

AH/NUSC 130: Interdisciplinary Approach to Obesity Prevention, 3 credits, Spring 2008
Departments of Allied Health Science and Nutritional Sciences (Storrs Rm 011)

Instructors:

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Teaching Assistant:

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Office Hours: Before and after class, other times by request (recommend advance notice if possible)

Communications: The instructors and TA welcome communications! Use HuskyCT or email for the quickest response. Telephone can accommodate communications that cannot be addressed through electronic means.

Class Times: Monday 10-11:15 and Friday 1:30-2:45

Course Description—Obesity is considered a national epidemic and possibly a pandemic as it affects many developed countries around the world. This interdisciplinary course explores the 1) biology of obesity including genetic predispositions and behaviors that increase obesity risk (dietary, physical activity, social, psychological), 2) the obesigenic environment, including how communities are physically built, as well as the economic relationship to obesity risk, and 3) policy and ethical implications for obesity prevention. Multi-level obesity prevention approaches that involve the individual, family, organization, community, and policy will be considered. The format will consist of common lectures, weekly discussions, hands-on activities, team projects, and synthesis of material presented.

Objectives—This course takes an interdisciplinary approach to obesity, a complex public health problem while meeting the Science & Technology general education requirements (Senate approved 12/07). The instructors will seek Diversity and Multiculturalism approval. Too often complex health problems are addressed unidimensionally or with a “Band-Aid” solution, looking for that “silver bullet,” the new fad diet or way to burn fat. Instead, this course will offer introduction to biological, psychological, sociocultural, economic, environmental and political factors that influence the balance and imbalance of energy consumption and energy expenditure. From a biological perspective, we will consider energy consumed through foods and beverages and that expended through normal body functions and physical activity with some exploration of genetic influences on energy intake/expenditure. The deceptively simple energy equation (ie, just eat less and you’ll lose weight) will be developed to consider psychological, cultural and economical influences on what we like and chose to eat and whether or not we are physically active. The course will continue on the role that the environment—foods available, opportunities for enjoyable physical activity— and policies that govern the environment have on risk of obesity. Examination of models of obesity prevention will promote a synthesis of that individual factors contributing to obesity risk into multidimensional efforts to facilitate healthy behaviors at the individual, organizational, and community levels.

Science and Technology Criteria

- **Explore an area of science or technology by introducing students to a broad, coherent body of knowledge and contemporary scientific methods**—This course introduces the broad area of obesity risks and models of prevention. It uses an interdisciplinary approach introducing students to obesity risk and prevention related to field such as genetics, psychology, sociology, metabolism, economics, epidemiology, medicine, public health and public policy. Students base their evidence summaries of topic areas from the peer-reviewed, scientific literature.

- **Promote an understanding of the nature of modern scientific inquiry, the process of investigation, and the interplay of data, hypotheses and principles in the development and application of scientific knowledge.** Students will dissect a peer-reviewed, original contribution to the scientific literature including review of past discoveries, statement of aim/hypothesis, experimental approach, methods, general description of the results and statistical approaches, summary of findings, limitations, and application (generalizability). Summary of the evidence would evolve from examining the scientific literature from a variety of experimental approaches, with the highest level of scientific evidence coming from randomized clinical trials. It is important for the student to realize that evidence can come from basic science but that the utility of this evidence must be tested under the highest level of scientific discovery for it to be applicable to addressing the obesity problem. The student can apply this framework to evaluate claims about obesity risk and prevention within the media.

- **Introduce students to unresolved questions in some area of science or technology and discuss how progress might be made in answering these questions.** The primary causes of risk of obesity and best approaches to prevent this chronic condition are debated. Students will discover this through participation in lectures, with peers and self-exploration of the scientific literature. Most experts believe that a multi-component approach that broadly considers the environment while at the same time more narrowly considers the individual, including genetic predisposition and cultural beliefs, will be most successful to preventing obesity. More often than not, a single approach is used (eg, teach student about healthy eating, but not address access to physical activity). Throughout the course, students will learn that their individual topic area must be considered within the context of other approaches to work with their peers to formulate a broad approach to obesity prevention and how this approach might be evaluated for impact on obesity risk.

- **Promote interest, competence and commitment to continued learning about contemporary science and technology and their impact upon the world and human society.** The increase in rates of obesity have been widely publicized and it is hoped that students seeking this class will have been exposed to the publicity and also have an interest in health from a variety of approaches or fields. Competence in identifying, reading, comparing and evaluating the scientific literature will be developed through the course, first starting at the introductory level and advancing through the semester based on participation, group work, assignment and interactions with faculty and guest lecturers. It is hoped students will apply the framework for uncovering and applying scientific evidence to solve a complex problem to questions throughout their academic career including their courses and honors projects. The interdisciplinary approach will demonstrate the breadth of scientific methods to addressing obesity and could pique their interest in working on this problem or in any of the disciplines presented. Students will gain an appreciation of the personal, economical and societal costs of growing rates of obesity including loss of quality of life, decreasing productivity, and the costs of prevention and treatment.

Science and Technology Learning Objectives—Students will be able to:

- 1) describe basic concepts of nutrition and physical activity at the biological and public health level as it applies to the study of obesity

- 2) state the risk versus benefits of false versus scientifically derived claims to improve weight-related health and quality of life.
- 3) describe and rank the levels of scientific inquiry in the study of obesity
- 4) identify the uses of scientific investigation toward increasing the understanding of causes of obesity.
- 5) demonstrate the application of the scientific method through analysis and comparison of studies into obesity risk and comparison including evaluation of the aims, methods, results, discussion, implications and limitations.
- 6) evaluate of a scientific claim for weight loss available to consumers.
- 7) describe a scientific experiment and the step of the scientific investigation as it applies to their individual topic related to obesity and obesity prevention.
- 8) identify unresolved scientific questions through the scientific studies they include in their topic papers and through recall of class discussion on topics applied to obesity prevention.
- 9) discuss the risk versus benefits of technological advances in obesity prevention (eg, genetic risk of obesity) as well as ethical issues in setting policies for obesity management and prevention.

Diversity and Multiculturalism Criteria

Obesity is a biological or medical label that means an excessive amount of body fat that is greater than that considered healthy for a given height or frame, which ultimately can increase the likelihood of certain diseases or other health problems. While some components of this label can be measured precisely, the concept of health is not a strict biological definition and encompasses quality of life within the context of society and culture definitions. Although some causes of obesity are genetic, these genes are expressed or not by interaction with an environment that varies in terms of food supply, food meaning, work requirement, wealth, education, and health care systems.

This course covers Diversity and Multiculturalism themes for general education as outlined below. Through these experiences, students will demonstrate a window of understanding of the varieties of human experiences in these different geographic regions regarding environmental influences and beliefs regarding a biologically-defined condition.

1. Emphasize that there are a variety of human experiences, perceptions, thoughts, values, and/or modes of creativity. This goal is accomplished by the following activities:
 - Self-reflection on implicit attitudes toward overweight/obese individuals by participating on the online implicit attitude test constructed by Mahzarin Banaji and her team <https://implicit.harvard.edu/implicit/demo/measureyourattitudes.html>.
 - Since acceptable body image varies across cultural groups as shown in the scientific literature (eg, "ethnology" AND obesity AND body image), students will read, reflect, and discuss on the impact of these cultural differences and how these differences influence prevention efforts for a diverse society.
 - Students will explore the varieties of human experiences, perceptions and thoughts regarding the medical definition of obesity by researching a geographic region of the country or world that has high rates of biologically-defined obesity. By use of the Internet, scientific literature, media and professional contacts, they will uncover information about the changes in the rates of obesity in the geographic area, the food environment and customs, work and physical activity, demographic information (including income and education), public perceptions of the condition, and public health goals and actions to address this health concern. Through class mini-presentations and discussion, students will compare and contrast their geographic areas with others in the class for differences as well as similarities among diverse groups.
2. Develop an awareness of the dynamics of social, political, and/or economic power in the context of any of categories.

• Obesity prevention can present a struggle between goals for weight based on a medical model (eg, percentage of individuals with a body mass index < 25) and those based on cultural beliefs and economical and environmental barriers. This struggle creates tension between ethical issues of autonomy, beneficence, maleficence, and justice. Should society dictate what weight someone should have or should a public school system weigh a child and label him/her as obese? Will this label do more harm than good? Should obese individuals have higher insurance premiums? How should pay for obesity prevention services – is it personal responsibility or society responsibility? What is the appropriate level of investment in obesity prevention? Does scientific evidence exist to make major policy decisions on obesity prevention efforts? What is the personal and societal cost if society takes a wait and see attitude toward the obesity problem.

Required Textbook: McGraw-Hill Primis book designed for this course encompassing chapters across many disciplines that address obesity addressing the balance between energy intake and expenditure from biological, public health, psychological, policy, and business perspectives.

Other readings will be required as assigned or as directed by student research

Format: Fridays will involve presentation of material by the instructor or guest lecturer. All students are responsible for the content of these group meetings. On Mondays, students will be engaged in smaller interdisciplinary groups for active participation and work on two projects. One project involves addressing a broad area concerning obesity risk from an individual, community and national policy perspective. The second involves exploring interactions between ancestry and environment to influence obesity risk in a region of the world. The end of the class will involve synthesis of concepts presented toward prevention models and public health efforts.

Course Evaluation:

- 1) 30% Portfolio—Students will develop the portfolio throughout the semester based on reflections on readings, assignments, and application of information. Components include:
 - a. reflections on readings
 - b. reflections on class assignments
 - c. obesity risk and interventions across the globe
 - d. ethical issues regarding obesity and obesity prevention
 - e. obesity related current topics
 - f. synthesis
- 2) 30% Team Project: Each student will be a member of an interdisciplinary team that will develop content on an area of obesity risk involved with energy intake and energy expenditure and an overall “consensus approach” how to address this problem for obesity prevention. The instructors will evaluate the team project on:
 - a. how each individual student topic is integrated into the team project
 - b. the team process
 - c. the team PowerPoint presentation and consensus
 - d. integration across team in the class
 - e. individual 10-page hypothesis-based paper
- 3) 20% Class Participation/Preparedness: Much of the grade will be based on mini-class presentations and discussion in class and HuskyCT in which students compare and contrast their geographic areas with others in the class for differences as well as similarities among diverse

groups. Bringing in current news or readings on class topics, generation of questions for discussion, and participation in the sections will also be considered.

- 4) 20% Cumulative Final: Students will be tested on the ability to apply the general scientific concepts discussed each week. This final would test their overall knowledge of acquired science principles.

Academic Misconduct Statement

Academic misconduct in any form is in violation of the University of Connecticut Student Conduct Code and will not be tolerated. This includes, but not limited to: copying or sharing answers on tests or assignments, plagiarism, and having someone else doing your academic work. Depending on the act, a student could receive an F grade on the test/assignment, F grade in the course, or could be suspended or expelled.