader of the hot topic discussion.

5. **Exams:** Students will individually complete 1 short take-home exam at the end of the term. Due **April 26th** by 5:00pm. An in-class exam will be administered on May 4th at 4:00
6. **Class Participation**: Active participation in class discussions is a valuable means of engaging the material (and your fellow students) and helps to ensure that students understand the material being presented. Questions during class time are highly encouraged. Preparation for and participation in class discussions are expected; class participation counts towards **20% of your final grade**. Please note that absences, especially if unexcused, will count against your class participation grade.

**Honor System**: The Honor Code is in effect in this class and all others at the University. We are committed to treating Honor Code violations seriously and urge all students to become familiar with its terms set out at [http://instrument.unc.edu](http://instrument.unc.edu). If you have questions, it is your responsibility to ask about the Code’s application.

**All written work** and other projects must be submitted with a statement that you have complied with the requirements of the Honor Code in all aspects of the submitted work.

**Late work**: All late work... *(formal policy across all assignments or for each assignment individually? There is a note about late final exams on the final exam instructions, but not sure about other assignments.)*

**Grading**:

- Class participation, including Hot Topics: 25%
- Mid-term Paper: 25%
- Oral Presentation: 20%
- Exam: 30%

**General structure of Classroom Experience**

**THREE topics**
1:00-1:30: Topic 1
1:30-2:00: Topic 2
2:00-2:15 BREAK
2:15-2:45; Topic 3
2:45-3:50: Hot Topics

**TWO topics**
1:00-1:45: Topic 1
1:45-2:00: BREAK
2:00-2:45 Topic 2
2:45-3:50: Hot Topics

[A detailed description of the course topics and readings follow]
<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPICS / READINGS</th>
<th>LECTURER</th>
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<tbody>
<tr>
<td><strong>Introduction and Key Concepts, Demographic Trends in Obesity</strong></td>
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<tr>
<td>Thursday, January 10th</td>
<td><strong>Obesity Cell to Society</strong></td>
<td>Penny Gordon-Larsen</td>
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<td><strong>Measurement and Definition of Obesity</strong></td>
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<td><strong>US and International Prevalence and Trends, Urbanization, and Economic Disparities</strong></td>
<td>Andy Swick</td>
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<td><strong>Overview of energy balance and regulation of body weight</strong></td>
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<td><strong>Determinants</strong></td>
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<tr>
<td>Thursday, January 17th</td>
<td><strong>Behavior and Energy Balance</strong></td>
<td>Barry Popkin</td>
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<td><strong>Diet and Energy Balance: The Nutrition Transition, Demographic and Race/Ethnicity Dynamics</strong></td>
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<td>What causes us to consume more calories and how do these food components and behaviors impact energy balance?</td>
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<td>Sweetness and beverages</td>
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<td>Fat, fiber, whole grains, glycemic index, other food constituents</td>
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<td>Energy Density</td>
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<td>Our evolving ways of eating and their effect on obesity</td>
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<td>- Popkin B We Are What We Drink” (Chapter 2). The World is Fat. New York: Penguin, 2009.</td>
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<td></td>
<td><strong>Optional Readings:</strong></td>
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**Physical Activity & Energy Balance: The Sedentary Transition, Demographic and Race/Ethnicity Dynamics**

**Biology and Physiology of Exercise and Relationship with Obesity**

Biological mechanisms through which exercise influences obesity  
Fit but fat?

- Church T, Blair SN. When Will We Treat Physical Activity as a Legitimate Medical Therapy...even though it does not come in a pill? *Br J Sports Med*. 2008 Oct 16.

*Optional Reading*, for those with a special interest in exercise, a comprehensive treatment can be found in:


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**Thursday, January 24th**

**Appetite Hormone Disturbances in High Risk Obesity Subgroups**


**Central Regulation of Food Intake or Neurobiology of Food Intake**

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**Thursday, January 31**

**Energy balance – physiology and regulation**

**Energy Balance**

- Swinburn et al. (2009) Increased food energy supply is more than sufficient to explain the US epidemic of obesity. *Am J Clin Nutr*; 90(6):1453-6

*Optional Reading*:

- Shin et al. (2009) An expanded view of energy homeostasis: Neural
integration of metabolic, cognitive, and emotional drives to eat. Physiology & Behavior; 97: 52-580

**Diet, energy balance - cellular level**

**Required:**

**Optional:**

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**Thursday, February 7th**

**The Evolution of Human Fatness:**
Biological Significance, Principals and Regulation of Body Fat

**Mechanism:** Genetics & obesity as recent phenomenon
- O’Rahilly S, Farooqi IS. Human obesity: a heritable neurobehavioral disorder that is highly sensitive to environmental conditions. Diabetes. 2008;57:2905-10.

**How is appetite regulated? Pathways & Mechanisms Genetics & brain and gut**

**Optional Reading:**
- Wardle J & Cooke LJ. One man’s meat is another man’s poison. EMBO reports. 2010; 11(11):816-821

**Epigenetics, Environment and Obesity**

**Genetics of Obesity**

**Optional readings:**
- Graff M et al. The combined influence of genetic factors and sedentary activity on body mass changes from adolescence to young adulthood: the National Longitudinal Adolescent Health Study. Diabetes/Metabolism Research and Reviews 2010, Published online in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/dmrr.1147.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Authors</th>
</tr>
</thead>
</table>
| Thursday, February 14th | Behavioral Factors  
Child Feeding Styles  
Cultural Perspectives: Focus on Latino & African American Populations  
Sandra Albrecht |
| Thursday, February 21st | Biology and Medical Physiology of Adiposity and its Consequences  
Overview of Biological and Epidemiological Consequences of Obesity  
What is obesity doing that leads individuals to develop diabetes, cancer, and inflammation?  
- Mayer-Davis E. et al. "Risk Factors for Type 2 and Gestational Diabetes" (Chapter 2). Diabetes Public Health: from Data to Policy. In Press.  
Melinda Beck  
Marilie Gammon |
| Thursday, February 28th | Individual Level Treatment Approaches: Primary Care Practices  
What is the role of family practitioners and pediatricians? What are barriers to successful prevention and treatment?  
Surgical Approaches  
What surgical treatments are available?  
Tim Farrell |
| Thursday, March 7th | Overview of Pharmacological Approaches  
What are the classes of treatment drugs? What are they designed to do?  
Karin Corbin |

Overview of popular diet plans: What’s all the hype?

**Optional Reading:**

**SPRING BREAK (March 14th)**

<table>
<thead>
<tr>
<th>Thursday, March 21st</th>
<th><strong>Obesity in the Modern Context: Controversial factors: Organic Pollutants and Arsenic</strong></th>
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<tbody>
<tr>
<td></td>
<td>Individual presentations followed by Panel Discussion and Q &amp; A</td>
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  http://dx.doi.org/10.1289/ehp.1104579

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<tr>
<th>Thursday, March 28th</th>
<th><strong>Societal and Macro-Approaches: Regulatory Options</strong></th>
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<tr>
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<td>Labeling-new initiatives, regulations, economic incentives and pricing, taxation, subsidies, ag sector, Global issues, Food industry issues</td>
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<tr>
<th>Thursday, April 4th</th>
<th><strong>Cultural and Societal Perspectives</strong></th>
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</thead>
</table>
- Robinson TN. Reducing children’s television viewing to prevent obesity: A

Jerry Heindel
Miroslav Styblo
Barry Popkin
Nori Commello
**Introduction to Obesity: From Cell to Society**

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**Social & Psychological Aspects of Obesity: Mind and Body**

Does weight bias exist? If so, in what settings do we find it? Are there health consequences associated with weight bias?


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**Thursday, April 11th**

**Behavior** Individual and Group Level Behavioral Approaches: Randomized Trials, Website Innovations

**Influences (Role of media)**

- Wadden TA, Butryn ML, Byrne KJ. Efficacy of lifestyle modification for long-term weight control. Obesity Research 2004, 12:151S-162S.
- Tate DF, Jackvony EH, Wing RR. A randomized trial comparing human e-mail counseling, computer-automated tailor counseling, and no counseling in an internet weight loss program. Arch Intern Med. 2006;166:1620-1625.

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**Obesity: Economic Determinants**

Social and economic Inequalities
Cost effectiveness, economic incentives and pricing, insurance industry


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**Thursday, April 18th**

**Community-Level Approaches: US & Global Case Studies**

**Sommerville, Arkansas**


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**Thursday, April 25th**

**Class Presentations:**

CLASS WRAP UP OVERVIEW, Distribution of Final Take Home Exam

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Samantha Attard
Deb Tate
Shu Wen Ng
Students