

NUTB 316
ADVANCED MEDICAL NUTRITION THERAPY
MNSP | Tufts University, Friedman School of Nutrition Science and Policy

SUMMER 2019
(May 22, 2019 - August 18, 2019)

Instructors:

Kathy Prelack, PhD, RD
kprelack@tufts.edu (email)
617-371-4756 (office)
Skype: kprelack
Office hours online (skype voice or by skype IM) by appointment

Kelly Kane, MS, RD, LDN, CNSC
kelly.kane@tufts.edu (email)
617-636-8309 (office)
skype: mnsp.kkane01
Office hours online (skype voice or by skype IM) by appointment

Textbooks: Required - Advanced Medical Nutrition Therapy, Kane and Prelack. Jones and Bartlett Learning, 2019. ISBN-13 9781284042634, ISBN-10 1284042634

Credit: 3.0

Description and Goals

This course aims to expand student's knowledge on a variety of common pathophysiological conditions and integrate this knowledge with the intervention of clinical nutrition therapies. Students will begin by learning about the basic or core elements of medical nutritional therapy. These include nutritional assessment, which incorporates the use of anthropometric, biochemical and clinical data to determine nutritional status. Particular emphasis is placed on understanding energy expenditure and body composition and their components, and how these may change during physiological stress or illness. Students then learn about enteral and parenteral nutrition and fundamental aspects of nutrition support. These core elements are then applied in the study of various disease states and clinical nutrition therapy. Students also have the opportunity to explore diet and disease in an approved area of their interest through written and oral presentation.

Course Objectives/Outcomes

By the end of the course, students will be able to:

- 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.
- 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.
- Accurately define, both in writing and orally, how pathophysiology of a selected disease state impacts nutritional status and what nutrition interventions are indicated.
- Discuss controversy in the scientific literature related to medical nutrition therapy and implications for clinical practice.

Assignments, Exams and Grade Evaluation

Midterm Exam	20%
Case Studies	30%
Literature Review Paper	20%
Online Discussions	10%
Clinical Controversy	20%

The following guidelines are used in evaluating course performance:

1. Class assignments will be evaluated on the basis of completeness, originality, scientific soundness and relevance to the assigned topic, as well as participation as deemed appropriate by the course instructors.
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. Attendance at all class sessions. Please see the Attendance Policy. Missed time will affect your grade unless prior arrangements were requested and approved in writing by the instructors for make-up work.
5. On-line discussions will be evaluated according to the discussion matrix.

Discussion assignment Grading Criteria

Quality of Posting/Reply	Points	Details
No Posting	0	Not Acceptable
Postings are not relevant to questions posed	5	
Postings reflect reading and are relevant to questions posed. Only 1 posting noted and/or postings did not meet work 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

Attendance Policy

Upon joining this Master of Nutrition Science and Policy degree program, you become a member of a cohort, a learning group. Hopefully you will find the group experience provides you with a tremendous support system, a rich learning environment, and a long lasting network of colleagues to learn with and from. As a member of a cohort in an intensive experiential learning community, your consistent and complete participation is an essential and necessary component to the group’s success. Absences jeopardize the academic integrity of the program as well as the quality of your and your colleague’s learning experiences.

Therefore, please arrange to be present at all residency sessions during this term. Written documentation is required for any missed time. If approved to miss residency time the student will be required to work with the faculty to ensure the content is provided and make-up work may be assigned. If the missed time is not approved the student’s final grade will be docked by 2% for every hour missed. Time extensions, make-up work, and a grade of Incomplete will only be given under the most extreme circumstances.

Communication Policy

Students should try to seek out information for themselves before contacting the instructor. The answers to your questions may have already been posted by your peers or the instructors in the discussion board, which can be found on the Canvas course website. Please use the discussion board to post questions to your fellow students and

the instructors about any course-related issues. If you cannot find your answer contact the instructors via email as soon as possible. Please do not wait until the last minute. Since students may not all be in the same time zone, you must give us time to respond to your question. Faculty will respond within 48 hours.

Technical Support

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

You should anticipate at least a 6-hour wait (Monday-Friday, 9:00am-5:00pm EST) before hearing back regarding a technical support request, although emails are typically returned in significantly less time.

Telephone: 617.636.3376

Email: Canvas@tufts.edu

Hours: 24 hours a day, seven days a week

- When emailing a technical support problem, please include as much information as possible (operating system, browser and version, a detailed description of the problem) and please be specific so we can expedite the troubleshooting process for you. You should only use your Tufts email address to submit support tickets.

Readings, Activities & Discussions

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."

Online Discussions

There will be two online discussions for the course. All initial posts should be between 250-400 words in length and are due on Tuesday of the assigned week at 12 noon eastern time. 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. All reply posts are due by Thursday of the assigned week by 12 noon eastern time.

Exam

The first half of the course will cover the Basic Core Lecture sessions (Nutritional and Biochemical Assessment; Energy Expenditure, Body Composition and Metabolic Support in Critical Illness; Enteral Nutrition and Immunonutrition; Parenteral Nutrition; Pediatric Nutritional Assessment). The exam will cover this material.

Case Studies

Topics in specific pathological states and methods of nutritional therapy during these disease states that are presented in the lectures will be covered in case studies prepared by the instructors. There will be three case studies during the semester. Students will answer questions based on the case studies.

Literature Review Paper (approximately 10-15 pages, double-spaced)

The review topic will be chosen by the student and approved by the instructors by **July 14, 2019**. Topics should not be one that is presented as part of the scheduled lectures. This is a formal literature review paper. The topic should focus on the nutritional implications and management in the specific disease state. An overview of physiological mechanisms of the disease and aspects of treatment should be included. 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.

Grading of the paper is based on organization, conciseness, clarity, thoroughness in covering the topic relevant to nutrition and pathophysiology.

Clinical Controversy Discussion

The goal of the Clinical Controversy Discussion is to help students develop skills and competence in 1) interpreting scientific research as presented in peer reviewed journals, 2) abstracting relevant information, and 3) communicating findings effectively and persuasively to others. In this exercise, students will be assigned a scientific paper on a controversial clinical topic. Discussion of the pros and cons of the opposing papers will be discussed by the class.

Clinical Applications (during residency)

To apply information learned in the Basic Core Lecture sessions in developing plans of care using the following format:

- 1) Complete nutritional assessment to include anthropometric, biochemical, clinical and dietary assessment.
- 2) Provide recommendation on mode of nutritional therapy, rationale for suggested therapy, nutritional goals, and indications for altering nutrition regime if necessary.
- 3) Practice sample enteral and parenteral formula calculations
- 4) Problem-solve clinical challenges with respect to intolerance to feeds, change in clinical status, change in nutritional status, or alteration in metabolic state.
- 5) Provide outcome indicators for measuring success.

Schedule

DATE	WEEK	TOPIC	Chapter Readings Kane and Prelack	Important Dates
May 22- May 26	1	Nutrition and Biochemical Assessment	1 and 2	
May 27- June 2	2	Energy Expenditure, Body Composition and Metabolic Support in Critical Illness	5 and 6	<i>Nutrition Assessment Case Study</i>
June 3 – June 9	3	Enteral Nutrition/ Immunonutrition and Parenteral Nutrition	3 and 4	Residency: June 6 (1pm-5:00pm) June 7 (9am-5:00pm)
June 10 – June 16	4	Pediatric Nutritional Assessment, Failure to Thrive, Childhood Obesity	23 and 24	<i>Online Discussion: Enteral vs Parenteral Debate</i>
June 17 - June 23	5	Pediatric Specific Disease States and Conditions	17, 22, 26	
June 24 – June 30	6	Obesity and Diabetes	8 and 9	Exam Due 7/1 11:59 pm EST
July 1– July 7	7	Cardiovascular Disease and Renal Disease	10 and 14	<i>Diabetes Case Study</i>
July 8 – July 14	8	Nutrition and Oral Health and Food Allergies	11	<i>Oral Health Case Study</i> Paper Topics Due by July 15
July 15 – July 21	9	Liver Disease and Cancer	15 and 19	<i>Liver Disease Case Study</i>
July 22 – July 28	10	Gastroenterology (Malabsorption, Pancreatitis, Inflammatory Bowel Disease, Short Bowel Syndrome)	12 and 13	<i>GI Case Study</i>
Jul 29 – Aug 4	11	Eating Disorders	25	<i>Eating Disorder Case Study</i> <i>Clinical Controversy Panel Discussion Topics Assigned</i>
Aug 5– Aug 11	12	Clinical Controversy		<i>Clinical Controversy Panel Discussion Due</i>
Aug 12- Aug 18	Finals Week/ Essay Paper			<i>Essay Review Paper Due</i>

Weekly Lecture Objectives for NUTB 316

Week 1 Nutritional and Biochemical Assessment

Nutrition Assessment

- Define and differentiate between nutrition screening and nutrition assessment.
- Explain the components of anthropometric assessment and their purposes, and recognize which have greater relevance to clinical
- Name the components of a nutrition assessment and describe the features of each.

Biochemical Assessment

- Identify the serum electrolytes and potential causes of deficiencies and excesses.
- Name at least 2 markers of visceral protein status and the advantages and disadvantages associated with the use of each.
- Identify the components of a complete blood count and iron study and the role of each in the diagnosis of macrocytic and microcytic anemias.

Week 2 Energy Expenditure, Body Composition and Metabolic Support in Critical Illness

- Understand the inflammatory response following critical illness and the metabolic sequelae that accompanies it particularly as it relates to energy and protein metabolism.
- Identify the effects of physiologic stress and altered nutrition on body composition.
- Determine appropriate goals for nutrition support using information related to energy expenditure, and protein turnover, and substrate utilization during critical illness.

Week 3 Enteral and Parenteral Nutrition Support/Clinical Residency

Enteral Nutrition Support

- Describe different types of enteral feedings, their distinguishing characteristics, and how they are given.
- Identify tube feedings complications and strategies for their management.
- Describe composition of specialty enteral feedings and indications for their use.

Parenteral Nutrition Support

- Name the components of parenteral nutrition.
- Identify the indications and contraindications for central and peripheral parenteral nutrition.
- Describe the potential mechanical and metabolic complications associated with parenteral nutrition and methods of management of each.

Clinical Residency

On –Site Laboratory

- Nutrition Focused Physical Exam
- Enteral and Parenteral lectures with hands on calculations
- Nutrition “Jeopardy” game
- Journal Club
- Clinical Round table

Week 4 Pediatric Nutritional Assessment, Failure to Thrive and Childhood Obesity

- Describe assessment of nutritional status in children using appropriate tools and markers.
- Identify specific pediatric nutritional concerns.
- Define energy and protein requirements in well and diseased children.
- Define failure to thrive, its causes and the criteria for its diagnosis.
- Define health risks associated with pediatric obesity.
- Describe the role of medical nutrition therapy and the various levels of management of pediatric obesity.

Week 5 Pediatric Specific Disease States

Cystic Fibrosis

- Define cystic fibrosis and its manifestations.
- Describe the nutritional management of the cystic fibrosis throughout the life cycle.

Low Birth Weight Infants

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

Week 6 Obesity and Cardiovascular Disease

Obesity

- Define obesity and its causes.
- Describe the relationship between obesity and health.
- Identify useful methods of nutrition assessment in obesity.
- Describe both medical and surgical treatment approaches to obesity and their success rates.

Cardiovascular Disease

- Identify the different types of hyperlipidemias and the biochemical profiles associated with each.
- Relate the pathophysiology of hyperlipidemia to the progression of cardiovascular disease.
- Describe the role of genetics and dietary modifications in the prevention and treatment of cardiovascular disease.

Week 7 Diabetes Mellitus and Renal Disease

Diabetes Mellitus

- Discuss the epidemiology of Diabetes Mellitus.
- Identify the classifications of Diabetes Mellitus and describe the features and risk factors of each.
- Describe the components of medical nutrition therapy for type 1 and type 2 Diabetes Mellitus.

Renal Disease

- Identify the classifications of kidney disease.
- Describe the causes and management of renal failure.
- Name the nutritional concerns and outline the nutritional requirements and dietary modifications associated in chronic renal disease.
- Describe the methods of renal replacement therapy and the nutritional requirements and dietary modifications associated with each in end stage renal disease.

Week 8 Nutrition and Dental Health and Eating Disorders

Nutrition and Dental Health

- Describe the interrelationship between nutrition and oral health.
- Outline common oral problems through the life cycle.
- Identify how poor oral health affects nutritional status and how to eat for optimal oral health.

Food Allergies

- Describe the relationship between food allergens and the immunological response
- Distinguish between food allergies, food intolerances, and food sensitivities
- Identify symptoms related to food allergies and food intolerance

Week 9 Liver Disease and Cancer

Liver Disease

- Describe the association of between liver disease and malnutrition.
- Name the possible causes and treatment of various types of liver disease.
- Identify the signs and symptoms of liver disease and the nutritional implications of each.
- Define the consequences of liver disease (i.e. portal hypertension, ascites, gastrointestinal bleeding) and describe the nutritional management of each.
- Describe medical nutrition therapy in liver disease, pre and post liver transplant.

Cancer

- Define cancer; identify types of cancer, potential causes, and treatment options.
- Identify the nutritional implications associated with cancer and its treatment.
- Describe conventional nutritional therapies and complementary and alternative medicine in cancer treatment.

Week 10 Gastroenterology

- Define and differentiate maldigestion and malabsorption.
- Identify factors with cause maldigestion and malabsorption.
- Describe the clinical manifestations and nutritional management of several gastroenterological disease states, such as pancreatitis, inflammatory bowel disease, and short bowel syndrome.

Week 11 Eating Disorders

- Describe the interprofessional approach needed to diagnose and treat individuals with eating disorders.
- Specify the signs and clinical complications of anorexia nervosa and bulimia nervosa and their subtypes
- Define binge eating disorder and explain its treatment
- Recognize the signs and three major complications of the female athlete triad.

Week 12 Clinical Controversy Panel

- To critically review a scientific paper describing original research on a clinical topic of nutritional relevance (to be assigned) using a provided journal review format.
- To present the strengths and weaknesses of the paper and give persuasive argument for its merits and applicability of its findings in a clinical setting.
- To develop skills in persuasive argument related to a clinical topic.
- To identify the strengths and weaknesses of a paper with an opposing view on the clinical topic and argue against its merits.

Week 13 Essay Paper

- Develop scientific writing skills.
- Develop methodology for formal review 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.