

NUTC 269: Nutrition, Health, and Disease I: Pregnancy to Adolescence Spring 2023

Welcome to NutC 269!

Welcome to Nutrition, Health, and Disease I: Pregnancy to Adolescence! This semester we will be exploring the relationship among nutrition, health, and chronic disease spanning from pregnancy through the different stages of childhood and growth. We (Dr. Prelack and Prof. Kane, i.e. Kathy and Kelly) have been teaching this course for 7 years together and truly enjoy sharing our expertise with you. We will do our best to bring our clinical knowledge and skills into the classroom so that you adapt into your own clinical experience.

In order to maximize student experiences in the classroom, we will use material that is respectful of diversity and inclusion. Moreover, we understand that an essential part of this course is the diversity of student experiences and perspectives, which will maximize our learning as we progress through the semester.

As a student, you may experience a range of challenges that can interfere with learning. These mental health concerns or stressful events may diminish your academic performance. There are confidential [resources available at Tufts](#) that can assist you in managing these challenges. If you feel like your performance in class is being impacted by your experiences outside of class, please do not hesitate to come and talk with us. We want to be a resource for you.

Important Information:

Class Meetings: Online, Asynchronous

Instructor(s): Kelly Kane, MS, RD, CNSC
kelly.kane@tufts.edu
Phone 617.636.8309

Kathy Prelack, PhD, RD
Kathrina.prelack@simmons.edu
Phone 617.371.4756

Semester Hour Units: 3 SHUs

Prerequisites: NUTC 202: Principles of Nutrition Science, or an equivalent course in general nutrition

Course Communications:

We appreciate feedback and any questions from students. You are welcome to email us (please cc both instructors in all communications). We would also be happy to set up a time to connect either via zoom.

Office Hours:

Both instructors are available by appointment. Please feel free to connect to ask any questions about class materials or assignments and applicability to clinical practice.

Course Summary:

This course aims to expand students' knowledge of energy and nutrient requirements to support pregnancy and lactation, as well as common nutrition-related concerns during this life stage. Topics in pediatric nutrition encompass nutrient needs during infancy with an in depth focus on growth assessment and use of standard growth

and special needs of preterm and full-term infants. The course identifies specific nutrient requirements at the various phases of growth and development, as well as feeding practices and eating behaviors that accompany each stage. Medical nutrition therapy associated with common nutritional disorders of children with developmental disability, chronic disease, and obesity is introduced. Given the increased health risks associated with obesity, a comprehensive review of nutrition screening, diet therapy, and clinician-based education of parents and children at various age groups is provided.

Course Goals/Learning Objectives:

At the completion of the course, students should be able to:

1. Discuss the key elements of nutritional assessment and diet therapy, describe their alterations during various disease states and relate this information to support nutrition intervention strategies in individuals during altered pathological states.
2. Interpret information from medical, social and nutritional histories, combined with biochemical and anthropometrical indices during different pathophysiological states to assess nutritional status, develop nutrition care plans, and problem solve.
3. Accurately define how pathophysiology of a selected disease state impacts nutritional status and what nutrition interventions are indicated.
4. Discuss controversy in the scientific literature related to medical nutrition therapy and implications for clinical practice.
5. Develop skills for discussing nutrition-related problems with patients and clients.

Texts or Materials:

Kane K and Prelack K, eds. Advanced Medical Nutrition Therapy, Burlington, MA. Jones and Bartlett Learning; 2019. ISBN-13 9781284042634, ISBN-10 1284042634. Additional up-to-date readings will be available through [Canvas](#).

How to be Successful in this Course:

Students will be expected to read the assigned materials and listen to the recorded lectures as applicable each week. Familiarity with the materials will be necessary in order to engage in online discussions. We encourage sharing your clinical experiences via these discussions which make for a rich learning environment. Supplemental readings, although not required, may also be posted and are highly recommended.

Assignments and Grading:

Description of assignments, tests, and other required activities:

Assignments for this course include readings, online lectures, "What Would You Do?" discussions, quizzes, midterm exam, a clinical controversy discussion, and an essay review paper. For the most up to date information regarding assigned readings, instructions, and due dates please login to your Canvas course site and click on the tab labeled "Modules."

Lectures and Readings

Lectures are provided by Dr. Prelack, Professor Kane, as well as various clinical experts on a variety of topics. Students are required to watch each lecture. Readings are designed to enhance learning by providing background and further in depth information and will come from the textbook and/or scientific journals. Supplemental readings, although not required, may also be posted and are highly recommended.

Quizzes

Multiple choice online Quizzes are provided to enhance your learning experience. The quiz questions will come from that week's lecture and assigned readings. You will take the quiz on the Canvas website. The quizzes will be available only until 11:59 EST Sunday of the assigned week. **There will be absolutely no make-up quizzes.** Quizzes will be timed with a time limit of 45 minutes per quiz. Quizzes can be taken a maximum of two times and the highest of the two scores will be recorded.

Midterm Exam

The first half of the course will focus on the basic core lectures areas (Nutrition in Pregnancy, Lactation, Infancy, Childhood, and Adolescence). The untimed, short answer exam will assess this material.

"What Would You Do?" Online Discussions

There will be three "What Would You Do?" (WWYD) web-based discussions on common nutritional problems and concerns that are encountered at various stages of pregnancy through adolescence. The purpose of this exercise is to help you identify the common problems at each stage, understand the scientifically based evidence surrounding them, and assimilate this information in a way that will allow you to provide recommendations to patients and clients. Addressing the need for weight management, providing education for adolescences on healthy food choices, exercising cultural competency surrounding food related behaviors, dispelling myths, and answering basic questions on nutrition are included as WWYD discussion topics. Supplementary materials will be used to introduce each discussion. Ideal discussions are ones in which all members provide their views incorporating science as well as practical applications, and possibly personal and/or professional experience, on the topics. All initial posts should be a minimum of 100 words in length and are due on Thursday of the assigned week at 11:59 PM eastern time. All reply posts, which should also be a minimum of 100 words in length, are due by Sunday of the assigned week by 11:59 PM eastern time. Additional posts beyond the initial and follow-up posts are encouraged to generate vigorous discussion. These additional posts do not have a required word count.

Clinical Controversy Discussion

There will be one Clinical Controversy online discussion which serves to highlight a current controversy in practice. You will be provided with a position and asked to defend it as a practice standard. *This is a more formal online discussion than the WWYD online discussions.* The Clinical Controversy Discussion seeks to allow for a rich discussion of the topic and requires the use of evidence to make an argument for or against a certain practice. The initial post should be between 250-400 words in length. After all of the initial posts are completed by your fellow students, choose one to reply to, and indicate to the group, in 200 – 250 words, whether it is similar or different from your opinion and what we can learn from these differences or similarities of opinion. In order to prevent overlap, please indicate on the discussion board when you have chosen a posting to reply to. Do this by creating a reply to that initial posting and in the subject line put, "Claimed by [your name]." No other student should choose an initial posting that has already been claimed.

Essay Review Paper (approximately 6-8 pages, double-spaced)

The paper topic will be chosen by the student and approved by the instructors. Paper topics are due mid semester and will be discussed in class. The topic should not be one that is presented as part of the scheduled lectures, although special instances of a general topic discussed during lecture is acceptable. The paper should reflect the current state of knowledge in the particular area as supported by research and expert opinion in the field. The content's focus should be on the nutritional implications and dietary management of the specific disease state or condition. An overview of physiological mechanisms of the disease and aspects of treatment should be included. The paper should include an introduction, review of literature, discussion of important findings, and conclusion. The conclusion should include directions of the future research and controversies if applicable.

The following guidelines are used in evaluating course performance:

1. Assignments will be evaluated on the basis of completeness, originality, scientific soundness, and relevance to the assigned topic.
2. Written work will be evaluated on the quality of thought, completeness, and adherence to guidelines, scientific integrity, and ability to incorporate and communicate ideas and information effectively.
3. Adherence to instructions and guidelines of the assignments.
4. Participation in all class activities and discussions. Missed work will affect your grade unless prior arrangements were requested and approved in writing by the instructors for make-up work.
5. Online discussions will be evaluated according to the discussion matrix below.

Online WWYD Discussion Assignment Grading Criteria:

Quality of Posting/Reply	Points	Details
No Posting	0	Not Acceptable
Postings are not relevant to discussion posed	5	
Posting reflect reading and are relevant to questions posed. Only 1 posting noted and/or postings did not meet word count requirements.	10	Met minimum standards
Postings show a strong grasp of material, original thought with solid facts to back-up opinions and statements. Directly contributes to the discussion and communicates well with other students. Shows an ability to apply nutrition related topics to real life situations. At least 2-3 quality postings meeting word count requirements.	20	Exceeded minimum standards

Final Grading:

Assignments	Grading Weight
Online Quizzes (5)	25%
WWYD Discussions	15%
Clinical Controversy	10%
Essay Review Paper	25%
TOTAL	100%

Grading Range:

Grade	Score	Grade	Score	Grade	Score
A+	98.50-100	B-	80-82.49	D+	67.50-69.99
A	92.50-98.49	C+	77.50-79.99	D	62.50-67.49
A-	90-92.49	C	72.50-77.49	D-	60-62.49
B+	87.50-89.99	C-	70-72.49	F	0-59.99
B	82.50-87.49				

A passing course grade at the Friedman School is a B- or better. At the Friedman School an A+ grade and an A grade are both calculated as 4.00 grade points in a student's grade point average.

Instructions for Submission of Assignments and Exams:

Class Policies, Expectations, and Evaluation

Students will have only one opportunity to complete each assignment, and all assignments are due on the date/time specified. Students will have only one opportunity to compete the exam. Each exam must be completed and successfully submitted within the specified time period. Students who are unable to complete an assignment on time for any reason should notify the instructors by email prior **to the deadline**, with a brief explanation for why the extension is needed.

There are NO opportunities for extra credit work.

Students are expected to complete all assignments on their own, i.e. without assistance from other students, faculty, etc. unless otherwise noted. All outside documents used in the preparation of students' work must be properly referenced. (References to the textbook are not required).

The following guidelines are used in evaluating course performance:

1. Assignments will be evaluated on the basis of completeness, originality, scientific soundness, and relevance to the assigned topic.
2. Written work will be evaluated on the quality of thought, completeness, and adherence to guidelines, scientific integrity, and ability to incorporate and communicate ideas and information effectively.
3. Adherence to instructions and guidelines of the assignments.
4. Participation in all class activities and discussions. Missed work will affect your grade unless prior arrangements were requested and approved in writing by the instructors for make-up work.

Academic Conduct:

You are responsible for upholding the highest standards of academic integrity, as specified in the Friedman School's Policies and Procedures Handbook located at this web page: <https://nutrition.tufts.edu/about/policies-and-procedures>, as well as Tufts University's policies (<https://students.tufts.edu/community-standards/support-resources/academic-integrity-resources>). This includes understanding and avoiding plagiarism, which is defined as the unacknowledged use of someone else's published or unpublished work. It is the responsibility of each student to understand and comply with academic integrity standards, as violations will be sanctioned by penalties ranging from failure on an assignment and the course to dismissal from the school.

Accommodation of Disabilities:

We will do our best to ensure each of you has the resources you need to succeed. 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.

Remote Participation:

- This course will be delivered online and asynchronously.

Technical Support:

Online course support is provided by Friedman support staff and/or IT Support. Please do not contact faculty or TA's for technical support.

- **Telephone:** (617) 627-3376
- **Email:** canvas@tufts.edu
- **Hours:** 24 hours a day, seven days a week.

When reporting a problem, please include:

- The name and number of your online course (NUTC 269)
- Your operating system and browser
- A detailed description of the problem

This information will expedite the troubleshooting process. If you are sending a support request via email, please use your Tufts email address. Many problems with Canvas are a result of using an unsupported browser. The most up to date versions of Firefox, Chrome, Edge, and Safari are acceptable.

Course Overview:

You will find the course's Canvas site is organized by weekly modules, with all readings posted the week they are assigned, and assignments posted when you are ready to begin them, and clear instructions for each assignment submission.

DATE	Week	COURSE TOPIC	LECTURER	CHAPTER/ READINGS	ACTIVITIES/ASSIGNMENTS
Jan 18 – Jan 22	1	Course Introduction	Kelly Kane MS, RD Kathy Prelack, PhD, RD	-	Introductions
Jan 23 – Jan 29	2	Nutrition in Pregnancy	Kelly Kane MS, RD	21 (pp 565-593)	Quiz 1 due 1/29 by 11:59 pm EST (LO 1-3)
Jan 30 - Feb 5	3	Lactation, Breast Milk, and Formula	Kelly Kane MS, RD	21 (pp 594-608)	Quiz 2 due 2/5 by 11:59 pm EST (LO 1-3)
Feb 6 - Feb 12	4	Nutrition in Infancy	Kathy Prelack, PhD, RD	23 and Journal Article	WWYD 1 What Should Mom be Eating? Food Intolerances and other concerns of Lactating mothers (LO 1,2,3,5)
Feb 13 – Feb 19	5	Nutrition in Childhood	Kathy Prelack, PhD, RD	23	
Feb 20 - Feb 26	6	Nutrition in Adolescence	Kathy Prelack, PhD, RD	23 and Journal Article	Quiz 3 due 2/26 by 11:59 pm EST (LO 1-3)
Feb 27 - Mar 5	7	Preterm Infants	Guest: Danielle Duggan- Valley, RD	22	Midterm Exam due 3/5 by 11:59 EST (LO 1-3)
Mar 6 – Mar 12	8	Food Allergies	Guest: John Leung, MD	Journal Article	WWYD 2 Organic, non-GMO foods, vegetarian diets for children: questions form Moms for their children (LO 1,2,3,5)

Mar 13 - Mar 19	9	Failure to Thrive	Guest: Annie Paquette, MS, RD, CSP	23 and Journal Article	Quiz 4 and Paper Topics due 3/19 by 11:59 pm EST (LO 1-3)
Mar 20 - Mar 26	10	Pediatric Weight Management	Guest: Dara Borto, MS, RD	24 and Journal Article	WWYD 3 How to Talk to Children and Families about Weight Management (LO 1,2,3,5)
Mar 27 - Apr 2	11	Eating Disorders	Guest: Natalie Faella, MS, RD	25	Essay Review Paper Outline due 4/2 by 11:59 pm EST (LO 1-3)
Apr 3 - Apr 9	12	Nutrition in Developmental Disabilities	Guest: Jennifer Hall, MS, RD	26	Quiz 5 due 4/9 by 11:59 pm EST (LO 1-3)
Apr 10 - Apr 16	13	Clinical Controversy	Kelly Kane, MS, RD Kathy Prelack, PhD, RD	Journal Articles	Clinical Controversy Online Discussion (LO 4,5)
Apr 17 - Apr 23 Finals week	14				Essay Review Paper Final Draft due 4/23 by 11:59 EST (LO 1-3)

This schedule is subject to modification at the instructor's discretion.

Topics, Assignments, and Learning Objectives for Each Class Session:

Week 1

Course Topics: Course Introduction

Required Reading/Assignments:

- Watch Introduction video

Assignments Due:

- Participate in Introduction discussion by Sunday 1/22/23 by 11:59 pm EST

Week 2

Course Topics: Nutrition in Pregnancy

Learning Objectives:

Upon completion of this class, students will be able to:

- Identify the critical phases of growth and fetal development during pregnancy
- Describe the nutrient needs during pregnancy
- List the common nutritional concerns during pregnancy
- Identify high risk pregnancies and their nutritional implications

Required Reading/Assignments:

- Kane and Prelack: Ch 21 (pp 565-593)
- Watch Pregnancy Lecture

Assignments Due:

- Complete Quiz 1 due 1/31 by 11:59 pm EST

Week 3

Course Topics: Lactation, Breast Milk, and Formula

Learning Objectives:

Upon completion of this class, students will be able to:

- Describe the physiology of lactation and obstacles to lactation
- Define nutrient requirements during lactation
- Describe the composition of breast milk
- Differentiate standard and specialty infant formulas

Required Reading/Assignments

- Kane and Prelack: Ch 21 (pp 594-607)
- Watch Lactation lecture

Supplementary Readings:

- Corkins KG, Shurley T. What's in the bottle? A review of infant formulas. *Nutr Clin Pract.* 2016;31:723-729

Assignments Due:

- Complete Quiz 2 due 2/5 by 11:59 pm EST

Week 4

Course Topics: Nutrition in Infancy

Learning Objectives:

Upon completion of this class, students will be able to:

- Assess nutritional status and growth during infancy
- Describe the nutrient requirements of infants
- List the stages of solid food introduction for infants and associated developmental cues
- Describe common feeding problems of infants

Required Reading/Assignments:

- Kane and Prelack: Ch 23
- Watch Nutrition in Infancy lecture
- Read WHO Child Growth Standards and the Identification of Severe Acute Malnutrition in Infants (A Joint Statement by the World Health Organization and the United Nations Children's Fund)

Supplementary Readings:

- Baker, et al. Clinical Report—Diagnosis and Prevention of Iron Deficiency and Iron-Deficiency Anemia in Infants and Young Children (0 –3 Years of Age). *Pediatrics.* 2010;26:1040-1050
- Gupta, et al. Iron status of toddlers, nonpregnant females, and pregnant females in the United States. *Am J Clin Nutr.* 2017;106(Suppl):1640S–6S

Assignments Due:

- Participate in YWWYD 1 online discussion
 - Initial post due Thursday by 2/9 by 11:59 pm EST
 - Follow up post due Sunday 2/12 by 11:59 pm EST

Week 5

Course Topics: Nutrition in Childhood

Learning Objectives:

Upon completion of this class, students will be able to:

- Describe patterns of growth during childhood
- Determine nutrient requirements during childhood
- List common nutritional problems during childhood

Required Reading/Assignments:

- Kane and Prelack: Ch 23
- Watch Nutrition in Childhood lecture

Supplementary Reading:

- Shefferly, et al. Longitudinal evaluation of 100% fruit juice consumption on BMI status in 2–5-year-old children. *Pediatr Obes.* 2015;11:221–227

Assignments Due:

- No assignments due this week

Week 6

Course Topics: Nutrition in Adolescence

Learning Objectives:

Upon completion of this class, students will be able to:

- Determine unique nutritional needs of adolescents
- Describe social and environmental influences on eating behaviors in adolescence
- List the nutritional risk factors among adolescence

Required Reading/Assignments:

- Kane and Prelack: Ch 23
- Watch Nutrition in Adolescence lecture
- Das, et al. Nutrition in adolescents: physiology, metabolism, and nutritional needs. *Ann NY Acad Sci.* 2017; 1393: 21–33.
- *Take Charge of Your Health: A Guide for Teenagers (NIH/NIDDK)*

Supplementary Readings:

- Bel-Serrat, et al. Is dairy consumption associated with low cardiovascular disease risk in European adolescents? Results from the HELENA Study. *Pediatr Obes.* 2013;9: 401–410
- Barlow SE. Expert Committee Recommendations Regarding the Prevention, Assessment and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. *Pediatrics.* 2007;120;S164

Assignments Due:

- Complete Quiz 3 due 2/26 by 11:59 pm

Week 7

Course Topics: Preterm Infants

Learning Objectives:

Upon completion of this class, students will be able to:

- Define prematurity and classifications of low birth weight
- Describe the nutritional needs and unique challenges faced by premature and low birth weight infants

Required Reading/Assignments:

- Kane and Prelack: Ch 22
- Watch Nutrition in Preterm Infants lecture

Assignments Due:

- Complete Midterm Exam due 3/5 by 11:59 pm

Week 8

Course Topics: Food Allergies

Learning Objectives:

Upon completion of this class, students will be able to:

- Describe the relationship between food allergens and the immunological response
- Distinguish between food allergies, food intolerances, and food sensitivities
- Identify the basics of food allergy prevention and treatment

Required Reading/Assignments:

- Watch Food Allergy lecture
- Du Toit, et al. Randomized Trial of Peanut Consumption in Infants at Risk for Peanut Allergy. *N Engl J Med* 2015;372:803-813

- Valenta R, et al. Food allergies: the basics. *Gastroenterol*. 2015;148:1120–1131

Assignments Due:

- Participate in WWYD 2 online discussion
 - Initial post due Thursday by 3/9 by 11:59 pm EST
 - Follow up post due Sunday 3/12 by 11:59 pm EST

Week 9

Course Topics: Failure to Thrive

Learning Objectives:

Upon completion of this class, students will be able to:

- Define failure to thrive and its potential causes
- Calculate catch up growth requirements
- List strategies for promoting growth in children with failure to thrive

Required Reading/Assignments:

- Kane and Prelack: Ch 23
- Watch Failure to Thrive lecture
- Nofal AA and Schwenk WF. Growth failure in children: a symptom or a disease? *Nutr Clin Pract*. 2013;28:651-658.

Assignments Due:

- Complete Quiz 4 due 3/19 by 11:59 pm
- Submit Paper Topic due 3/19 by 11:59 pm

Week 10

Course Topics: Pediatric Weight Management

Learning Objectives:

Upon completion of this class, students will be able to:

- Define obesity in children
- Identify the contributors to pediatric obesity
- Describe treatment approaches

Required Reading/Assignments:

- Kane and Prelack: Ch 24
- Watch Pediatric Obesity lecture
- Taking Action on Childhood Obesity (WHO)

Supplementary Readings:

- Barlow SE. Expert Committee Recommendations Regarding the Prevention, Assessment and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. *Pediatrics*. 2007;120:S164
- Ogden, et al. Differences in Obesity Prevalence by Demographics and Urbanization in US Children and Adolescents, 2013-2016. *JAMA*. 2018;319(23):2410-2418
- Rollins, et al. Alternatives to restrictive feeding practices to promote self-regulation in childhood: a developmental perspective. *Pediatr Obes*. 2015;11:326–332

Assignments Due:

- Participate in WWYD 3 online discussion
 - Initial post due Thursday 3/23 by 11:59 pm EST
 - Follow up post due Sunday 3/26 by 11:59 pm EST

Week 11

Course Topics: Eating Disorders

Learning Objectives:

Upon completion of this class, students will be able to:

- Recognize the differences between disordered eating and eating disorders
- Identify nutrition related consequences of disordered eating and eating disorders

- Describe the role of nutrition intervention in the treatment of eating disorders

Required Reading/Assignments:

- Kane and Prelack: Ch 25
- Watch Eating Disorders lecture

Assignments Due:

- Essay Review Paper Outline due 4/2 by 11:59 pm EST

Week 12

Course Topics: Nutrition in Developmental Disabilities

Learning Objectives:

Upon completion of this class, students will be able to:

- Describe various developmental disabilities, such as cerebral palsy, autism, attention deficit-hyperactivity disorder
- Identify nutrition related concerns of these populations and interventions to address these concerns

Required Reading/Assignments:

- Kane and Prelack: Ch 26
- Watch Nutrition in Developmental Disabilities lecture

Assignments Due:

- Complete Quiz 5 due 4/9 by 11:59 pm EST

Week 13

Course Topics: Clinical Controversy Panel

Learning Objectives:

Upon completion of this class, students will be able to:

- Critically review and interpret scientific literature related to a clinical topic
- Abstract relevant information
- Communicate findings effectively and persuasively to others

Assignments Due:

- Clinical Controversy Panel Discussion
 - Initial post due Thursday 4/13 by 11:59 pm EST
 - Follow up post due Sunday 4/16 by 11:59 pm EST

Week 14/ Finals Week

Learning Objectives:

Upon completion of this week, students will be able to:

- Complete a formal review of scientific literature related to a specific disease state or condition
- Identify and describe in writing the background and pertinent aspects of disease states and their dietary implications

Assignments Due:

- Submit Essay Review Paper due 4/23 by 11:59 pm

This schedule is subject to modification at the instructor's discretion.

