NUTR 301: Nutrition in the Lifecycle  
Spring 2019

Class Meetings: Tuesdays, 1:30-4:30 PM in Jaharis 118

Instructor(s): Erin Hennessy, PhD, MPH (erin.hennessy@tufts.edu; 617.636.3636)
Teaching Asst.: Darcy McDonough (darcy.mcdonough@tufts.edu)
Office Hours: Office hours by appointment.

Graduate Credits: 1.5 Semester Hour Units

Prerequisites: NUTR 202 OR NUTR 245 and NUTR 246; Degree requirement to FANPP Ph.D. students

Course Description: This course covers nutrition issues from preconception throughout adolescence, with a particular emphasis on nutrition correlates of normal growth and development and the consequences of under and over nutrition. The course will also consider the environmental and physiologic correlates of growth and development. It briefly considers the role of nutrition in the context of the normal physiologic changes that occur with aging.

Course Objectives: The purpose of this course is to:

- Provide students with an understanding of the role of nutrition and food-related behaviors on health from pre-conception through adolescence.
- Demonstrate the application of science to the development and implementation of interventions to improve nutrition, food, and physical activity-related behaviors. Students will understand the extent to which major interventions have met the intended objective and where gaps remain.
- Provide students with an understanding of the major nutrition-related public health problems that affect individuals from conception throughout growth and development.


NOTE: This book is available in an online version for approximately half the price of the hard copy. There are also copies on reserve in the library.

Academic Conduct: Each student is responsible for upholding the highest standards of academic integrity, as specified in the Friedman School’s Policies and Procedures Handbook and Tufts University policies. It is the responsibility of each student to understand and comply with these standards, as violations will be sanctioned by penalties ranging from failure on an assignment and the course to dismissal from the school.
Assessment and Grading:

Food for Thought Responses: 30%

Prior to each class, students will be required to submit a brief written response (≤500 words) on Canvas to a question(s) based on the assigned reading for the week. Weekly submissions will be due by midnight the Sunday before class. The primary goal of Food for Thought Responses are to assess comprehension of reading material. A key focus of these assignments is to synthesize and translate course content to the specified individuals/target audience in a succinct way that they can grasp and readily use. Assignments will be scored out of three total points and be based on the following:

- Correct presentation of content based on material from textbook and other assigned readings (1 point)
- Synthesis and translation of content to designated target audience. Creativity with delivery of key messages is welcome! (1 point)
- Writing quality including clarity, conciseness, grammar, and punctuation (1 point)
- Late submissions will be penalized 1 point per day.

Class Participation and Attendance: 20%

Students will be expected to attend and participate in class. To do that, students must complete the required reading before each class.

Final: 50%

The final exam (Tuesday, March 12, 2018) will consist of three case study problems to solve. Students will choose two of the three questions to respond to. Solving these questions will require knowledge of the material contained in readings, as well as information presented in class. This exam will be completed on Canvas and students can use the textbook and course slides for reference.

Grading Range:

A passing grade in the course is B- or better. Course grades will be based on the below (subject to revision during the course):

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt; 94%</td>
</tr>
<tr>
<td>A-</td>
<td>90 - &lt;94%</td>
</tr>
<tr>
<td>B+</td>
<td>87 - &lt;90%</td>
</tr>
<tr>
<td>B</td>
<td>84 - &lt;87%</td>
</tr>
<tr>
<td>B-</td>
<td>80 - &lt;84%</td>
</tr>
</tbody>
</table>

Instructions for Submission of Assignments and Exams: Food for Thought Assignments received after their deadline will be subject to a 1 point deduction per day. Students who are unable to complete an assignment or exam on time for any reason should notify the instructor by email or phone call prior to the deadline, with a brief explanation for why the extension is needed.

Accommodation of Disabilities: Tufts University is committed to providing equal access and support to all students through the provision of reasonable accommodations so that each student may access their curricula and achieve their personal and academic potential. If you have a disability that requires reasonable accommodations please contact the Friedman School Assistant Dean of Student Affairs at 617-636-6719 to make arrangements for determination of appropriate accommodations. Please be aware that accommodations cannot be enacted retroactively, making timeliness a critical aspect for their provision.

Tufts WebEx: Friedman’s on-campus courses may be offered by Tufts WebEx (https://it.tufts.edu/webex) on days when the Boston campus is closed due to weather or a temporary cancellation issue. Students should expect to be notified by email in the event that class is cancelled and will be provided with the WebEx link for students to use for any remote
class sessions. Also, any relevant course slides or materials will be made available on Canvas. The WebEx will be recorded and posted on Canvas when completed. If an on-campus Examination/Presentation was scheduled on a day when the Boston campus is closed due to weather or a temporary cancellation issue, the exam/presentation will be rescheduled for an alternate on-campus class session date.

**Diversity Statement:** We believe that the diversity of student experiences and perspectives is essential to the deepening of knowledge in this course. We consider it part of our responsibility as instructors to address the learning needs of all of the students in this course. We will present materials that are respectful of diversity: race, color, ethnicity, gender, age, disability, religious beliefs, political preference, sexual orientation, gender identity, socioeconomic status, citizenship, language, or national origin among other personal characteristics.

**Course Topics and Assignment Schedule at a Glance:**

<table>
<thead>
<tr>
<th>DATE OF CLASS</th>
<th>TIME</th>
<th>COURSE TOPIC</th>
<th>LECTURER</th>
<th>ASSIGNMENTS DUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 22</td>
<td>1:30-2:45</td>
<td>Introduction; Nutrition During Lactation</td>
<td>Hennessy</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>2:45-4:30</td>
<td>Nutrition During Lactation</td>
<td>Yvonne Maalouf, IBCLC</td>
<td></td>
</tr>
<tr>
<td>January 29</td>
<td>1:30-4:30</td>
<td>Preconception Nutrition</td>
<td>Hennessy</td>
<td>Food for Thought Assignment #1</td>
</tr>
<tr>
<td>February 5</td>
<td>1:30-4:30</td>
<td>Nutrition During Pregnancy</td>
<td>Hennessy</td>
<td>Food for Thought Assignment #2</td>
</tr>
<tr>
<td>February 12</td>
<td>1:30-2:45</td>
<td>Feeding problems in children</td>
<td>Linda Bandini, PhD, RD</td>
<td>Food for Thought Assignment #3</td>
</tr>
<tr>
<td></td>
<td>2:45-4:30</td>
<td>Introduction to Solid Foods; Toddler/Preschool Child Nutrition</td>
<td>Hennessy</td>
<td></td>
</tr>
<tr>
<td>February 19</td>
<td>NO CLASS</td>
<td>NO CLASS</td>
<td>NO CLASS</td>
<td></td>
</tr>
<tr>
<td>February 26</td>
<td>1:30-3:30</td>
<td>Child and Preadolescent Nutrition</td>
<td>Hennessy</td>
<td>Food for Thought Assignment #4</td>
</tr>
<tr>
<td>February 28*</td>
<td>(Thur)</td>
<td>12:15-1:15 Food Allergies in Children</td>
<td>Michael Pistiner, MD</td>
<td></td>
</tr>
<tr>
<td>March 5</td>
<td>1:30-3:30</td>
<td>Adolescent Nutrition</td>
<td>Hennessy</td>
<td>Food for Thought Assignment #5</td>
</tr>
</tbody>
</table>
Detailed Description of Course Topics, Assignment Schedule, and the Learning Objectives for Each Class Session:

Class 1: Tuesday January 22, 2018

Nutrition During Lactation

Erin Hennessy
Yvonne Maalouf, Board Certified Lactation Consultant

This class focuses on feeding the infant from birth to six months. It provides an overview of the physiology of lactation, nutrient needs for lactation, the advantages/disadvantages to breast feeding, and a discussion of alternatives to breast feeding. Trends in breast feeding and programs to promote it will also be discussed.

Learning objectives:
- Describe the anatomy and physiology of human lactation.
- Identify the advantages of breast feeding, incidence of breast feeding, technique for successful breast feeding, physical discomforts, maintenance of lactation during separation and illness, special breast-feeding circumstances; reasons for lactation failure.
- Provide examples of potential contraindications to breast feeding, including implications of contaminants in breast milk, maternal HIV/AIDS, drug use.
- Describe alternatives to breast feeding.
- Explain approaches to feeding low birth weight and premature infants.
- Identify nutrient requirements for lactation and how these are met through various dietary alternatives.
- Recognize the role of breast-feeding promotion programs and public health campaigns in the US and internationally.
- Appreciate the role of breastfeeding in the prevention of chronic disease.

Readings
1. Brown: Chapter 6; Chapter 7
Part I. Preconception Nutrition

This session provides a framework to discuss the role of nutrition as it affects every stage of life from preconception through adolescence. It also focuses on the role of nutrition as it affects women of child-bearing age, and on the physiology of pregnancy.

Learning objectives:

- Describe the effects of nutrition at one life stage on health profiles at other life stages.
- Explain the effects of nutritional status prior to conception on both fertility and pregnancy outcome.
- Identify programs to improve nutritional status in pre-pregnant women.

Readings

1. Brown, Chapters 2, 3
**Class 3: Tuesday February 5, 2018**

**Erin Hennessy**

**Nutrition During Pregnancy**

This session focuses on the role of nutrition during the nine months of normal pregnancy, on the effects of suboptimal nutrition and poverty, and of underlying disease on pregnancy outcome.

**Learning objectives:**

- Explain how nutrition (nutrient requirements, dietary patterns, food safety) affects the physiology of pregnancy, fetal growth and development and pregnancy outcome in both the mother and the child in both singleton and multi-fetal pregnancies. This session also will focus on determinants of low birth weight, including under nutrition.
- Describe the science and cultural components of food beliefs and food aversions and about common complaints during pregnancy that have dietary implications.
- Explain underlying diseases such as hypertension, diabetes, HIV/AIDS and inborn errors of metabolism that affect pregnancy outcomes and to understand the special implications of food safety during pregnancy.
- Identify common complications of pregnancy, such as pre-eclampsia and eclampsia and gestational diabetes.
- Recognize the role of physical activity during pregnancy and its effect on pregnancy outcome.

**Readings**

2. Brown, Chapter 4; Chapter 5
Class 4: Tuesday February 12, 2017

Linda Bandini, PhD, RD, Clinical Professor,
Boston University

Part I. Feeding Problems in children

This session will focus on feeding problems that can occur during infancy and childhood among children with and without developmental disabilities.

Learning objectives:
- Describe the range of feeding problems that may occur in infancy and childhood
- Explain the implications of feeding problems on the health status of the infant/child
- Summarize appropriate intervention strategies

Readings


Erin Hennessy


This class focuses on the introduction of solid food to the infant’s diet and the transition to a more varied diet. Students will be asked to acquaint themselves with the foods available for infants and to come to class prepared to discuss their observations about the marketplace.

Learning objectives:
- Describe the history of infant feeding as it has evolved in the US.
- Explain the relationship between normal anatomic and physiologic development and the introduction of solid food.
- Explain the relationship between growth and changes in nutrient needs.
- Identify the factors associated with establishment of normal feeding patterns and the prevention and treatment of common feeding problems.
- Differentiate between the transition from milk to a varied diet across cultures and the effects of those differences on growth.
- Describe the role of diet and nutrition in children with congenital anomalies and chronic illnesses.

Reading
- Brown, Chapters 8, 9

Part III. Nutrition in the Toddler/Preschool Child: This session will focus on food, nutrition and physical activity in the
toddler/preschool child

Learning objectives:

• Describe normal growth and development; changes in energy and nutrient needs with growth in children from one to five years old.
• Explain normal food behavior and the factors that affect food choices in toddlers/preschool children, including appetite and activity.
• Describe nutritional vulnerability in children in both the US and internationally and about approaches to the problem.
• Identify the role of food away from home in the diets of preschool children.
• Understand the role of parents in the development of eating behaviors among children

Readings

• Brown, Chapters 10, 11
Class 5: Tuesday February 19, 2017

NO CLASS
Class 6: Tuesday February 26, 2018 & Thursday, February 28

Erin Hennessy

Tuesday, February 26th (1:30 –3:30)

Part 1. Child and Preadolescent Nutrition

This session will focus on food and nutrition in the school age child. It will also cover some of the special issues that affect children.

Learning objectives:

- Explain normal growth and development; changes in energy and nutrient needs with growth in the school age child.
- Describe normal food behavior and identify the factors that affect food choices in the school age child.
- Describe school feeding programs and other foods consumed away from home in the diets of school age children.
- Recognize the role of nutrient supplementation for school age children.

Readings

1. Brown: Chapters 12, 13
Thursday, February 28th (12:15-1:15)

Part II. Food Allergies in Children

Learning objectives:

- Identify the differences between a food allergy and food intolerance
- Explain the etiology of food allergy
- Discuss state-of-the-art approaches to prevention and treatment and appropriate management strategies

Readings

Part I. Adolescent Nutrition

Learning objectives:

- Describe nutrient needs as they relate to normal growth and maturation among preadolescents and adolescents.
- Explain the problem of overweight and obesity in the adolescent population and the recently increasing incidence of type 2 diabetes in this group.
- Identify the common eating disorders that typically arise in adolescence, including anorexia nervosa and bulimia, their diagnosis and approaches to treatment.

Readings

1. Brown: Chapters 14 and 15