

Course Bulletin

102187	Human Physiology	
Subject:	CRBR	Catalog Nbr: 042A

102313	Exercise Physiology	
Subject:	CRBU	Catalog Nbr: 0731

102358	Prin Of Biochemistry	
Subject:	CRBU	Catalog Nbr: 0223

102979	Population Dynamics	
Subject:	CRBU	Catalog Nbr: 881H

122478	Physical Activity, Nutrition, and Health	
Subject:	NUTR	Catalog Nbr: 0272
2020 SPRG Primary		Kieran Reid
		Kieran.Reid@tufts.edu
<p>Inadequate physical activity and a sedentary lifestyle are thought to be important causes of many of the major diseases of developed societies, including coronary artery disease, stroke, hypertension, diabetes, obesity, osteoporosis, and arthritis. There has been an explosion of information over the past two decades on the health benefits of exercise. In addition, exercise and nutrition are closely linked, with each modifying the effects of the other. Athletes, for example, may have markedly increased needs for some nutrients, but not others. Exercise has potent effects on the metabolism of protein, energy, fat, and some micronutrients. In addition, exercise is an important form of oxidative stress, and the ability of nutrients to alter the effect of exercise is not well understood. Exercise and nutrition together offer an extremely powerful intervention for a variety of problems, including the frailty of aging, the wasting of AIDS, and the obesity that underlies most cases of diabetes and atherosclerosis. This course is designed to give students an understanding of the fundamental interactions between exercise and nutrition, and to offer students an opportunity to examine the application of nutrition to exercise and vice versa. Each lecture will also discuss how these factors are important in disease prevention, and where applicable, treatment. Undergraduate biology or physiology is recommended. Prerequisites: NUTR 202 or NUTR 245 and NUTR 0246 or equivalent is required and undergraduate-level physiology is recommended, unless exemption approved by instructor, and graduate standing or instructor consent.</p>		

Course Bulletin

122782	Globalization, Development And Humanitarianism: Ethics And Personal Transformation			
Subject:	Catalog Nbr:			
NUTR	0279			
<p>(Cross-listed as DHP D238 (Fletcher School). This course challenges students to reflect on the moral and ethical ideas underpinning today's changing global interests and power. As we witness humanitarian crises and failed development efforts, we will consider ethical and moral values that support humanitarian and developmental interventions. We will consider the ethical implications that are inherent in the choice between justice and mercy, freedom and order and truth and loyalty. Students will analyze the moral and ethical underpinnings of ideas that promote new approaches to development and humanitarian action with a personal, academic and institutional perspective. Even as the world is coming closer together in the information age, divisions on the lines of regional, ethnic and religious identities continue to grow more pronounced and stark. This course will encourage students to articulate their personal beliefs and ethical values. As students move to become policy makers and stakeholders it is essential that they are grounded in an understanding of their own moral framework and also appreciate the differences that exist in their midst. Students will explore ideas of minimalist ethics, just wars, realists and liberal arguments around humanitarian and developmental intervention.</p>				

128471	Foundations of Nutrition Science			
Subject:	Catalog Nbr:			
NUTC	0200			
2019 FALL	Primary	Diane McKay	diane.mckay@tufts.edu	
<p>This course provides an understanding of basic nutrition science, including the principles of diet planning and government standards; the biological functions of the macro- and micronutrients; energy balance, weight control, and physical activity; and the role of nutrition in chronic diseases, nutrition throughout the life cycle, and contemporary nutrition-related issues. Prerequisite: Graduate standing or instructor consent.</p>				

128489	Malnutrition Prevention and Response			
Subject:	Catalog Nbr:			
NUTC	0203			
2019 FALL	Primary	Erin Boyd	Erin.Boyd@tufts.edu	
<p>The course will analyze different nutrition specific interventions and how to combine them in order to address malnutrition in all its forms. Emphasis will be on successful program design and delivery. The themes of interventions reviewed in this course includes: Infant and Young Child Nutrition (IYCN); prevention and treatment of acute malnutrition, prevention of obesity, and micronutrient deficiency control. By the end of this course, students will be familiar with a wide range of nutrition interventions and how to combine them to address both underweight and overweight in international programs. Prerequisite: Graduate standing or instructor consent.</p>				

Course Bulletin

128508	Nutrition-Related Consumer Marketing			
Subject: NUTC	Catalog Nbr: 0205			
2020 SUMR	Primary	Rachel Cheatham	Rachel.Cheatham@tufts.edu	
<p>Understanding the dynamic interplay between nutrition and marketing from both the consumer and marketer perspective is key to determining how to successfully market foods and beverages aligned with today's wellness-focused consumer. In this course, students will examine the historical effectiveness of efforts by food companies, health advocacy organizations, and governments aimed at improving nutritional habits. Students will develop real-world skills used by marketing professionals which integrate an understanding of eating psychology, food purchasing decision-making behaviors and prevailing dietary guidance with marketing tactics including message development, influencer mapping and social media. By the end of the course, students will be able to leverage the power of food marketing to promote positive nutrition. Prerequisites: junior or senior standing, or consent of the Online Graduate Certificate Program Director. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered May 20, 2020-August 23, 2020. Final grades posted September 8, 2020.</p>				

128532	Program Monitoring & Evaluation			
Subject: NUTC	Catalog Nbr: 0210			
2020 SUMR	Primary	Marion Min-Barron	Marion.Min-Barron@tufts.edu	
2020 SUMR	Primary	Natalie Valpiani	Natalie.Valpiani@tufts.edu	
<p>This course provides an introduction to the principles and practices of program monitoring and evaluation, as applied to food security and nutrition-related programs in developing countries. The course content will be imparted through online lectures, case studies, interactive discussion, and assignments that prompt students to grapple with monitoring and evaluation challenges facing ongoing global efforts to combat malnutrition and food insecurity. By the end of the semester, course participants will: be familiar with the strategies and techniques for monitoring and evaluating projects, particularly those related to nutrition and food security; be able to assess the adequacy of monitoring and evaluation proposals and program evaluations designed by others; be exposed to multiple domestic and international examples of monitoring and evaluation systems, both large and small; and gain experience in the design of monitoring and evaluation plans for real programs. Prerequisites: junior or senior standing, or consent of the Online Graduate Certificate Program Director. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered May 20, 2020-August 23, 2020. Final grades are posted September 8, 2020.</p>				

128568	Theories of Behavior Change and Their Application in Nutrition and Public Health Interventions			
Subject: NUTC	Catalog Nbr: 0211			
2020 SPRG	Primary	Daniel Hatfield	Daniel.Hatfield@tufts.edu	
<p>For many Americans, actual health behaviors fall short of evidence-based recommendations and guidelines. Why do people do what they do—or don't do? How can we design programs that tap into these factors to support healthier behaviors? This course explores theories of behavior change commonly used in nutrition</p>				

Course Bulletin

and public health. Specific theories addressed include the Health Belief Model, the Theory of Planned Behavior, Social Learning Theory, Diffusion of Innovations, Behavioral Economics, and the Socio-Ecological framework. The course emphasizes the application of core theory concepts to the design and evaluation of program interventions. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered January 15, 2020-April 19, 2020. Final grades are posted May 11, 2020.

128591	Social Media For Nutrition Audiences
Subject: NUTC	Catalog Nbr: 0220

128622	Pd Theories Methods Proc
Subject: NUTC	Catalog Nbr: 0318

128667	Theories Of Pd
Subject: NUTC	Catalog Nbr: 0319

128687	Positive Deviance In Practice
Subject: NUTC	Catalog Nbr: 0320

128785	Directed Study/undergrad
Subject: NUTR	Catalog Nbr: 0102

129095	Special Tps:study Abroad Nutrition
Subject: NUTR	Catalog Nbr: 0196

Course Bulletin

129117	Special Tps:study Abroad Nutrition			
Subject:	Catalog Nbr:			
NUTR	0197			

129335	Principles of Nutrition Science			
Subject:	Catalog Nbr:			
NUTR	0202			
2020 SUMR	Primary	Diane McKay		diane.mckay@tufts.edu
<p>This course presents the fundamental scientific principles of human nutrition. Students will become familiar with food sources; recommended intake levels; biochemical role; mode of absorption, transport, excretion; deficiency/toxicity symptoms, and potential major public health problems for each macro- and micronutrient. The student goals for this course are: 1) to describe the components of a healthy diet, 2) understand the major nutrition problems that affect individuals and populations from conception and throughout the life cycle, and 3) understand the scientific basis for nutritional recommendations brought before the scientific and lay communities. Prerequisites: Students are required to have taken a one semester college-level course in either human biology, chemistry, or physiology (preferred).</p>				

129416	Fundamentals of Nutrition Policy & Programming: How Science & Practice Interact			
Subject:	Catalog Nbr:			
NUTR	0203			
2019 FALL	Primary	Eileen Kennedy		Eileen.Kennedy@tufts.edu
<p>NUTR 203 is a course that will allow students at the Friedman School to become familiar with policy processes (domestic and international), typologies of policy initiatives (laws, regulations, program interventions, legal restrictions and systems, institutional mandates), and to be able to critically analyze and discuss how policy and science interact with regard to food and nutrition. The class will cover: a) how science influences the policy agenda, and how policy debates influence the scientific agenda; b) the scientific underpinnings of food and nutrition policies; c) how empirical findings in scientific research and operational programming make their way into policy and law; d) debates and controversies in US and international nutrition; e) the range of options for intervention that exist (to improve nutrition), and those that are used; f) how do we know what works best and what the alternatives might be?; g) approaches to problem assessment and measurement; h) success stories in the nutrition pantheon; i) constraints to success (what makes or breaks major program successes), and j) key institutions and organizations involved in nutrition policy and programming in the US and around the world. Prerequisites: Graduate standing or instructor consent.</p>				

129475	Principles of Epidemiology			
Subject:	Catalog Nbr:			
NUTR	0204			
2019 FALL	Primary	Silvina Choumenkovitch		silvina.choumenkovitch@tufts.edu
2019 FALL	Primary	Gitanjali Singh		Gitanjali.Singh@tufts.edu
2020 SPRG	Primary	Fang Fang Zhang		Fang_Fang.Zhang@tufts.edu

Course Bulletin

This course covers basic epidemiologic methods and concepts, including study design, calculation and interpretation of measures of disease frequency and measures of effect, sources of inaccuracy in experimental and observational studies, causal inference, and an introduction to the statistical evaluation and interpretation of epidemiological data. Students will discuss historical examples and recent studies in order to apply their understanding of abstract concepts and specific quantitative methods to the interpretation and critique of published work. Prerequisite: Graduate standing or instructor consent.

129491	Communicating Health Information to Diverse Audiences, Part A			
	Subject:	Catalog Nbr:		
	NUTR	0205		
<p>Nutrition communicators are often called upon to reach a variety of audiences, from consumers and patients to low-literacy individuals, other health and nutrition professionals, funders, and more. This course will help students tailor communications for these diverse audiences across a range of media. Prerequisite: Prerequisite: NUTR 0220 and graduate standing or instructor consent; the prerequisite (NUTR 0220) may not be taken concurrently with NUTR 0205. Enrollment limited to 15 students. Enrollment priority is given to Nutrition Interventions, Communication, and Behavior Change degree program students</p>				

129583	Statistical Methods for Nutrition Science and Policy			
	Subject:	Catalog Nbr:		
	NUTR	0207		
	2019 FALL	Primary	Sean Cash	Sean.Cash@tufts.edu
<p>Part one of a one-year, two-semester course covering descriptive statistics, graphical displays, confidence intervals, hypothesis testing, t test, chi-square test, nonparametric tests, multiple linear regression, multiple logistic regression, experimental design, multi-factor and multiple comparisons procedures. Students will learn how to use Stata statistical analysis software. Prerequisite: Graduate standing or instructor consent.</p>				

129603	Human Physiology			
	Subject:	Catalog Nbr:		
	NUTR	0208		
	2020 SPRG	Primary	Paul Leavis	paul.leavis@tufts.edu
<p>This course meets the physiology requirement for students in the following programs: Human Nutrition, Nutritional Epidemiology, Cell and Molecular Nutrition. This course will cover the functions of mammalian organisms as we understand them at various levels of organization - organ system, organ, cellular and subcellular levels. Our goal is to provide a working knowledge of the fundamental properties and regulation of these systems so that the student can understand and relate this material to that learned in other basic science courses with particular emphasis on those related to nutrition. Prerequisites: Undergraduate level introductory biology and chemistry and graduate standing or instructor consent.</p>				

129664	Statistical Methods for Nutrition Research (science)			
	Subject:	Catalog Nbr:		

Course Bulletin

NUTR 0209

The first of a two course sequence covering study design, descriptive statistics, graphical displays, confidence intervals, hypothesis testing, Student's t test, chi-square test, nonparametric tests, sample size calculations, multiple linear regression, multiple logistic regression, multi-factor experimental design, repeated measures, and multiple comparisons procedures. NUTR 209 generally covers topics through the start of linear regression. Students will make extensive use of SAS for Windows. NOTE: Students cannot receive credit for both NUTR 209: Statistical Methods in Nutrition Research (Science) and its second semester counterpart NUTR 207: Regression Analysis for Nutrition Research (Policy). This course was formerly listed as NUTR 209A-01.

129679	Survey Research in Nutrition			
Subject:	Catalog Nbr:			
NUTR	0210			
2020 SPRG	Primary	Beatrice Rogers	beatrice.rogers@tufts.edu	
<p>This is a methods course focusing on field research in nutrition. Students will learn to identify policy-relevant issues, define hypotheses, and select and combine appropriate methods drawn from nutrition, epidemiology, anthropology, economics, psychology, sociology, education and political science. Students will also learn how to develop research designs, sampling and analysis plans, as well as how to construct and pretest the types of instruments commonly used in nutrition and food policy research and evaluation. The course will cover ethical issues in human subjects research and compliance with IRB requirements, interviewer training, quality control, site operations, and logistics. Prerequisites: NUTR 207 or equivalent, and graduate standing or instructor consent.</p>				

129766	Theories of Behavior Change and Their Application in Nutrition and Public Health Interventions			
Subject:	Catalog Nbr:			
NUTR	0211			
2019 FALL	Primary	Sara Folta	sara.folta@tufts.edu	
2019 FALL	Primary	Larissa Calancie	Larissa.Calancie@tufts.edu	
<p>What motivates people to adopt healthier food and lifestyle choices? This course will explore various theoretical perspectives on nutrition and health-related behavior change. It will include an examination of several individual-based, social-based, organization-based and eco-social theories, including the Health Belief Model, the Theory of Planned Behavior, the Transtheoretical Model, Decision-Making, Social Support, Social Learning Theory, and Diffusion of Innovations. Knowledge of these theories will help inform the design of research and program interventions based on psycho-biological, social, cultural and organizational frameworks. The course emphasizes an understanding of core theory concepts and issues in measurement. In-class workshops will allow for direct application of the theories to students' current research and program intervention interests. The course will provide concepts and tools that can apply not only to the students' own research interests, but also to other courses, such as those focused on nutrition interventions, patient education, persuasive communication, social marketing and mass media. This course should be of great value to MS students in the Nutrition Communication, Nutrition Epidemiology, Nutrition Intervention Programs and to students in the MS/Dietetic Internship programs. Priority enrollment is given to: 1) NICBC students (for whom the course is a requirement); 2) Second-year FANPP students, Nutrition Interventions specialization; 3) Second-year Friedman students in any program doing a Nutrition Communication minor; 4) First-year FANPP</p>				

Course Bulletin

students, Nutrition Interventions specialization; 5) First-year Friedman students in any program doing a Nutrition Communication minor; 6) Any other Friedman students; 7) MPH students; 8) Any other Tufts students (Graduate standing or instructor consent); 9) Any other students from Boston Consortium Schools.

129922	Statistical Methods for Health Care Professionals		
Subject: NUTR	Catalog Nbr: 0214		
<p>In this course students critically evaluate, compare, interpret, judge, summarize and explain statistical results published in research articles in health and nutrition journals that are influencing nutrition science, research, policy, and clinical practice. Students will also develop an intermediate level ability to analyze research data with Stata statistical software. Prerequisites: Undergraduate level statistics or college level math course and graduate standing or instructor consent..</p>			

129943	Fundamentals of U.S. Agriculture		
Subject: NUTR	Catalog Nbr: 0215		
2018 FALL	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu
2019 FALL	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu
<p>This course covers the major social, institutional and human aspects of the American agricultural system, both as it exists today as well as its historical development. After consideration of agricultural systems in general and of the values that underlie different concepts of agriculture, it covers some of the key historical forces that have made American agriculture what it is today, and the major role of the federal government, both past and present. The next part of the course deals with the economics of American agriculture as a whole and its large-scale structure, followed by an analysis of farming on the microlevel, emphasizing types of farms and farm-scale production economics. Prerequisite: Graduate standing or instructor consent. This course is cross-listed with AS&E's UEP Department (UEP 0223).</p>			

129998	Management, Planning, and Control of Nutrition and Health Programs and Organizations		
Subject: NUTR	Catalog Nbr: 0216		
2020 SPRG	Primary	David Hastings	david.hastings@tufts.edu
<p>Key management concepts and principles for managing nutrition and health programs and organizations will be addressed to equip students to function as program directors and project managers). Case studies and readings will be used to convey a practical understanding of how to manage and coordinate business functions to achieve the goals and objectives of the organization. This course will deal with for-profit and nonprofit organizations. Topics will include business and project planning, management control systems, financial management, budgeting, performance measurement, pricing and marketing of services, operations, management, cost analysis, human resource management, and the development of management information systems. The course is designed to provide practical tools in areas we believe students need to acquire skills. Prerequisite: Graduate standing or instructor consent.</p>			

Course Bulletin

130033	Monitoring and Evaluation of Nutrition and Food Security Projects			
Subject: NUTR	Catalog Nbr: 0217			
	2020 SPRG	Primary	Jennifer Coates	jennifer.coates@tufts.edu
<p>This seminar will provide an introduction to the principles and practice of program monitoring and evaluation, with an emphasis on food security and nutrition-related programs in developing countries. By reviewing relevant literature and utilizing case studies in the areas of nutrition, food security, primary health, agriculture and other fields, students will become fluent in applying the language and tools of program monitoring and evaluation system design and implementation. This seminar will consist of lectures, discussions, guest speakers, and applied exercises including work on practical monitoring and evaluation challenges for ongoing development programs. Enrollment limited to 22 students with the following priority order: 1) MAHA students; 2) FPAN students pursuing the Nutrition Interventions Specialization; 3) Graduating and Second-Year students; 4) PhD students; 5) First-Year students; 6) MS/MPH and dual-degree students that don't fall into any of the preceding categories; and 7) Cross-Registrants. Prerequisite: Graduate standing or instructor consent.</p>				

130080	Communications Strategies in Nutrition and Health Promotion Nutrition			
Subject: NUTR	Catalog Nbr: 0218			
	2019 SPRG	Primary	Jeanne Goldberg	jeanne.goldberg@tufts.edu
	2020 SPRG	Primary	Daniel Hatfield	Daniel.Hatfield@tufts.edu
<p>A survey of communications strategies in health promotion. This course will provide students with the ability to decide when a health communication initiative is appropriate; to develop health communications programs based on appropriate theoretical foundations; and to select and plan evaluation strategies appropriate for the particular intervention. Prerequisite: Graduate standing or instructor consent. Enrollment limited to 20 students.</p>				

130123	Fundamentals of Food Science			
Subject: NUTR	Catalog Nbr: 0219			
<p>This course will provide students a broad overview of certain aspects of both the U.S. and worldwide food supply. This course is intended to provide students with an understanding of : 1) the basic groups of foods in the food supply and their nutrient profiles; 2) the effects of harvesting, processing and storage; and 3) the important issues affecting food safety. Requirement for all students in the Food Policy and Applied Nutrition (FPAN), Agriculture, Food, and Environment (AFE), and Nutrition Communication programs who entered before the Fall of 2006. (0.5 credits)</p>				

130290	The Global Food Business			
Subject: NUTR	Catalog Nbr: 0221			
<p>The purpose of this course is to introduce the student to the field of international food and agribusiness.</p>				

Course Bulletin

Today, international trade in agricultural commodities and foods is a major segment of the world's business. This business continues to grow yearly, motivated by new and potential international trade agreements (GATT, NAFTA), expansion by both established and new multinational companies, and export policies by countries seeking new markets for their growing food and agricultural production. The focus of this course will be to develop in each student a conceptual knowledge of the analytical skills in administration, marketing, business strategy, research, governmental policies and technology that international food business requires today. The course also attempts to analyze the global food business from a transnational perspective, rather than any single nationalistic viewpoint of food and agribusiness. It is designed to meet the requirements of students aiming to enter the international food business world, as well as for students who in their professional careers (e.g., government, legal) will deal with this important sector of international business. This course was formerly listed as NUTR 245. This course is cross-listed with The Fletcher School (B280). Prerequisite: Graduate standing or instructor consent.

130334	Gender, Culture and Conflict in Complex Humanitarian Emergencies			
Subject:	Catalog Nbr:			
NUTR	0222			
2018 FALL	Primary	Elizabeth Stites	elizabeth.stites@tufts.edu	
2019 FALL	Primary	Dyan Mazurana	Dyan.Mazurana@tufts.edu	
<p>This course examines situations of armed conflict, civilian experiences of these crises, and the international and national humanitarian and military responses to these situations from a gender perspective and highlights the policy and program implications that this perspective presents. Topics covered include gender analyses of current trends in armed conflict and terrorism, and of the links among war economies, globalization and armed conflict; the manipulation of gender roles to fuel war and violence; gender and livelihoods in the context of crises; masculinities in conflict; sexual and gender-based violations; women's rights in international humanitarian and human rights law during armed conflict; peacekeeping operations; peacebuilding; and reconstruction. Case studies are drawn from recent and current armed conflicts worldwide. This course is cross-listed with The Fletcher School (D232). Prerequisite: Graduate standing or instructor consent.</p>				

130388	Seminar In Humanitarian Issues			
Subject:	Catalog Nbr:			
NUTR	0223			
2019 FALL	Primary	Dyan Mazurana	Dyan.Mazurana@tufts.edu	
<p>This course is open for three semester hour units to Master of Arts in Humanitarian Assistance (MAHA) students for whom it is a required Core course.</p> <p>This course is also open to non-MAHA students via Cross-Registration in SIS for 1.5 semester hour units. The course is segmented into three parts.</p> <p>Non-MAHA students are not required to complete the Capstone Project.</p> <p>Part 1 and Part 2 is for non-MAHA students, as well as MAHA students and Part 3 is for MAHA students only.</p> <p>PART 1: This segment of the course will ensure that students have the necessary skill sets to adapt rapidly to</p>				

Course Bulletin

the U.S. higher education system. Non-U.S. students that are not accustomed to the U.S. University systems, as well as mid-career students that have not been in school recently would be exposed to the following requisite skills:

- a) Library skills and source citations skills;
- b) Literature review skills;
- c) Time management and self-care in academia;
- d) Formulating research questions;
- e) Reading and writing skills and resources for help;
- f) Public presentation skills (oral and visual)

PART 2: This segment of the course is for non-MAHA students, as well as MAHA students and will expose students to contemporary humanitarian research through research seminars with the Feinstein International Center's (<http://fic.tufts.edu/>) faculty and staff.

Part 3 for MAHA students (only): The seminar emphasizes academic and research skills that are important for a professional in the humanitarian field. It also offers MAHA students the chance to explore in greater depth key issues in humanitarian assistance. The seminar is also an opportunity to discuss in depth much of the theory and academic literature of other prerequisite courses. The main output is the MAHA capstone project, which is a requirement for graduation. Activities are concentrated in the fall semester, but the seminar also meets occasionally in the spring. Capstone projects are due in the spring semester.

Pre-requisite: Graduate standing or instructor consent.

The course will meet at the Feinstein International Center, 114 Curtis Street - Somerville, MA

130448	Community Food Planning And Programs
Subject: NUTR	Catalog Nbr: 0224
<p>Key features of the course include field trips to community / local food and farm programs, guest presenters, and field-based planning projects with area non-profits, public sector agencies, or businesses. This course will cover (domestic) food and agriculture programs that focus on or operate at the community or regional levels. Such initiatives promote local/regional agriculture and food chain businesses that process, market, and use local or regional food products. In tandem, public sector and NGO initiatives now sponsor programs and policies with a community or urban food system agenda. The focus will be on more complex initiatives such as farm-to-institution projects, regional wholesaling initiatives, and food policy councils. A major course objective is to provide practical skills and tools for design, strategic planning, and implementation of these programs, including assessments, research, policy components, and funding. We will also provide contextual analyses and critical perspectives of community-based strategies as alternative food systems models.</p>	

130500	Introduction to Modern Biology Techniques
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Course Bulletin

Subject: NUTR	Catalog Nbr: 0225	2019 FALL	Primary	Martin Obin	martin.obin@tufts.edu
<p>This intensive 1.5 semester hour unit 12-week course will familiarize you with research techniques employed in nutrition science research at the molecular, cell, tissue, whole organism and population levels. An understanding of these techniques and their application is essential for reading the nutrition science literature, developing skills as a researcher and appreciating the goals, current limitations and future potential of modern nutrition science research. Eight (at times overlapping) classifications of techniques and experimental approaches will be presented over 12 weeks: 1. Partitioning techniques for biomolecule separation, and downstream analysis by Mass Spectrometry; 2. Physical separation of cell and tissue constituents; 3. Analysis of cell constituents and biomolecules using antibody-based techniques in conjunction with... 4) Fluorescence, Bioluminescence and Imaging techniques; 5. Gene Expression: Analysis and Manipulation; 6. 'Omics' and Systems Biology; 7. Data Science (Informatics, Computational Biology, 'Virtual' Communities/Consortia); 8. Bioengineering and Synthetic Biology. For each technique we will emphasize the underlying principles/theory, work-flow and data output. An understanding of the strengths, limitations and combinatorial implementation of these techniques will facilitate your development as an experimentalist and scholar. An additional goal of this course is to familiarize you with the "virtual" (i.e., online) communities of scientists and the vast resources available to you in public domain websites managed by scientific and information consortia. This is a required course for all Biochemical and Molecular Nutrition (BMN) degree program students. The grading basis for this course is Satisfactory/Unsatisfactory. Prerequisite: Graduate standing or instructor consent.</p>					

130524	Food from Production to the Marketplace				
Subject: NUTR	Catalog Nbr: 0226	2019 FALL	Primary	Norbert Wilson	Norbert.Wilson@tufts.edu
		2019 FALL	Primary	Richard Black	Richard.Black@tufts.edu
<p>The intent of this course is to develop an understanding of the factors that shape the selling of food in the United States. Drawing from business, psychology, economics, and law, we will explore the methods and efforts to sell food. This not a marketing course as seen in business schools; rather, we explore the market context of food from multiple lenses to understand how this context influences food choice. We will consider how government shapes the efforts of the private sector to connect with consumers. We will use case studies and projects with firms to ground our learning in the actual experiences of firms, government actors, and non-governmental organizations. We will also use reflective essays based on peer-reviewed literature to assess critically presentations from representatives of the involved sectors. Our assessment of the food system will benefit from speakers from industry, non-profits, and the government. Formerly titled: Health Claims and the Food Industry. Pre-requisite: Graduate standing or instructor consent.</p>					

130571	International Nutrition Programs				
Subject: NUTR	Catalog Nbr: 0227	2019 FALL	Primary	Erin Boyd	Erin.Boyd@tufts.edu
<p>This course provides presentations, readings, and exercises relating to the broad range of nutrition</p>					

Course Bulletin

interventions utilized in international programs: infant and young child nutrition, cash and food-based programs, agricultural-based interventions, micronutrient prevention and control activities, prevention and treatment of acute malnutrition, and water, sanitation and hygiene activities. The course also covers malnutrition causality, nutrition architecture, and an overview of global nutrition platforms. Students become well versed in program design and appraisal techniques including dynamic models and program constraint assessments, and are responsible for major exercises relating to existing programs in Asia, Africa and Latin America. Pre-requisite: Graduate standing or instructor consent.

130618	Community and Public Health Nutrition			
Subject: NUTR	Catalog Nbr: 0228			
2019 FALL	Primary	Virginia Chomitz	Virginia.Chomitz@tufts.edu	
<p>This intensive course provides presentations, readings and activities related to the broad range of community-based nutrition research, programs and policies in the U.S. today. Public health efforts in communities are implemented in many different types of settings, including community non-profit agencies, worksites, health centers, clinics, hospitals, schools, churches, supermarkets, recreational and sports centers, councils on aging/senior centers, and emergency feeding sites. Students will become familiar with community-based research and programs focused solely on nutrition as well as those in which nutrition is one component. Students will engage in skill-building and participatory activities, as well be introduced to case examples of creative and innovative approaches to community nutrition. Through field visits and guest speakers, students will have an opportunity to dialogue with public health experts and practitioners who can influence community nutrition practice. Upon completion of this course, the students will have a toolbox of skills to utilize and apply in a wide range of practice settings. Enrollment limited to 35 students. Prerequisites: NUTR 0202: Principles of Nutrition Science or equivalent and graduate standing or instructor consent.</p>				

130716	Humanitarian Action in Complex Emergencies			
Subject: NUTR	Catalog Nbr: 0229			
2019 FALL	Primary	Daniel Maxwell	Daniel.Maxwell@tufts.edu	
<p>The intent of the class is to introduce students to a broad range of research and writing that constitutes our knowledge on humanitarian action in complex emergencies, and to give the student the skills to read research and keep abreast of a rapidly evolving field. There is a strong emphasis on the practical application of this knowledge. The course simultaneously treats humanitarian action as a phenomenon to be understood and as a practice that urgently needs to be improved.</p> <p>This multi-disciplinary course will cover a broad range of subjects, and has a number of objectives. By the end of the course, students will be able to: Outline historical perspectives on humanitarian action; Describe and define the application of international humanitarian law, principles, and codes of conduct to humanitarian action in complex emergencies, and outline major debates surrounding these frameworks; Utilize the main analytical frameworks for addressing the protection of life, livelihoods, rights and safety of people caught in complex emergencies; Critically and quickly read, interpret and apply research on humanitarian action; Analyze the political economy of conflict and humanitarian assistance; Discuss the ethical and practical implications of incorporating human rights in humanitarian action; Utilize methodologies for improving the</p>				

Course Bulletin

quality, effectiveness and accountability of humanitarian action; and Describe the evolving nature of conflict, crisis, and the architecture of the humanitarian system. This course is cross-listed with the The Fletcher School (DHP D230). Prerequisites: Graduate standing or instructor consent.

130855	International Ngo's: Ethics And Management Practice			
Subject: NUTR	Catalog Nbr: 0230			
<p>The course first examines the role and relevance of the non-governmental sector with a view to understanding the concepts underpinning NGO management, accountability and role in society. The course will then focus on a number of key issues essential for the effective running of NGOs. The course will end with an exploration of Southern NGOs and their relationship with the North and the future of international NGOs. This course will introduce students to such essential skills such as strategic planning, advocacy, the use of the press, fundraising, budgets and reading financial statements. It will also explore key questions including the role NGOs play in society and in international development and how and whether they are different from other institutions in society. This course focuses on key conceptual questions that are essential to understanding NGOs and on practical skills and tools needed for managing them.</p>				

130915	Fundamentals of GIS			
Subject: NUTR	Catalog Nbr: 0231			
2019 SPRG	Primary	Paul Cote	Paul.Cote@tufts.edu	
2020 SPRG	Primary	Alexandra Thorn	Alexandra.Thorn@tufts.edu	
<p>Many problems in agriculture, food and nutrition are inherently geographic in nature. For example, livestock production is increasingly concentrated in large feeding operations, leading to new spatial patterns of water and air pollution or foodborne illness. Spatial clustering is equally important for food consumption, nutrition and public health, as in hunger hotspots, food deserts and disease corridors. This course will equip students with the skills needed to capture, analyze and communicate spatial data in geographic information systems (GIS), using a variety of examples from agriculture, food and nutrition. Pre-requisite: Graduate standing or instructor consent.</p>				

130952	Nutrition Epidemiology Journal Club			
Subject: NUTR	Catalog Nbr: 0232			

Course Bulletin

The principal goals of the nutrition epidemiology journal club are 1) to enhance graduate students' understanding of the field of nutrition epidemiology and 2) to provide practice reviewing and critiquing research studies. In weekly sessions, the students will prepare a peer-reviewed or original article for class discussion that reinforces the principles of study design as they apply to nutritional epidemiology. This course will also help students to develop their peer review skills and thus become critical reviewers of epidemiologic literature.

131013	Agricultural Science and Policy I			
Subject:	Catalog Nbr:			
NUTR	0233			
2020 SPRG	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu	
2020 SPRG	Primary	Christian Peters	Christian.Peters@tufts.edu	
<p>First part of a two-semester sequence required of AFE students. This course covers the major biological, chemical and physical components of agricultural systems. Each is discussed from the viewpoints of both the underlying natural processes and principles, and their significance for major agricultural, food safety, and environmental policy issues in the U.S. today. In the first semester, the topics covered are soils, water, nutrients, and genetic resources. Prerequisite: NUTR 0215: Fundamentals of U.S. Agriculture, and graduate standing or instructor consent.</p>				

131043	Junior Clinical Rotations			
Subject:	Catalog Nbr:			
NUTR	0235			
2020 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu	
<p>Required of junior standing students enrolled in the Combined Dietetic Internship/Masters Degree program. Grading is Satisfactory/Unsatisfactory.</p>				

131317	Practicum in Bioresearch Techniques			
Subject:	Catalog Nbr:			
NUTR	0236			
2020 SPRG	Primary	Xian-Dong Wang	xiang-dong.wang@tufts.edu	
<p>Biochemical and Molecular Nutrition students must enroll in one practicum in bioresearch techniques. Students who anticipate a career in basic nutritional sciences require extensive laboratory training. Practicums in bioresearch techniques, established as a single, 3.0 semester hour unit course, will provide students with an understanding of critical experimental evaluation as well as hands-on experience in essential techniques of modern biology. In the practicum, students will answer a specific biologic question through experimentation. Faculty in participating laboratories will be responsible for providing an overview of the biologic interest of the laboratory, overseeing the development of a specific, defined project, teaching the theory of specific techniques to be employed, and training the students in the application of these techniques. Students will be evaluated through a written report and oral presentation in a laboratory meeting-type setting. Pre-requisite: Graduate standing or instructor consent.</p>				

Course Bulletin

131352	Economics for Food and Nutrition Policy			
Subject: NUTR	Catalog Nbr: 0238			
	2020 SPRG	Primary	William Masters	William.Masters@tufts.edu
<p>This course equips students with the economic principles used to explain and predict consumption and production choices, market interactions and government interventions in the food system. We use the graphical methods taught in standard, one-semester courses on the principles of economics, applied to current news stories and data sources about food and nutrition problems in the United States and around the world. In so doing students gain the skills needed to: (1) explain and predict consumption, production and trade in agriculture and food markets; (2) evaluate the social welfare consequences of market failure, collective action and government policies including regulation, taxation and enforcement of property rights in agriculture and food markets; (3) measure poverty and inequality in income, wealth, nutrition and health, as influenced by changes in markets and policies; and (4) describe macroeconomic relationships, fluctuations and trends in incomes, employment, economic growth and development. Textbook in syllabus is recommended not required. Pre-requisite: Graduate standing or instructor consent.</p>				

131383	Emerging Technologies And Nutrition Communication			
Subject: NUTR	Catalog Nbr: 0239			
<p>The course begins with an overview of the role of technology in nutrition communication through a grounding in core concepts and a survey of technology in the field of health and nutrition communication. It then provides an orientation to three specific uses of Internet-based communication technology (dissemination, collaboration, and knowledge) through hands-on opportunities that encourage students to use and evaluate specific tools and their appropriateness to various nutrition communication contexts. Throughout the course, students work on a group that utilizes one or more technologies covered.</p>				

131447	Nutrition Science Journal Club			
Subject: NUTR	Catalog Nbr: 0240			
	2018 FALL	Primary	Elizabeth Johnson	elizabeth.johnson@tufts.edu
	2020 SPRG	Primary	Paul Jacques	paul.jacques@tufts.edu
	2020 SPRG	Primary	Tammy Scott	tammy.scott@tufts.edu
<p>Students in this course will critically evaluate peer-reviewed articles through presentations and class discussion, focusing on recent findings in nutrition research. This purpose of this course is to introduce students to the current state of research in biochemical and molecular nutrition and nutrition epidemiology; expose students to principles of various research approaches (including in vitro experiments, animal models, observational studies, clinical trials) and analytical methods used in these fields of research; and provide experience in reviewing and critiquing research articles. It also provides the opportunity to practice creating scientific presentations, to gain experience in public speaking and to meet and discuss research articles with guest faculty facilitators who have expertise in the weekly topic. The latter has the added benefit of allowing students in their first and second year of the BMN and NDS programs to meet and interact with a variety of Friedman faculty. The primary format of this course will be student-selected and student-led presentations of</p>				

Course Bulletin

recent publications in the nutrition science literature. The course is a two-semester sequenced course. During the year, all participating students will be required to give at least one PowerPoint presentation providing a critical assessment of a recent research article. Presentation dates are assigned at the beginning of the semester. This course will also include one introductory faculty-led lecture on: 1) Developing the skills and knowledge essential to understanding and critiquing research reports and 2) Effectively communicating the relevant supporting material, results, and conclusions of primary research reports. All BMN and NDS MS and PhD students are required to complete this two semester sequenced course for their degree and encouraged to take this course within the first two years of matriculation to the Friedman School. Students in other programs are welcome to participate in this course. The grading basis for this course is Satisfactory/Unsatisfactory. Pre-requisite: Graduate standing or instructor consent. First Class Session: TBD.

131468	Food for All: Ecology, Biotechnology & Sustainability			
Subject:	Catalog Nbr:			
NUTR	0241			
2019 SPRG	Primary	Colin Orians		colin.orians@tufts.edu
<p>An interdisciplinary examination of the pros and cons of two divergent approaches to meeting the increasing global food demand: organic farming and genetic engineering. Contrasting crops grown in developing and industrialized countries serve as case studies to evaluate: (1) how ecological knowledge makes food production more sustainable; (2) what existing and emerging approaches can, in the face of climate change, contribute to a reliable supply of nutritious food; and (3) the political and economic drivers that shape who has access to these technologies. An important focus is developing communication skills for negotiating stakeholder-specific perspectives (growers, advocacy groups, industry, governmental agencies). Recommendations: Intro Bio or Intro Chemistry or equivalent. Cross-listed with AS&E's BIO 0185.01.</p>				

132234	Summer Internship			
Subject:	Catalog Nbr:			
NUTR	0298			
Please see Friedman's website for detailed course description.				

132248	Nutrition in the Life Cycle			
Subject:	Catalog Nbr:			
NUTR	0301			
2020 SPRG	Primary	Erin Hennessy		erin.hennessy@tufts.edu
<p>This course covers nutrition issues from preconception throughout life, with a particular emphasis on nutrition correlates of normal growth and development and on the consequences of under and over nutrition. It briefly considers the role of nutrition in the context of the normal physiologic changes that occur with aging. This is a 1.5 semester hour unit course and meets the first half of the semester. Prerequisite: NUTR 0202: Principles of Nutrition Science or NUTR 0245 AND NUTR 0246 or equivalent and graduate standing or instructor consent. Enrollment priority for NICBC students, and for FANPP and AFE PhD students, as well as for FANPP students pursuing the Nutrition Interventions specialization.</p>				

Course Bulletin

132280	Risk And Disaster Management		
Subject: NUTR	Catalog Nbr: 0302		
<p>(Cross-listed as DHP D233 (Fletcher). This course (requiring advance reading and extensive participation in discussion) serves as a bridge between classes on nutrition in a developmental context and those focused on relief in complex emergencies. Manifestations of household and national vulnerability differ in these contexts, but only by a matter of degrees. Risks of individual nutrition failure are related to risks of household food security, which in turn relate to risks inherent in the physical, economic, cultural and political environment that is the backdrop to household behavior. The conditions that determine food and nutritional stresses persist in countries undergoing economic transformation and political unrest, but also in those ill equipped to cope with the stresses of globalization, increasing poverty, and declining public sector responsibility. Much international work involves being able to assess the potential risks and returns of alternative development strategies in such diverse contexts. This course was formerly listed as NUTR 231.</p>			

132292	Determinants of U.S. Food Policy		
Subject: NUTR	Catalog Nbr: 0303		
2019 FALL	Primary	Parke Wilde	Parke.Wilde@tufts.edu
<p>Focuses on government food-related programs from an economic and political perspective. Reviews the evolution of a range of policies and programs, analyzing their effects on the U.S. economy and on household consumption and the farm economy, as well as on food consumption at the national, household, and individual level. Existing policies and programs are related to the political and economic environment and to changing food consumption patterns in American society. Food assistance programs (e.g., Food Stamps), nutrition programs, food supply and agricultural price policies, and consumer protection and information are considered. Prerequisites: NUTR 238: Economics of Food Policy Analysis and NUTR 207: Statistical Methods for Nutrition Science and Policy/NUTR 0307: Regression Analysis for Nutrition Policy or equivalent or instructor consent.</p>			

132320	Nutrition, Food Security, and Development		
Subject: NUTR	Catalog Nbr: 0304		
2019 FALL	Primary	Jennifer Coates	jennifer.coates@tufts.edu
<p>This course encourages critical, evidence-driven analysis of effective government policy responses to food security and nutrition challenges in low-income countries. Through lecture, discussion, case studies, and secondary data analysis, students will be able to: discuss the range of policy levers that are used to enact national food security policy in developing countries; describe evidence of the effectiveness of these policies and programs in improving food security, poverty, and nutrition in different contexts; analyze key sources of food and socio-economic data to understand and inform policy-relevant decisions; and produce reasoned and critical writing to influence critical policy debates. Prerequisites: NUTR 203: Fundamentals of Public Policy and NUTR 238: Economics of Food Policy Analysis, or instructor consent. NOTE: Prerequisites may not be taken concurrently with NUTR 304.</p>			

Course Bulletin

132334	Nutritional Epidemiology			
Subject: NUTR	Catalog Nbr: 0305			
2019 FALL	Primary	Fang Fang Zhang	Fang_Fang.Zhang@tufts.edu	
<p>This course is designed for graduate students at either the Master's or Ph.D. level, who are interested in conducting or better interpreting epidemiologic studies relating diet and nutrition to health and disease. There is an increasing awareness that various aspects of diet and nutrition may be important contributing factors in chronic disease. There are many important problems, however, in the implementation and interpretation of nutritional epidemiologic studies. The purpose of this course is to examine epidemiologic methodology in relation to nutritional measures, and to review the current state of knowledge regarding diet and other nutritional indicators as etiologic factors in disease. This course is designed to enable students to better conduct nutritional epidemiologic research and/or to better interpret the scientific literature in which diet or other nutritional indicators are factors under study. Prerequisites: NUTR 0202: Principles of Nutrition Science and NUTR 0204/PH 0201: Principles of Epidemiology and NUTR 0206: Biostatistics I/PH 0205: Principles of Biostatistics. Prerequisites may not be taken concurrently with NUTR 0305.</p>				

132349	Communicating Health Information to Diverse Audiences			
Subject: NUTR	Catalog Nbr: 0306			
2019 FALL	Primary	Laurie LaRusso	Laurie.Larusso@tufts.edu	
<p>A review and analysis of how nutrition and health issues are presented by the media. This course will reinforce concrete journalism skills and an understanding of the values and practices required of a competent and thoughtful writer and is structured around class discussions, selected readings, and writing and editing assignments. Classroom discussions and assignments will also focus on how to report controversial issues in nutrition and health. Prerequisite: NUTR 220 or instructor consent. Enrollment limited to 15 students; priority given to Nutrition Communication degree program students. NOTE: Prerequisite may not be taken concurrently with NUTR 306. Meets first half of the fall term.</p>				

132363	Regression Analysis for Nutrition Policy			
Subject: NUTR	Catalog Nbr: 0307			
2020 SPRG	Primary	Parke Wilde	Parke.Wilde@tufts.edu	
<p>Part two of a one-year, two-semester course sequence in statistics. This course is intended for students whose main focus is non-experimental or survey-based research. The course covers non-experimental research design, simple linear regression, multiple regression, analysis of variance, non-linear functional forms, heteroskedasticity, complex survey designs, and real-world statistical applications in nutrition science and policy. Students will make extensive use of Stata for Windows. NOTE: Students cannot receive credit for both NUTR 307 and its second semester counterpart NUTR 309. Pre-requisites: NUTR 207 or NUTR 206 and graduate standing or instructor consent.</p>				

132377	Nutrition in Emergencies Policies, Practice and Decision-Making			
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Course Bulletin

Subject:	Catalog Nbr:			
NUTR	0308			
2020 SPRG	Primary	Erin Boyd		Erin.Boyd@tufts.edu

Required for students enrolled in the Master of Arts in Humanitarian Assistance (MAHA) Program. This course will examine the central role and importance of nutrition security and food security in complex emergencies. The implications of addressing nutritional needs of affected populations for assessment, program design and implementation, and policy development will be examined. The course aims to provide an understanding of: nutrition outcomes in emergencies (malnutrition, morbidity and mortality); causes of malnutrition and mortality in emergencies; approaches to mitigate and address undernutrition in complex emergencies. The course will also develop a broader range of knowledge related to humanitarian response. This course is cross-listed (D237) with The Fletcher School. Pre-requisite: Graduate standing or instructor consent.

132392**Statistical Methods for Nutrition Research II**

Subject:	Catalog Nbr:			
NUTR	0309			
2020 SPRG	Primary	Tania Alarcon Falconi		Tania.Alarcon_Falconi@tufts.edu

This course is part two of a one-year, two-semester course on statistical methods for nutrition research. The focus of this course is on simple and multiple regression methods for continuous, binary, and survival data. Emphasis is on developing a conceptual understanding of the application of these techniques to solving problems rather than on numerical details. In the computer lab sessions, students will use concepts learned during lecture to analyze data using statistical software R and RStudio, an integrated development environment for R. NOTE: Students cannot receive semester hour units for both NUTR 309 and NUTR 307: Regression Analysis for Nutrition Policy. Prerequisites: Biostatistics I (NUTR 0206) or Statistical Methods for Nutrition Science and Policy (NUTR 0207) or equivalent, and graduate standing or instructor consent. Ability to conduct exploratory data analysis using R.

132420**Qualitative Research Methods for Nutrition**

Subject:	Catalog Nbr:			
NUTR	0310			
2020 SPRG	Primary	Ellen Messer		ellen.messer@tufts.edu

NUTR 310 teaches principles and practical skills of qualitative inquiry in an interactive seminar format. Participants will learn how to design and carry out qualitative research through weekly background readings and written assignments, critical case-study discussions, and practical class exercises. They will also take part in the design, implementation, analysis, and evaluation of a local qualitative research project that involves practical, hands-on experience. The first part of the course will focus on the foundations of qualitative inquiry, qualitative methods, their strengths and challenges, standards for quality, and tools for critical assessment of insights derived from these methods. The second part of the course will be dedicated to learning how to design qualitative studies, including data collection, data management strategies, and approaches to data analysis. Participants will gain practical experience by developing and implementing a small research study, which will include the elements of research design, field-note documentation, participant observation, in-depth interviews, focus groups, visual methods, analysis, and writing/dissemination. Students should have exposure to research methods in social or health sciences prior

Course Bulletin

to enrollment in this course. Prerequisites: NUTR 207 or NUTR 206 and either NUTR 204 or NUTR 210, and graduate standing or instructor consent.

132434	Nutrition Data Analysis			
Subject:	Catalog Nbr:			
NUTR	0311			
2018 FALL	Primary	Robert Houser		No Email on file.
<p>This course will cover knowledge of advanced Stata statistical computing, data base construction, error detection and correction, creation of composite variables, descriptive statistics, univariate analyses, regression analysis of continuous, binary and categorical outcomes, ANOVA & ANCOVA, analysis of clustered data including cluster randomized trials, panel data analysis & introduction to multilevel modeling, factor analysis; and the construction of scales and factor scores. Students pose a research question, identify appropriate statistical techniques for answering the research question, perform the analyses and report on the results in an article suitable for publication in an academic journal. Advanced Stata programming will be taught in weekly hands on lab sessions.</p>				

132447	Nutrition and Chronic Disease			
Subject:	Catalog Nbr:			
NUTR	0312			
2020 SPRG	Primary	Kyla Shea		Kyla.Shea@tufts.edu
<p>This course covers issues in modern nutrition, public health and chronic disease. We will focus on the major non-infectious diseases present in Western countries that are caused by modifiable lifestyle choices and the role that diet plays in maintenance of health and the risk of chronic diseases. Meets second half of the spring semester.</p>				

132462	Nutritional Assessment			
Subject:	Catalog Nbr:			
NUTR	0313			
2019 SPRG	Primary	Sai Das		sai.das@tufts.edu
<p>This course will provide an overview of the common nutritional and food security assessment tools. Laboratory and field methods for population wide nutritional deficiency assessment, nutritional screening and surveillance, dietary assessment, hunger and food security as well as diet diversity and food group indices will be examined. Clinical methods including body composition, biochemical and clinical factors related to macro and micronutrient deficiency will be discussed. Using practical training and demonstrations students will learn how to select and apply these methods in program-based or research-based settings. Issues of validity and reliability of these methods will be addressed mainly in the context of strengths and limitations of each method. At the end of the course, students should have some familiarity with the common nutritional assessment techniques as well as their practical applications at the individual and population wide levels.</p>				

132476	Study Design in Nutrition Research			
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Course Bulletin

Subject: Catalog Nbr:
NUTR 0314

2019 SPRG Primary Adela Hruby Adela.Hruby@tufts.edu

Successful interventions, in research or for programs, rely on intentional design that begins with a hypothesis that can be developed into a conceptual model and translated into an intervention. This course describes this process, from conception, through design, to execution and implementation. Students are guided through generating hypotheses and introduced to specific principles of designing feasible studies—including intervention and observational studies—that address these hypotheses. Students will learn how having a critical understanding of research-based approaches can inform programmatic intervention and evaluation. Guest lectures will present real-world examples that illustrate this process. Students will gain experience in identifying appropriate funding sources and developing proposals that meet the interests and missions of potential funders. Students will also present their proposals, and review and critique the work of their classmates. Enrollment limited to 12 students with priority given to NICBC degree program students. NUTR 207 or NUTR 206 or equivalent, NUTR 204 or equivalent, and familiarity with basic methods of dietary assessment, and graduate standing or instructor consent.

132516**Applied Nutritional Biochemistry**

Subject: Catalog Nbr:
NUTR 0315

2019 FALL Primary Alice Lichtenstein alice.lichtenstein@tufts.edu

This course will focus on human nutrition and metabolism. Emphasis will be placed on the biological ramifications of altering substrate load and essential nutrients caused by intended and unintended changes in dietary intake. The functional and regulatory roles of macronutrients and micronutrients will be stressed. Additional components of the course will include integrating nutrition policy with nutrition science. Students will be guided in connecting the lay and scientific literature in the areas of biochemistry and nutrition, and exploring how each informs the other. Opportunities will be available for preparing short written reports and oral presentations on contemporary research issues related to the essential nutrients and current topics. Current challenges in the field of nutrition will be related to the lecture material. Priority enrollment for MS/DI students. Pre-requisite: NUTR 0202 or equivalent, and one undergraduate level biochemistry course taken within the past five years, or instructor consent.

132530**Advanced Medical Nutrition Therapy**

Subject: Catalog Nbr:
NUTR 0316

2020 SPRG Primary Kelly Kane Kelly.Kane@tufts.edu
2020 SPRG Primary Kathrina Prelack kprelack@tufts.edu

Nutritional biochemistry and physiology as related to selected pathophysiological conditions, with attention paid specifically to dietary assessment and various indices of nutritional status. Conditions with particular relevance to clinical nutrition are emphasized. Pre-requisites: Graduate standing or instructor consent.

132544**Positive Deviance for Behavior Change: A Course for Practitioners**

Subject: Catalog Nbr:

Course Bulletin

NUTR 0317

Positive Deviance provides a unique approach for solving problems that require social or behavioral change. At its heart is the belief that in every community there are a few individuals "positive deviants" whose uncommon practices or behaviors enable them to outperform or find better solutions to pervasive problems than their neighbors with whom they share the same resource base. Identifying the positive deviants' special practices/behaviors reveals hidden resources already present in the environment, from which it is possible to devise solutions to pervasive community problems, solutions that are sustainable as well as cost-effective. Students will read and discuss positive deviance and behavior change literature, review and critique studies and programs, and design and carry out positive deviance inquiries in the Boston area. Grading is Satisfactory/Unsatisfactory (S/U). Course enrollment is limited to 15. This course was formerly listed as NUTR 291PD.

132557	Statistical Methods For Epidemiology
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Subject: NUTR	Catalog Nbr: 0318
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This course focuses on the identification of confounding, effect modification and bias in epidemiological data. Methods of control of confounding for continuous, categorical and time to event data will be explored. Topics include analysis of data from normal, binomial and Poisson distributions, logistic and Poisson regression, and survival analysis using actuarial, Kaplan-Meier and Cox's proportional hazards, correlated data analysis, generalized estimating equations, and the mixed model. The art and science of statistical modeling and data reduction will be introduced. The course emphasizes practical application and makes extensive use of the SAS programming language.

132570	Intermediate Epidemiology
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Subject: NUTR	Catalog Nbr: 0319
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2020 SPRG	Primary	Fang Fang Zhang	Fang_Fang.Zhang@tufts.edu
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Intermediate Epidemiology exposes students to a variety of key concepts and methods when carrying out epidemiologic studies and teaches students applied skills in analyzing epidemiologic data and interpreting study findings appropriately. This course includes a 2-hour lecture session followed by a 1-hour lab session. The lecture session will present epidemiologic methods and concepts beyond the Principles of Epidemiology, and review relevant statistical methods and their applications in epidemiologic studies. The lab session will prepare students with practical skills in conducting and analyzing epidemiologic studies using SAS. The lab session will be taught in a computer lab equipped with SAS. Pre-Requisites: NUTR 204, NUTR 206 or equivalents and NUTR 309 or equivalents, or concurrently taking NUTR 309 or equivalents, or instructor consent.

132584	Nutritional Impact on the Immune System and Related Diseases
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Subject: NUTR	Catalog Nbr: 0320
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This special topics course will review the impact of various nutrients (in both deficient and supplemental states) on maintaining the homeostasis of the immune system during physiological and pathological states as

Course Bulletin

well as during different developmental stages of life. The implications for disease development and/or prevention will be discussed. Special emphasis will be given to understanding the mechanism of nutrients' effect on the immune system at biochemical, molecular and cellular levels. The role of nutrient status in maintaining "optimal" immune function and "disease prevention" and its implications for determining the recommended dietary allowance will be discussed. This course was formerly listed as NUTR 291IM.

132599	Dietary Antioxidants and Degenerative Diseases		
Subject: NUTR	Catalog Nbr: 0321		
<p>This course will discuss the role of dietary antioxidants and pro-oxidants on the pathogenesis of degenerative diseases at molecular, cellular and whole body level. The balance of pro-oxidants-antioxidants on free radical generation, lipid peroxidation, protein oxidation, DNA damage and cell injury will be reviewed in the context of chronic and acute diseases such as cardiovascular disease, cancer, diabetes, arthritis, Alzheimer's disease. This course emphasizes the role of dietary antioxidant vitamins E and C, carotenoids, polyphenols, selenium, iron, zinc and copper on oxidative stress and antioxidant defense mechanisms. This course was formerly listed as NUTR 291DA.</p>			

132614	International Humanitarian Response		
Subject: NUTR	Catalog Nbr: 0324		
2020 SPRG	Primary	Gregory Gottlieb	Gregory.Gottlieb@tufts.edu
<p>This course offers practical training in the complex issues and field skills needed to engage in humanitarian work. Students will gain familiarity with the concepts and international standards for humanitarian response. While providing a solid theoretical foundation, the course will focus on practical skills such as conducting rapid assessments, ensuring field security, and interacting with aid agencies, the military, and the media during humanitarian crises.</p> <p>The course culminates in a required three-day intensive humanitarian crisis field simulation at Harold Parker State Forest in North Andover, MA, from 8am on May 1, 2020 through 3pm on May 3, 2020. There is a fee (\$300) to cover camping gear hire, food, and other equipment costs. Students will camp for two nights in the forest as part of an aid agency team responding to a simulated international disaster and conflict. Student teams will carry out rapid assessments, create a comprehensive humanitarian aid plan, and manage interactions with refugees, officials, and other humanitarian actors. Students will face challenges that test their subject knowledge, team skills, creativity, and grit. Topics covered:</p> <ul style="list-style-type: none"> • Humanitarian response community and history • International Humanitarian Law and Human Rights Law • Sphere standards (shelter, water and sanitation, food security, health) • Civil-military relations, media skills, logistics, and budgeting • Monitoring and evaluation, accountability • Personal security, mental health, stress, and teamwork • Humanitarian technology, and crowdsourcing, and GPS skills <p>Participation in both the lecture and simulation parts of the course is required.</p>			

Course Bulletin

IMPORTANT TO NOTE: The first day of class is January 29, 2020 and the last day of class is May 6, 2020. There is no class on March 18, 2020. Class will meet in the Yenching Auditorium, 2 Divinity Avenue, Cambridge: <https://map.harvard.edu/?ctrx=760537&ctry=2962886.5&level=9&layers=Campus%20Base%20and%20Buildings,Map%20Text>

This course is cross-listed with The Fletcher School (D213) and enrollment is limited to 10 Friedman students and 10 Fletcher students. Priority enrollment for Friedman is given to: 1) FANPP students pursuing the Humanitarian Assistance Specialization, 2) MAHA students, 3) Graduating and Second-Year students, 4) First-Year students. Prerequisite: Graduate standing or instructor consent. The course will meet in Harvard Yard in Cambridge, MA; the classroom location will be assigned closer to the start of class.

132626	Evidence-Based Interventions for Child Malnutrition			
Subject: NUTR	Catalog Nbr: 0325			
2018 FALL	Primary	Irwin Rosenberg	irwin.rosenberg@tufts.edu	
2018 FALL	Primary	Shibani Ghosh	Shibani.Ghosh@tufts.edu	
<p>This course will build on current knowledge and translation of nutrition science basis for interactions for prevention and treatment of child malnutrition (wasting and stunting) in developing countries. The emphasis will be on protein quality, micronutrient content especially iron, Vitamin A, zinc, folate and essential fatty acids. Current interventions will be analyzed and discussed in this manner with emphasis on criteria for effectiveness studies. Pre-requisites: Graduate student or instructor consent. Offered every other Fall semester.</p>				

132640	Food and Agricultural International Trade			
Subject: NUTR	Catalog Nbr: 0326			
2019 FALL	Primary	Norbert Wilson	Norbert.Wilson@tufts.edu	
<p>The course is an exploration of international trade policy related to food and agriculture. We will review trade theory, trade policy, and value chains. Students will develop policy briefs on topics of interest. Prerequisite: NUTR 238, graduate standing or instructor consent.</p>				

132654	Food Systems and Sustainable Diets			
Subject: NUTR	Catalog Nbr: 0327			
2019 FALL	Primary	Hugh Joseph	hugh.joseph@tufts.edu	
<p>Perspectives on sustainable food systems and sustainable diets will address social, economic, governance, health, cultural, and environmental dimensions. Systems-based, multi-disciplinary approaches are key to understanding these from holistic perspectives. Topics covered include biodiversity, climate change, local food systems, food waste, livestock/meat; literacy; oceans & seafood; water and beverages; sustainable dietary guidelines. A particular emphasis is sustainable diets and dietary guidance; specifically, how can food consumption serve as a critical change model for producing a more sustainable food system? The course emphasizes active class participation, including student-led presentations and group activities designed to</p>				

Course Bulletin

build skills in applying sustainability and food system concepts to real-world situations. Assignments will focus on understanding the interplay of multiple facets of sustainable food systems, and how to navigate their complexities to produce practical outcomes in domains such as public policy, agricultural and food industry practices, public health nutrition, NGO advocacy, and communications. There are no course prerequisites, but as an advanced course, first year students should have a reasonable background in food systems education and/or experience. If unsure, please contact the instructor or enroll and come to the first class to evaluate your readiness for it. Note: A detailed week-by-week syllabus from 2018 is available by contacting the instructor: hugh.joseph@tufts.edu. Prerequisite: Graduate standing or instructor consent.

132667	Understanding Nutrition Science Using Systematic Review And Meta Analysis			
Subject:	Catalog Nbr:			
NUTR	0328			
<p>Nutrition is an increasingly important topic for clinical medicine and public health policy. An unbiased assessment of the scientific literature is critical when formulating public health policy, allocating health care resources, reviewing and approving health claims, counseling patients who have varying biological needs and comorbidities, and targeting scarce research dollars. The large body of scientific literature, often with seemingly conflicting results, presents a formidable challenge to those making these decisions. This course will focus on the methods and uses of systematic reviews and meta-analyses for nutrition studies and their applications to the field of nutrition.</p>				

132680	Agricultural Science And Policy II			
Subject:	Catalog Nbr:			
NUTR	0333			
2019 FALL	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu	
2019 FALL	Primary	Christian Peters	Christian.Peters@tufts.edu	
<p>Second part of a two-semester sequence required of AFE students. This course covers the major biological, chemical and physical components of agricultural systems. Each is discussed from the viewpoints of both the underlying natural processes and principles, and their significance for major agricultural, food safety, and environmental policy issues in the US today. In this second semester, the topics are best management practices, livestock systems, food systems, climate change and bio-energy. Major policy issues associated with these areas include protecting groundwater from nitrogen contamination; regulating and monitoring pesticide use; regulating agricultural biotechnology; and regulating "factory" animal production.</p>				

132694	Senior Clinical Rotations			
Subject:	Catalog Nbr:			
NUTR	0335			
2020 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu	
<p>Required of senior standing students enrolled in the Combined Masters Degree/Dietetic Internship program. The grading basis for this course is Satisfactory/Unsatisfactory. Prerequisite: Graduate standing or instructor consent.</p>				

Course Bulletin

132709	Nutritional Genomics And Epigenomics			
Subject: NUTR	Catalog Nbr: 0336			
<p>The course, which consists of two modules, Nutritional Genomics and Nutritional Epigenomics, will offer a state of science approach to unravel the effects of diet on health. In the Nutritional Genomics module, students will learn how nutrients affect gene expression, how nutrients and genes interact, and how nutrients affect the process of diseases such as cardiovascular diseases and metabolic syndrome through genetic mechanism. The Nutritional Epigenomics module will provide the most recent knowledge regarding epigenetic phenomenon, a mechanism that alters gene expression without genetic changes, how nutrients affect epigenetic phenomena, and how nutrients affect physiologic and pathologic processes such as embryonic development, aging, and cancer by modifying epigenetic phenomena.</p>				

132722	Economics of Agriculture and the Environment			
Subject: NUTR	Catalog Nbr: 0341			
2020 SPRG	Primary	Sean Cash		Sean.Cash@tufts.edu
<p>This course is recommended for AFE students and highly recommended for any Friedman student with an interest in economic aspects of the food/environment interface. In this class we will be studying a broad range of environmental and natural resource problems through the tools and concepts of microeconomics - the social science that deals with balancing our (seemingly unlimited) wants and needs within the limitations of our personal, social, and natural environments. It therefore provides useful frameworks for considering issues such as how we protect and use our land, forests, and oceans; the impact of climate change on food production; societal investment in land, water, and soil quality; and how private and social incentives can help overcome market failures. Economic aspects of environmental and agricultural policies will be a major focus. Pre-requisite: NUTR 238 or a similar course in microeconomic principles or consent of instructor.</p>				

132736	Nutritional Biochemistry and Physiology: Macronutrients			
Subject: NUTR	Catalog Nbr: 0370			
2019 FALL	Primary	Stefania Lamon-Fava		stefania.lamon-fava@tufts.edu
<p>This course is required of all students in the Biochemical and Molecular Nutrition degree program, as well as for the Biochemical and Molecular Nutrition specialization option in the Nutrition Data Science degree program. The course will expand understanding of the biological roles of nutrients and their metabolism using basic knowledge in physiology, biochemistry, cell biology and molecular biology. It will integrate information on the roles of macronutrients in nutrition and health especially on their relationship to cardiovascular disease, diabetes and cancer, as well as provide a forum for discussing the experimental approaches to studying macronutrient metabolism and function. NUTR 370 is an advanced course in the nutrition sciences and will cover topics related to carbohydrates and energy metabolism, fiber, protein and amino acids, and lipids. Students are expected to be familiar with the material covered in NUTR 202, as well as the biochemistry course offered at Tufts.</p>				

Course Bulletin

132750	Nutritional Biochemistry and Physiology: Micronutrients			
Subject: NUTR	Catalog Nbr: 0371			
2019 SPRG	Primary	Ligi Paul Pottenplackel	Ligi.Paul_Pottenplackel@tufts.edu	
<p>Required of all students in the Biochemical and Molecular Nutrition and Nutritional Epidemiology programs, NUTR 371 is an advanced course in nutritional sciences. NUTR 371 will cover topics related to minerals, watersoluble micronutrients and fat-soluble micronutrients. Students are expected to be familiar with the material covered in an introductory nutrition course, as well as the biochemistry and physiology courses. Prerequisites: BCHM 0223 (Graduate Biochemistry), NUTR 202 or equivalent. Instructor: Mathieu Lalonde</p>				

132762	MS Continuation Part Time			
Subject: NUTR	Catalog Nbr: 0395			

132774	MS Continuation Full Time			
Subject: NUTR	Catalog Nbr: 0396			

135600	Directed Study			
Subject: NUTR	Catalog Nbr: 0397			
2018 FALL	Primary	Christina Economos	christina.economos@tufts.edu	
2018 FALL	Primary	Odilia Bermudez	odilia.bermudez@tufts.edu	
2018 FALL	Primary	Lynne Ausman	lynne.ausman@tufts.edu	
2018 FALL	Primary	Jeffrey Blumberg	jeffrey.blumberg@tufts.edu	
2018 FALL	Primary	Fang Fang Zhang	Fang_Fang.Zhang@tufts.edu	
2018 FALL	Primary	Virginia Chomitz	Virginia.Chomitz@tufts.edu	
2019 FALL	Primary	Beatrice Rogers	beatrice.rogers@tufts.edu	
2019 FALL	Primary	Elena Naumova	elena.naumova@tufts.edu	
2019 FALL	Primary	Parke Wilde	Parke.Wilde@tufts.edu	
2019 FALL	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu	
2019 FALL	Secondary	Parke Wilde	Parke.Wilde@tufts.edu	
2019 FALL	Secondary	Sean Cash	Sean.Cash@tufts.edu	
2019 FALL	Secondary	Norbert Wilson	Norbert.Wilson@tufts.edu	
2019 SPRG	Primary	Erin Hennessy	erin.hennessy@tufts.edu	
2019 SPRG	Primary	Stefania Lamon-Fava	stefania.lamon-fava@tufts.edu	
2019 SPRG	Primary	Carole Palmer	carole.palmer@tufts.edu	

Course Bulletin

2019 SPRG	Primary	Sai Das	sai.das@tufts.edu
2019 SPRG	Primary	Nicola McKeown	nicola.mckeown@tufts.edu
2019 SPRG	Primary	Andrew Greenberg	andrew.greenberg@tufts.edu
2019 SPRG	Primary	Erin Boyd	Erin.Boyd@tufts.edu
2019 SUMR	Primary	Hugh Joseph	hugh.joseph@tufts.edu
2019 SUMR	Primary	Gitanjali Singh	Gitanjali.Singh@tufts.edu
2020 SPRG	Primary	Sara Folta	sara.folta@tufts.edu
2020 SPRG	Primary	Edward Saltzman	edward.saltzman@tufts.edu
2020 SPRG	Primary	Aviva Must	aviva.must@tufts.edu
2020 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu
2020 SPRG	Primary	William Masters	William.Masters@tufts.edu
2020 SPRG	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu
2020 SPRG	Primary	Jiantao Ma	Jiantao.Ma@tufts.edu

This Directed Study course is a 1.5 semester hour unit (SHUs) course with a Satisfactory/Unsatisfactory Grading Basis. This course is a mechanism for a student to receive academic credit for work completed under the tutelage of a Friedman faculty member sponsor. This is generally on a one-to-one basis with the student taking major responsibility for his/her progress. Research conducted in a laboratory during a Directed Study course project can be either problem-oriented or technique-based. Directed Study courses must be supervised by Friedman School appointed faculty. Students cannot independently enroll themselves in this course via SIS and must complete a Directed Study Proposal Form, obtain the Friedman Faculty Sponsor's approval, and approval of their Division Chair/Program Director, and submit the completed form to Friedman's Registrar in order to be manually enrolled in SIS. The deadline for submission of the Directed Study Proposal Form is the Add Deadline for the semester (refer to Friedman's Academic Calendar at: <https://nutrition.tufts.edu/students/registrar>). No more than 12 semester hour units (SHUs) may be applied for fulfillment of a Friedman degree and no more than 6 semester hour units (SHUs) may be taken with the same Friedman faculty member. Students may not use the mechanism of enrollment in a Directed Study course with a supervising Friedman faculty member in order to enroll in a course that is offered at a school that is not an approved cross-registration partner (no reciprocity) with the Friedman School. The Directed Study Proposal Form is available online at: <https://nutrition.tufts.edu/students/registrar/forms>.

135642	Doctoral Candidacy Preparation
Subject: NUTR	Catalog Nbr: 0399
PhD students preparing for their PhD Qualifying Examination need to enroll in this course, NUTR 0399 (full-time equivalent course), in order to remain in active status.	

135681	Advanced Analytic Methods For Nutrition Policy Research
Subject: NUTR	Catalog Nbr: 0401
This course teaches advanced methods for food and nutrition policy research. A central theme is the difficulty of inferring causation using non-experimental data, because of "omitted" or "confounding" factors. We focus on four strategies for addressing omitted variables: a) proxy variables, b) the "difference-in-differences" approach, c) simple models for panel data (fixed effects and random effects), and d) instrumental variables	

Course Bulletin

(two-stage least squares). We also address methods for solving the most frequently encountered data problems, such as multicollinearity, complex survey design, and outliers. Most methods are drawn from the field of econometrics, but they are chosen for their likely usefulness for social science research more generally. Using examples of real nutrition policy research questions in the United States and around the world, the course demonstrates the use of advanced analytic methods for defensible and convincing policy analysis. This course was formerly listed as NUTR 281.

135708	Phd Thesis Only Part Time		
Subject:	Catalog Nbr:		
NUTR	0402		

135787	PhD Thesis Only		
Subject:	Catalog Nbr:		
NUTR	0403		
PhD students after completing their PhD Qualifying Exam and while preparing for their Dissertation Defense must enroll in this course, NUTR 0403 (full-time equivalent course), every semester to remain in active status.			

135801	Doctoral Research Seminar: Food and Nutrition Policy			
Subject:	Catalog Nbr:			
NUTR	0404			
2020 SPRG	Primary	Beatrice Rogers		beatrice.rogers@tufts.edu
2020 SPRG	Primary	Irwin Rosenberg		irwin.rosenberg@tufts.edu
2020 SPRG	Primary	William Masters		William.Masters@tufts.edu
<p>This seminar is designed to offer doctoral students a forum for discussing issues, methodologies, and research findings at a higher plane of analysis. Will represent a venue for in-depth, cross-disciplinary exploration of challenging topics. Under the direction of one or more faculty members, students will be expected to facilitate topic discussions and guide each other's research, evaluate methods, and critique research findings, often in fields outside of nutrition. Students will be actively challenged to explore cutting-edge topics in innovative ways. The seminar offers students an opportunity to apply new methodologies or insights directly to their own work and return to the seminar at different stages of preparation for further review. In addition, students will further develop their presentation skills, and learn the art of giving and receiving constructive criticism. The grading basis for this course is Satisfactory/Unsatisfactory.</p> <p>NOTE: FANPP PHD REQUIREMENT. Food and Nutrition Policy Program doctoral candidates are required to fulfill at least two semesters during the period of their doctoral program; participation by FANPP doctoral students beyond the two semesters requirement is strongly encouraged. Strongly recommended for doctoral students in the (former) World Hunger, U.S. Food and Nutrition Issues programs and AFE program. Other doctoral students are welcome. Co-instructors: Dr. Irwin Rosenberg, Dr. Beatrice Rogers, and Dr. William Masters. Prerequisite: The seminar is open to doctoral program students or Masters-level students already admitted to the doctoral program. Other Masters students may be considered only with instructor's consent.</p>				

Course Bulletin

136001	Directed Study			
Subject:	Catalog Nbr:			
NUTR	0497			
2019 FALL	Primary	Susan Roberts	susan.roberts@tufts.edu	
2019 FALL	Primary	Lynne Ausman	lynne.ausman@tufts.edu	
2019 FALL	Primary	Fang Fang Zhang	Fang_Fang.Zhang@tufts.edu	
2019 FALL	Primary	Sean Cash	Sean.Cash@tufts.edu	
2019 SPRG	Primary	Elena Naumova	elena.naumova@tufts.edu	
2019 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu	
2019 SPRG	Primary	Christian Peters	Christian.Peters@tufts.edu	
2019 SPRG	Primary	William Masters	William.Masters@tufts.edu	
2020 SPRG	Primary	Dayong Wu	dayong.wu@tufts.edu	
2020 SPRG	Primary	Joel Mason	joel.mason@tufts.edu	
2020 SPRG	Primary	Daniel Maxwell	Daniel.Maxwell@tufts.edu	
<p>This Directed Study course is a 1.5 semester hour unit (SHUs) course with a Letter Grading Basis. This course is a mechanism for a student to receive academic credit for work completed under the tutelage of a Friedman faculty member sponsor. This is generally on a one-to-one basis with the student taking major responsibility for his/her progress. Research conducted in a laboratory during a Directed Study course project can be either problem-oriented or technique-based. Directed Study courses must be supervised by Friedman School appointed faculty. Students cannot independently enroll themselves in this course via SIS and must complete a Directed Study Proposal Form, obtain the Friedman Faculty Sponsor's approval, and approval of their Division Chair/Program Director, and submit the completed form to Friedman's Registrar in order to be manually enrolled in SIS. The deadline for submission of the Directed Study Proposal Form is the Add Deadline for the semester (refer to Friedman's Academic Calendar at: https://nutrition.tufts.edu/students/registrar). No more than 12 semester hour units (SHUs) may be applied for fulfillment of a Friedman degree and no more than 6 semester hour units (SHUs) may be taken with the same Friedman faculty member. Students may not use the mechanism of enrollment in a Directed Study course with a supervising Friedman faculty member in order to enroll in a course that is offered at a school that is not an approved cross-registration partner (no reciprocity) with the Friedman School. The Directed Study Proposal Form is available online at: https://nutrition.tufts.edu/students/registrar/forms.</p>				

136015	Research Practicum			
Subject:	Catalog Nbr:			
NUTR	0501			
Required of Post-Doctoral and Training Grant Fellows. Grading is Satisfactory/Unsatisfactory.				

138644	Transfer Credit			
Subject:	Catalog Nbr:			
TRAN	9999			

Course Bulletin

138799	Anthropology of Food and Nutrition			
Subject: NUTR	Catalog Nbr: 0330			
2019 SPRG	Primary	Ellen Messer	ellen.messer@tufts.edu	
<p>This course provides an advanced introduction to anthropological theory and methods designed for food and nutrition science and policy graduate students. Section 1 covers anthropology's four-field modes of inquiry, cross-cutting theoretical approaches and thematic interest groups, their respective institutions and intellectual concerns. Section 2 demonstrates applications of these concepts and methods to cutting-edge food and nutrition issues. Assignments and activities incorporate background readings, related discussions, and short writing assignments, plus an anthropological literature review on a focused food and nutrition project, relevant to their particular interests. The course overall encourages critical thinking and scientific assessment of anthropology's evidence base, analytical tools, logic, and meaning-making, in the context of contributions to multi-disciplinary research and policy teams. Pre-requisites: Some social science background and graduate standing or instructor consent. Offered every other spring semester.</p>				

138933	Supply Chain Management			
Subject: CRBU	Catalog Nbr: 0854			
Supply Chain Management				

139207	Nutritional Biochemistry with Community/Clinical Applications: Macronutrients			
Subject: NUTB	Catalog Nbr: 0205			
2019 FALL	Primary	Lynne Ausman	lynne.ausman@tufts.edu	
<p>Students will explore the fundamental roles of nutrients in biological systems and the implications of macronutrient biological functions on food and nutrition policy. Emphasis will be placed on the function of nutrients as defined by their chemistry, interrelations among nutrient functions, mechanistic approaches in the analysis of nutrient-disease relationships, and recent advances in the basic sciences related to nutrition and nutrient function. The course will integrate examples of community, clinical and public health policy applications throughout the term. Published journal articles from the peer reviewed literature, case histories, and public policy documents will form the basis for critical review and discussion. This is the first of a two-course sequence (NUTB 205 and NUTB 305; these courses may be taken in either order). Prerequisite: Biochemistry This course is open only to students who are in the Blended Master of Nutrition Science and Policy Program.</p>				

139208	Economics for Food and Nutrition Policy			
Subject: NUTB	Catalog Nbr: 0238			
2019 FALL	Primary	William Masters	William.Masters@tufts.edu	
This course equips students with the principles used for economic analysis of food and nutrition policies				

Course Bulletin

around the world. We use the graphical methods taught in standard, one-semester courses on the principles of economics, but our motivation, examples and applications are focused on food and nutrition problems in the United States and elsewhere. On completion, students will be able to obtain the data and apply the analytical methods needed to: (1) explain and predict consumption, production and trade in agriculture and food markets; (2) evaluate the social welfare consequences of market failure, collective action and government policies including regulation, taxation and enforcement of property rights in agriculture and food markets; (3) measure poverty and inequality in income, wealth, nutrition and health, as influenced by changes in markets and policies; and (4) describe macroeconomic relationships, fluctuations and trends in incomes, employment, economic growth and development.

Completion of the Online Economics Primer in advance of the start of the course is optional for students: <https://nutrition.tufts.edu/sites/default/files/documents-forms/NUTB238EconomicsPrimerInfo.pdf>. This course is open only to students who are in the Blended Master of Nutrition Science and Policy Program.

139209	Statistical Methods for Health Professionals I			
	Subject:	Catalog Nbr:		
	NUTB	0250		
	2018 FALL	Primary	Robert Houser	No Email on file.
	2019 FALL	Primary	Gitanjali Singh	Gitanjali.Singh@tufts.edu
Students will critically evaluate, compare, interpret, judge, summarize and explain statistical results published in research articles in health and nutrition journals from the United States and around the world that are influencing the practice of nutrition science, policy and research. Students learn and use Stata® statistical software for their homework. This course is open only to students who are in the Blended Master of Nutrition Science and Policy Program.				

139222	Field Research Methods in Humanitarian Settings			
	Subject:	Catalog Nbr:		
	NUTC	0235		

139239	Intermediate Biostatistics: Regression Methods			
	Subject:	Catalog Nbr:		
	NUTR	0323		
	2018 FALL	Primary	Kenneth Chui	Kenneth.Chui@tufts.edu
This course provides a survey of regression techniques for outcomes common in biomedical and public health studies including continuous, count, and binary data. Emphasis is on developing a conceptual understanding of the application of regression techniques to solving problems, rather than on numerical details. The first half of the course focuses on modifications to linear regression models when various assumptions do not hold. The second half of the course explores more advanced topics including logistic regression, Poisson regression, and complex survey weighting. Students will have opportunities to experience the whole life cycle of a statistical manuscript--using real world data given by the instructor as well as data of their own--from cleaning the data, writing the analysis plan, constructing the model, to presenting the work in forms of written report and oral presentation. Prerequisite: NUTR 0309: Statistical Methods in Nutrition Research II or NUTR 307: Regression				

Course Bulletin

Analysis for Nutrition Policy or course equivalent (students who wish to use other statistics course as prerequisites please gather a syllabus of the said course and contact the instructor for consent before the end of the Add deadline).

IMPORTANT TO NOTE: NUTR 0323 is cross-listed with PH 0206 only in the Fall semester so Friedman students may enroll via SIS (8 seats available). However, this course is not cross-listed in the Spring semester so Friedman students need to pursue enrollment in PH 0206 (Intermediate Statistics at Tufts Public Health) via the cross-registration process.

139241	Food Security and Nutrition in Emergencies			
	Subject:	Catalog Nbr:		
	NUTC	0232		
<p>The course will take a practical programming approach by first, reviewing issues of food security and nutritional assessment, interpretation and response analysis, followed by a focus on the core food security and nutrition actions including food assistance, direct nutrition interventions and interventions to protect and promote food security and livelihoods more broadly. Programming examples explored cover a range of applications from acute emergencies to protracted crises, recovery, and in some cases, food security and nutrition elements of social protection. The evidence base for these actions will be reviewed, along with related international policies, standards and guidelines. A broader range of related and topical issues will also be considered, including humanitarian protection, disaster risk reduction and emergency preparedness, coordination, capacity development, recovery and transition.</p>				

139243	Statistical Methods for Health Professionals II			
	Subject:	Catalog Nbr:		
	NUTB	0350		
	2019 SPRG	Primary	Tania Alarcon Falconi	Tania.Alarcon_Falconi@tufts.edu
	2020 SPRG	Primary	Gitanjali Singh	Gitanjali.Singh@tufts.edu
<p>The purpose of this course is to help students gain proficiency applying statistical concepts and procedures for the analysis of health and nutrition data. Statistical analysis techniques used for the analysis of data from experimental and non-experimental research studies covered in this course will include multiple regression assumptions, diagnostics, transformations and robust standard errors, multiple logistic regression, analysis of variance and covariance and analysis of data from cluster randomized trials. In this course students critically evaluate, compare, interpret, judge, summarize and explain statistical results published in research articles in health and nutrition journals that are influencing nutrition science, research, policy, and clinical practice. Students will learn how to formulate research questions, how to identify appropriate statistical techniques, how to perform the analysis with Stata statistical software and report results in tables, text and figures. Prerequisite: NUTB 250 or equivalent and permission of the instructor. This course is open only to students who are in the Blended Master of Nutrition Science and Policy Program.</p>				

139371	Directed Study			
	Subject:	Catalog Nbr:		

Course Bulletin

NUTR	0397			
	2018 FALL	Primary	Alice Lichtenstein	alice.lichtenstein@tufts.edu
	2018 FALL	Primary	Gitanjali Singh	Gitanjali.Singh@tufts.edu
	2019 FALL	Primary	Sara Folta	sara.folta@tufts.edu
	2019 FALL	Primary	Xian-Dong Wang	xiang-dong.wang@tufts.edu
	2019 FALL	Primary	Nicola McKeown	nicola.mckeown@tufts.edu
	2019 FALL	Primary	Dyan Mazurana	Dyan.Mazurana@tufts.edu
	2019 SPRG	Primary	Dayong Wu	dayong.wu@tufts.edu
	2019 SPRG	Primary	Carole Palmer	carole.palmer@tufts.edu
	2019 SPRG	Primary	Paul Jacques	paul.jacques@tufts.edu
	2019 SPRG	Primary	Sarah Booth	Sarah.Booth@tufts.edu
	2019 SPRG	Primary	Johanna Dwyer	johanna.dwyer@tufts.edu
	2019 SPRG	Primary	Kyla Shea	Kyla.Shea@tufts.edu
	2019 SPRG	Primary	Tammy Scott	tammy.scott@tufts.edu
	2019 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu
	2019 SUMR	Primary	Elena Naumova	elena.naumova@tufts.edu
	2019 SUMR	Primary	Andrew Greenberg	andrew.greenberg@tufts.edu
	2020 SPRG	Primary	Edward Saltzman	edward.saltzman@tufts.edu
	2020 SPRG	Primary	Susan Roberts	susan.roberts@tufts.edu
	2020 SPRG	Primary	Fang Fang Zhang	Fang_Fang.Zhang@tufts.edu
	2020 SPRG	Primary	William Masters	William.Masters@tufts.edu
	2020 SPRG	Primary	Virginia Chomitz	Virginia.Chomitz@tufts.edu
	2020 SPRG	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu
	2020 SPRG	Primary	Sean Cash	Sean.Cash@tufts.edu
	2020 SPRG	Primary	Norbert Wilson	Norbert.Wilson@tufts.edu

This Directed Study course is a three semester hour unit (SHUs) course with a Satisfactory/Unsatisfactory Grading Basis. This course is a mechanism for a student to receive academic credit for work completed under the tutelage of a Friedman faculty member sponsor. This is generally on a one-to-one basis with the student taking major responsibility for his/her progress. Research conducted in a laboratory during a Directed Study course project can be either problem-oriented or technique-based. Directed Study courses must be supervised by Friedman School appointed faculty. Students cannot independently enroll themselves in this course via SIS and must complete a Directed Study Proposal Form, obtain the Friedman Faculty Sponsor's approval, and approval of their Division Chair/Program Director, and submit the completed form to Friedman's Registrar in order to be manually enrolled in SIS. The deadline for submission of the Directed Study Proposal Form is the Add Deadline for the semester (refer to Friedman's Academic Calendar at: <https://nutrition.tufts.edu/students/registrar>). No more than 12 semester hour units (SHUs) may be applied for fulfillment of a Friedman degree and no more than 6 semester hour units (SHUs) may be taken with the same Friedman faculty member. Students may not use the mechanism of enrollment in a Directed Study course with a supervising Friedman faculty member in order to enroll in a course that is offered at a school that is not an approved cross-registration partner (no reciprocity) with the Friedman School. The Directed Study Proposal Form is available online at: <https://nutrition.tufts.edu/students/registrar/forms>.

139426

Nutrition Child Development

Subject: Catalog Nbr:

Course Bulletin

NUTR 0212

This course provides an overview of development during gestation, infancy, childhood, and adolescence, and enables students to think critically about the role of nutrition in child development. We will focus primarily on current issues and controversies in the United States, notably for health promotion and obesity prevention, with international perspectives incorporated during select units. This course complements NUTR 301 (Nutrition & the Life Cycle), as well as NUTR 272 (Physical Activity, Nutrition and Health); the only prerequisite is NUTR 201 (Fundamentals of Nutrition Science) or equivalent.

139427

Food Politics and Policy in the US

Subject: Catalog Nbr:
NUTR 0340

This course uses contemporary food issues to examine core elements of the U.S. system of government and to illuminate dynamics in American politics and policymaking. Its primary purpose is to develop a clearer understanding of how government institutions function, and how politics broadly understood shape what we end up calling (perhaps with some overstatement) “food policy.” As such, the course focuses its attention on such elements as the constitutional foundations of the U.S. system of government, how the structure of the election system affects policy debate and outcomes, why some organized societal interests have greater access to and leverage with policymakers than others, and, overall, why obtaining fundamental policy change is difficult – yet not impossible

139428

Food Systems Modeling and Analysis

Subject: Catalog Nbr:
NUTR 0342

2020 SPRG Primary Christian Peters Christian.Peters@tufts.edu

Agriculture and food industries are a subject of growing interest in terms of their resource requirements, ecological impacts, and sustainability. This course will provide a foundation in some of the methods of modeling and analysis used to study food systems. We will address several types of approaches, generally building in complexity, starting with net balances of production and consumption and continuing through modeling food production capacity, foodshed analyses, life cycle assessment, and system dynamics and integrated modeling. Students will learn what types of questions are best addressed through modeling approaches, the methods used to conduct food systems models, and the data required to complete the analyses. In addition, they will have opportunities to conduct simple analyses through in-class exercises. Finally, students will learn how models might be relevant to the development of policy related to local and regional food systems or dietary changes to reduce environmental impact. Pre-requisite: Introductory GIS course or instructor’s consent. The pre-requisite may not be taken concurrently with NUTR 342. Recommended: NUTR 233 Agricultural Science and Policy I AND NUTR 333 Agricultural Science and Policy II.

139456

Nutritional Biochemistry with Community/Clinical Applications: Micronutrients

Subject: Catalog Nbr:
NUTB 0305

2020 SPRG Primary Lynne Ausman lynne.ausman@tufts.edu

Students will continue the exploration of the fundamental roles of nutrients in biological systems and the

Course Bulletin

implications of micronutrient biological functions on food and nutrition policy. As with NUTB 205, emphasis will be on the function of nutrients as defined by their chemistry, interrelations among nutrient functions, mechanistic approaches in the analysis of nutrient-disease relationships, and recent advances in the basic sciences related to nutrition and nutrient function. This is the second of a two-course sequence (NUTB 205 and NUTB 305; these courses may be taken in either order). Prerequisites: prior completion of an undergraduate biochemistry course or its equivalent. This course is open only to students who are in the Blended Master of Nutrition Science and Policy Program.

139457	Global Nutrition Programs			
Subject: NUTB	Catalog Nbr: 0227			
2019 FALL	Primary	Sujata Dixit-Joshi	Sujata.Dixit_Joshi@tufts.edu	
<p>The goal of this course is to expose students to major global nutrition programs and strategies designed to lessen the global burden of nutrition related morbidity and mortality. Both prevention and treatment options for major nutrition related disorders that dominate contemporary populations will be discussed. This course will cover: a) current debates in the cause, prevention and treatment of global nutrition challenges, b) the range of options for interventions that exist, and actually implemented, c) the strength of the evidence base underpinning actions, d) approaches to problem assessment, (including the process of considering alternatives according to context), e) examples of successful nutrition interventions, f) constraints to success (what makes or breaks major program successes), and g) key global organizations involved in nutrition policy and programming. Each session will seek to cover: a) main problems still needing to be resolved; b) priority/target populations; c) interventions used/not used. Students will examine solutions at the local, national, and international level, including policy impact on programs, public health interventions, and public health practices. Prerequisite: One semester nutritional biochemistry and one Policy course. This course is open only to students who are in the Blended Master of Nutrition Science and Policy Program.</p>				

139458	Theories of Behavior Change			
Subject: NUTB	Catalog Nbr: 0211			
2019 SPRG	Primary	Daniel Hatfield	Daniel.Hatfield@tufts.edu	
2020 SPRG	Primary	Larissa Calancie	Larissa.Calancie@tufts.edu	
<p>This course explores the theories of behavior change most commonly used in nutrition and public health. Includes an examination of several individual-based, social-based, organization-based and eco-social theories, including the Health Belief Model, the Theory of Planned Behavior, the Trans-theoretical Model, Decision-Making, Social Support, Social Learning Theory, and Diffusion of Innovations. Understanding and being able to apply these theories will help researchers and practitioners design program interventions based on psychological, biological, social, cultural and organizational frameworks. This course is open only to students who are in the Master of Nutrition Science and Policy (MNSP) Degree Program.</p>				

139459	Interpreting Nutrition Evidence			
Subject: NUTC	Catalog Nbr: 0230			

Course Bulletin

2020 SPRG

Primary

Adela Hruby

Adela.Hruby@tufts.edu

This course will familiarize students with the terms and tools required to navigate the scientific literature and dissect the components of nutrition research articles. The course covers literature searches, study designs, anatomy of a research paper, and common statistical terms. Through “hands-on” exercises, including a literature review and case studies of how nutrition-related scientific evidence is translated in press releases and social media, students will gain the skills required to translate and communicate this body of knowledge responsibly. Prerequisite: NUTC 0200: Foundations of Nutrition Science or NUTC 0202: Principles of Nutrition Science, or a prior course in general nutrition. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered January 15, 2020-April 19, 2020. Final grades are posted May 11, 2020.

139468**Obesity and Energy Regulation**

Subject: Catalog Nbr:
NUTB 0242

2019 SPRG

Primary

Sai Das

sai.das@tufts.edu

This course is a perspective from the intersection of food and biology and will build upon principles of energy balance that were developed in Nutritional Biochemistry. In the first section, physiologic regulation of body weight and its dysregulation leading to obesity will be explored. The interaction between hormonal/neuroendocrine systems and dietary factors will be featured. In the second half of the course, lifestyle, pharmacologic and surgical approaches to obesity treatment as well as maintenance of lost weight will be presented. Prerequisite: Prior completion of a course in nutritional biochemistry of the macronutrients or its equivalent. This course is open only to students who are in the Master of Nutrition Science and Policy (MNSP) Degree Program.

139509**Systematic Reviews: Theory and Practice**

Subject: Catalog Nbr:
NUTR 0369

This course is designed to train students how to conduct a systematic literature review and how to report it in a research article suitable for an academic journal. This course combines classroom sessions with substantial individual or group work to create a systematic literature review plan. Students will be taught how to perform each step in a review and will then be expected to apply it to a topic of their choosing. They will get feedback at each stage in the process. The final deliverable for the course will be a protocol for a systematic literature review.

Both masters and doctoral students can use the course as an opportunity to become an expert on a particular topic of interest. Masters students can use the written review protocol as a writing sample when applying for employment after graduation and some students might eventually complete the systematic review and publish it in an academic journal. Doctoral students can use the literature review as the basis for dissertation letter of intent since conducting a systematic review is a good first step in developing a research proposal.

Several course sessions and labs will be devoted to mathematical meta-analysis concepts and procedures. The primary course objectives are to understand how to conduct a systematic literature search, how to

Course Bulletin

critically evaluate the quality of each study selected for inclusion in the review and how to write up the review in a form suitable for submission to an academic journal.

139588	Biology II: Cells, Genetics, Development and Physiology		
Subject:	Catalog Nbr:		
CRBU	BI108		

139604	Directed Study			
Subject:	Catalog Nbr:			
NUTR	0497			
2018 FALL	Primary	Dariush Mozaffarian	Dariush.Mozaffarian@tufts.edu	
2019 FALL	Primary	Dayong Wu	dayong.wu@tufts.edu	
2019 FALL	Primary	Erin Hennessy	erin.hennessy@tufts.edu	
2019 FALL	Primary	Edward Saltzman	edward.saltzman@tufts.edu	
2019 FALL	Primary	Lynne Ausman	lynne.ausman@tufts.edu	
2019 FALL	Primary	Sean Cash	Sean.Cash@tufts.edu	
2019 FALL	Primary	Corby Kummer	Corby.Kummer@tufts.edu	
2019 SPRG	Primary	Jeanne Goldberg	jeanne.goldberg@tufts.edu	
2019 SPRG	Primary	Alice Lichtenstein	alice.lichtenstein@tufts.edu	
2019 SPRG	Primary	Nicola McKeown	nicola.mckeown@tufts.edu	
2019 SPRG	Primary	Kenneth Chui	Kenneth.Chui@tufts.edu	
2019 SPRG	Primary	Fang Fang Zhang	Fang_Fang.Zhang@tufts.edu	
2019 SPRG	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu	
2019 SPRG	Primary	Norbert Wilson	Norbert.Wilson@tufts.edu	
2019 SUMR	Primary	Kieran Reid	Kieran.Reid@tufts.edu	
2019 SUMR	Primary	Adela Hruby	Adela.Hruby@tufts.edu	
2020 SPRG	Primary	Diane McKay	diane.mckay@tufts.edu	
2020 SPRG	Primary	Stefania Lamon-Fava	stefania.lamon-fava@tufts.edu	
2020 SPRG	Primary	Carole Palmer	carole.palmer@tufts.edu	
2020 SPRG	Primary	Johanna Dwyer	johanna.dwyer@tufts.edu	
2020 SPRG	Primary	Elena Naumova	elena.naumova@tufts.edu	
2020 SPRG	Primary	Haewook Han	Haewook.Han@tufts.edu	
2020 SPRG	Primary	Kyla Shea	Kyla.Shea@tufts.edu	
2020 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu	
2020 SPRG	Primary	Daniel Maxwell	Daniel.Maxwell@tufts.edu	
2020 SPRG	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu	
2020 SPRG	Primary	William Masters	William.Masters@tufts.edu	
2020 SPRG	Primary	Shibani Ghosh	Shibani.Ghosh@tufts.edu	

This Directed Study course is a three semester hour unit (SHUs) course with a Letter Grading Basis. This course is a mechanism for a student to receive academic credit for work completed under the tutelage of a Friedman faculty member sponsor. This is generally on a one-to-one basis with the student taking major

Course Bulletin

responsibility for his/her progress. Research conducted in a laboratory during a Directed Study course project can be either problem-oriented or technique-based. Directed Study courses must be supervised by Friedman School appointed faculty. Students cannot independently enroll themselves in this course via SIS and must complete a Directed Study Proposal Form, obtain the Friedman Faculty Sponsor's approval, and approval of their Division Chair/Program Director, and submit the completed form to Friedman's Registrar in order to be manually enrolled in SIS. The deadline for submission of the Directed Study Proposal Form is the Add Deadline for the semester (refer to Friedman's Academic Calendar at:

<https://nutrition.tufts.edu/students/registrar>). No more than 12 semester hour units (SHUs) may be applied for fulfillment of a Friedman degree and no more than 6 semester hour units (SHUs) may be taken with the same Friedman faculty member. Students may not use the mechanism of enrollment in a Directed Study course with a supervising Friedman faculty member in order to enroll in a course that is offered at a school that is not an approved cross-registration partner (no reciprocity) with the Friedman School. The Directed Study Proposal Form is available online at: <https://nutrition.tufts.edu/students/registrar/forms>.

139617	Policy, Systems, and Environmental Change for Physical Activity			
Subject: NUTC	Catalog Nbr: 0212			
	2020 SUMR	Primary	Rebecca Boulos	Rebecca.Boulos@tufts.edu
	2020 SUMR	Primary	Richard Fenton	Mark.Fenton@tufts.edu
<p>Behavior change efforts alone are not sufficient to elicit population level improvements in physical activity and nutrition. This course will address policy and environmental approaches that are being utilized nationwide to create physical and cultural settings that routinely support healthier choices at all levels. The basics of physical activity measurement, epidemiology, and guidelines will be outlined, along with fundamental lessons of individually targeted approaches to physical activity and nutrition. The socio-ecological model will frame the evidence for systems-based approaches to population physical activity and nutrition, such as: key elements of the built environment that support routine activity and healthier food systems; policies such as land use plans and zoning, transportation networks and funding, and site design guidelines; school policies affecting physical activity (e.g., physical education and recess, shared-use agreements, Safe Routes to School) and nutrition (e.g., vending policies, concessions, fund-raising). The result will be a broad understanding of the evidence and best practice-based approach to healthy community development. Prerequisites: junior or senior standing, or consent of the Online Graduate Certificate Program Director. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered May 20, 2020-August 23, 2020. Final grades are posted September 8, 2020.</p>				

139618	Assessing and Measuring the Impact of Humanitarian Aid			
Subject: NUTC	Catalog Nbr: 0302			
<p>Progress has been made on monitoring and evaluation of humanitarian programs, yet little has been achieved in the field of measuring and understanding the impact of aid, both short and long term; leading to limited evidence of the effectiveness of humanitarian aid. This problem relates to both the methodological challenges of measuring impact in complex, remote or insecure humanitarian contexts, and a set of institutional constraints that hinder organizational and personal learning. This course will explore problems of impact assessment for emergency operations and will provide training in some of the most promising methodologies</p>				

Course Bulletin

of impact assessment, paying attention to participatory assessment methodologies. The course explains the trade-offs between 'hard' quantitative approaches and methods in humanitarian situations, and 'soft' qualitative approaches and methods, leading to understanding of the benefits of mixed methods for impact assessment. Through analysis of institutional constraints to impact assessment, the course provides guidance on ways to use evidence to influence policy and programming in humanitarian contexts.

139619	Master's Thesis			
Subject:	Catalog Nbr:			
NUTB	0300			
2019 SUMR	Primary	Tania Alarcon Falconi	Tania.Alarcon_Falconi@tufts.edu	
2020 SUMR	Primary	Lynne Ausman	lynne.ausman@tufts.edu	
Faculty will oversee the selection, scope and mentoring for a thesis project.				

139620	Global Food and Nutrition Policy			
Subject:	Catalog Nbr:			
NUTB	0206			
2020 SUMR	Primary	Eileen Kennedy	Eileen.Kennedy@tufts.edu	
<p>Varying global and national forces drive food production and consumption within and among nations. The possibilities and limitations facing nutrition professionals in any given situation require an understanding of policy and the basic principles of policy formation. In order to be effective, professionals need an understanding of the indicators that are available to diagnose the situation, the skills to seek out information, and the ability to correctly interpret the results. Students will examine and apply these skills to specific case examples and evaluate the range of programs used to address over- and under-nutrition, and which interventions are appropriate in varying circumstances.</p> <p>The class will cover: a) how science influences the policy agenda, and how policy debates influence the scientific and programmatic agenda; b) the scientific underpinnings of food and nutrition policies and development of normative guidance; c) how empirical findings in scientific research and operational programming make their way into policy and law; d) global debates and controversies in nutrition; e) how to evaluate what works best and what the alternatives should be considered; f) a review of key organizations involved in global food and nutrition policy and programming.</p>				

139621	Management of Health and Nutrition NGO's			
Subject:	Catalog Nbr:			
NUTB	0208			
2020 SUMR	Primary	David Hastings	david.hastings@tufts.edu	
<p>Key concepts and principles for managing nutrition and health programs and organizations will be addressed to equip students to function as program directors and project managers. Case studies and readings will be used to convey a practical understanding of how to manage and coordinate business functions to achieve the goals and objectives of the organization. This course will deal with for-profit and nonprofit organizations. Topics will include business and project planning, management control systems, financial management, budgeting, performance measurement, pricing and marketing of services, operations management, cost</p>				

Course Bulletin

analysis, human resource management, and the development of management information systems. The course is designed to provide students with practical tools.. The course is designed to develop an awareness of how each management function interacts and impacts the organization. Residencies will be comprised of lectures covering specialized topics, case discussions with student presentations, and journal discussions.

139622	Advanced Medical Nutrition Therapy			
Subject:	Catalog Nbr:			
NUTB	0316			
2020 SUMR	Primary	Kelly Kane	Kelly.Kane@tufts.edu	
2020 SUMR	Primary	Kathrina Prelack	kprelack@tufts.edu	
<p>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 learn about the basic 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. Prerequisite courses: Nutrition Science, General Chemistry, Organic Chemistry, Biochemistry, Human Biology or Physiology. This course is open only to students who are in the Blended Master of Nutrition Science and Policy Program.</p>				

139777	Principles of Nutrition Science			
Subject:	Catalog Nbr:			
NUTC	0202			
2020 SUMR	Primary	Diane McKay	diane.mckay@tufts.edu	
<p>This course presents the fundamental scientific principles of human nutrition. Students will become familiar with food sources; recommended intake levels; biochemical role; mode of absorption, transport, excretion; deficiency/toxicity symptoms, and potential major public health problems for each macro- and micronutrient. The student goals for this course are: 1) to describe the components of a healthy diet, 2) understand the major nutrition problems that affect individuals and populations from conception and throughout the life cycle, and 3) understand the scientific basis for nutritional recommendations brought before the scientific and lay communities. Prerequisites: Students are required to have taken a one semester college-level course in either human biology, chemistry, or physiology (preferred), junior or senior standing, or consent of the Online Graduate Certificate Program Director. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered May 20, 2020-August 23, 2020. Final grades posted September 8, 2020.</p>				

139834	Theories of Behavior Change and Positive Deviance			
Subject:	Catalog Nbr:			
NUTC	0213			
How do you achieve behavior change in challenging circumstances? This course explores that question by				

Course Bulletin

examining theories of behavior change commonly used in nutrition and public health and introducing the Positive Deviance (PD) Approach. In the first half, several individual-, social-, and organization based theories will be explored, with an emphasis on understanding core concepts and measurement issues. The second half will build on this base and cover the theory, history and application of PD. Students will develop their own problem statement and map out the steps required to apply the PD approach to their identified problem. Interactive activities and assignments will teach students when to apply each of the behavior change methods.

139852	Epidemiology for Nutrition Professionals				
Subject: NUTB	Catalog Nbr: 0204				
2020 SPRG	Primary	Silvina Choumenkovitch		silvina.choumenkovitch@tufts.edu	
2020 SPRG	Primary	Gitanjali Singh		Gitanjali.Singh@tufts.edu	
<p>This course covers basic epidemiologic concepts and methods and introduces students to techniques, including dietary assessment methods, which are used in human nutrition research. Students will learn to calculate and interpret basic measures of disease frequency and measures of effect, will be introduced to methods for recognizing and addressing sources of error in human studies, and will learn the basics of study design and implementation for nutrition research. Prerequisite: Prior completion of a course in statistics (e.g., NUTR 0207 or NUTR 0206 or its equivalent). This course is open only to students who are in the Master of Nutrition Science and Policy (MNSP) Degree Program</p>					

139853	Monitoring and Evaluation of Nutrition and Food Security Programs				
Subject: NUTB	Catalog Nbr: 0210				
<p>Inadequate project monitoring and evaluation (M&E) represent a major constraint in domestic and international programmatic efforts to address problems of malnutrition. The absence of sound M&E processes in large numbers of nutrition projects, despite continued evidence of their value in assessing and improving project performance, suggests that many project planners and managers may not yet have the necessary skills or understanding to develop and operate such systems. In this course students will become familiar with the strategies and techniques for monitoring and evaluating projects, particularly those related to nutrition and food security. They will be exposed to multiple domestic and international examples of monitoring and evaluation systems. Students will gain experience in the design of regional monitoring and evaluation plans and be able to assess the adequacy of proposals and program evaluations designed by others.</p>					

139854	Nutrition, Brain and Behavior				
Subject: NUTB	Catalog Nbr: 0243				
2019 FALL	Primary	Grace Giles		Grace.Giles@tufts.edu	
<p>During the past two decades there has been an increasing awareness of the interaction between nutrition and behavior. To examine this interaction, two general themes will be pursued. First, we will investigate the</p>					

Course Bulletin

effects of nutritional variables on brain functioning and behavior. Second, we will study the influence of psychological variables in determining food intake and nutritional status. Examples of topics to be covered includes: the effects of protein- caloric malnutrition on brain development and intellectual functioning; obesity and other eating disorders; food additives and behavior; the role of brain mechanisms in determining nutritional intake; food choice; food as an addiction; and the importance of vitamins and minerals for behavioral functioning. Prerequisite: Nutritional biochemistry or permission from MNSP Program Director. This course is open only to students who are in the Blended Master of Nutrition Science and Policy Program.

139855	Nutrition and Aging		
Subject: NUTB	Catalog Nbr: 0241		
<p>This course will address the impact of nutrition on aging and the impact of aging on nutrient needs. The worldwide population is experiencing a dramatic increase in the number of elderly, due to socioeconomic improvements, and advances in science, technology, medicine and nutrition. It is of primary importance to determine both the nutritional needs of the elderly and to adequately determine long-term nutrient needs that will prevent or ameliorate nutrition- related chronic diseases. Topics will include changes in body composition and their adverse effects such as frailty and sarcopenia, controversies about healthy weights for older adults, roles of micronutrients in ameliorating age-related deterioration in bone health and immune function, and therapies that may prevent cognitive decline. Approaches to maximizing healthy aging from physiological and sociologic aspects of these problems will be presented.</p>			

139856	Food Science Fundamentals		
Subject: NUTB	Catalog Nbr: 0219		
2019 FALL	Primary	Lynne Ausman	lynne.ausman@tufts.edu
<p>The foundation of knowledge for any nutrition professional is a thorough understanding the nutritional components of food and foodborne pathogens that are linked with disease and issues affecting food safety. Students will become adept with the basic groups of foods in the food supply and their nutrient profiles, their harvesting, processing and storage procedures and policies. The course will provide students a broad overview of certain aspects of the food supply both locally and worldwide and will examine issues affecting food safety including some of the mechanisms by which foodborne pathogens that cause disease in humans, as well as the human consequences of infection by major foodborne pathogens such as E. coli O157:H7, Campylobacter and Listeria. Pre-requisite: NUTR 0202 or equivalent. This course is open only to students who are in the Blended Master of Nutrition Science and Policy Program.</p>			

140094	Sustainability on the Farm		
Subject: NUTC	Catalog Nbr: 0261		
2019 FALL	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu
<p>Agriculture is the single largest user of land and water and, thus, has broad environmental impacts. Gains in yield productivity over the last five decades have met increasing demands without increasing agricultural area in the U.S., but environmental, economic and social costs have been considerable. In this first course of the</p>			

Course Bulletin

series, the farm level primary costs and benefits will be analyzed, along with a profile of current conventional and alternative approaches to food production in the U.S. Students will examine the policy response to environmental and conservation concerns, focusing on the balance between meeting increased demand while mitigating environmental and social costs. Prerequisites: junior or senior standing, or consent of the Online Graduate Certificate Program Director.

140108	Biology of Muscle Wellness & Disease		
Subject:	CRBU	Catalog Nbr:	HS560

140148	Introduction to Epidemiology		
Subject:	CRBU	Catalog Nbr:	0713

140163	Principles of General Chemistry		
Subject:	CRBU	Catalog Nbr:	CAS171

140373	Sustainable Food Systems and Markets		
Subject:	NUTC	Catalog Nbr:	0262
	2020 SPRG	Primary	Natalie Valpiani
	2020 SPRG	Primary	Robert Guillemin
			Natalie.Valpiani@tufts.edu
			Robert.Guillemin@tufts.edu
<p>Food businesses (the companies that process, manufacture, distribute, serve, and sell food) transform the very nature of what we eat and establish the economic, social and environmental terms that shape much of the food system. This course examines the dominant food system, exploring its undesirable outcomes and the emerging opportunities to feed a growing population in a manner that is reliable, equitable, healthy, and sustainable. Students will learn about industry-led initiatives that attempt to balance the drive for profits with their social and environmental goals. We will also explore how governments, nonprofit organizations, and communities are trying to reshape the food system. To provide context, the course reviews such topics as food system policy, environmental impacts, nutrition, public health, and food equity. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered January 15, 2020-April 19, 2020. Final grades are posted May 11, 2020.</p>			

140392	Mass Spectrometry, Proteomics, & Functional Genomics		
Subject:		Catalog Nbr:	

Course Bulletin

CRBU	BI793
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140478	Environmentally Sustainable Development
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Subject:	Catalog Nbr:
CRBU	CAS304

Environmentally Sustainable Development

140483	Social Networks in Strategic Communication Planning
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Subject:	Catalog Nbr:
CRBU	0737

Social Networks in Strategic Communication Planning

140493	Biological Database Systems
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Subject:	Catalog Nbr:
CRBU	BF768

Biological Database Systems

140539	Fundamentals of Writing About Nutrition and Health
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Subject:	Catalog Nbr:
NUTR	0220

2019 FALL	Primary	Christine Smith	Christine.Smith@tufts.edu
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This introductory course is designed to teach the basic skills necessary to write nutrition- and health-related papers that are clear, accurate, and audience-appropriate. It is a practical review of grammar, writing, and revision, and will enable students to develop a clear, fluent, and readable style. The course will include both individual and collaborative exercises and will require several writing and editing assignments. NUTR 220 is a prerequisite for NUTR 306. Enrollment limited to 20 students. NOTE: NUTR 220 may not be taken concurrently with NUTR 306. Prerequisite: Graduate standing or instructor consent.

140639	Sustainability and the Food Consumer
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Subject:	Catalog Nbr:
NUTC	0263

2020 SUMR	Primary	Sean Cash	Sean.Cash@tufts.edu
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Every day, we make numerous choices about what to eat - and what not to eat. How do consumers and households make these choices, and how can the environments in which we make these choices be shaped to enhance sustainability without sacrificing our health or enjoyment of food? In this course we draw upon insights from economics, psychology, marketing, and nutrition to explore topics such as current food consumption patterns, determinants of food choice, the role of food labeling and market-based initiatives in enhancing sustainability, and the impact of regulation and "nudges" on consumer behavior around food.

Course Bulletin

Prerequisites: junior or senior standing, or consent of the Online Graduate Certificate Program Director. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered May 20, 2020-August 23, 2020. Final grades are posted September 8, 2020.

140640	Human Physiology
Subject: NUTC	Catalog Nbr: 0268
<p>This course will introduce the functions of mammalian organisms as we understand them at various levels of organization - organ system, organ, cellular and subcellular levels. Our goal is to provide a broad overview of the fundamental properties and regulation of these systems so that the student can understand and relate this material to that learned in other nutrition science courses. This course will cover topics that are based upon biological and chemical concepts; however, no prior background in science is required. This course does not fulfill the degree requirement for NUTR 208.</p>	

140715	Muscle Biology in Health & Disease
Subject: CRBU	Catalog Nbr: SAR560
Muscle Biology in Health & Disease	

140813	Consumer Insights
Subject: CRBU	Catalog Nbr: MK856
Consumer Insights	

140824	Food Justice: Critical Approaches in Policy and Planning
Subject: NUTR	Catalog Nbr: 0285
2019 FALL	Primary Julian Agyeman julian.agyeman@tufts.edu
<p>This class offers students different lenses, such as critical race theory to see how the intersectionality of race, class, gender, sexuality, ability and citizenship play out in the development of systemic structural and socio-spatial inequities and injustices in food systems. It develops an understanding and contextualization of the role of food justice activism within the broader narrative of the alternative food movement and offers emerging ideas about how policymakers and planners can take a role in increasing food justice beyond the more mainstream and ultimately contested notions of what is 'local' and 'sustainable.' The course will help participants chart their role(s) in advocating for 'just sustainability' as a defining factor in becoming food systems planners and policymakers. Prerequisite: Graduate standing or instructor consent. This course is cross-listed with UEP 0285.</p>	

140905	Biostatistics I
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Course Bulletin

Subject: NUTR	Catalog Nbr: 0206	2019 FALL	Primary	Angie Rodday	Angie.Rodday@tufts.edu
<p>This course introduces basic principles and applications of statistics to problems in clinical research. Topics covered include descriptive statistics, probability and random variation, sampling, hypothesis testing, proportions, measures of frequency, t-tests, chi-square tests, one-way analysis of variance, correlation, linear regression and nonparametric statistics. This course has a required Laboratory (NUTR 0206.1L) linked to the NUTR 0206.01 course. NOTE: Students cannot receive semester hour units for both NUTR 206: Biostatistics I and its counterpart NUTR 207: Statistical Methods of Nutrition Science and Policy. Prerequisites: Graduate standing or instructor consent. First class session is September 4, 2019 and students should bring their laptops to class.</p>					

141051	Gender and Human Security in Transitional States and Societies				
Subject: NUTR	Catalog Nbr: 0242	2019 SPRG	Primary	Elizabeth Stites	elizabeth.stites@tufts.edu
		2019 SPRG	Primary	Dyan Mazurana	Dyan.Mazurana@tufts.edu
<p>This course uses gender as a key analytical tool to examine states and societies transitioning from armed conflict or other large-scale social and political upheaval. It explores key gender dimensions of such transitions and their implications for states, societies, and citizens, including those that have moved toward more democratic forms of governance and those that transitioned (or appear to be transitioning) into more authoritarian or fundamentalist regimes. The course will balance a population-focused approach (examining the evolving roles, expectations, norms and positions for both men and women, and to a lesser extent boys and girls) with an analysis of the health, humanitarian, development security, and justice/legal sectors. Prerequisite: Graduate standing and instructor consent.</p>					

141052	Forced Migration				
Subject: NUTR	Catalog Nbr: 0243	2020 SPRG	Primary	Karen Jacobsen	karen.jacobsen@tufts.edu
<p>This course is an introduction and overview of issues in forced migration, and how humanitarian and human security issues are related to displacement. The course provides an overview of the scale, scope and causes of global displacement, theories of forced migration, the impact of forced displacement on food security, livelihoods and protection, and the ways in which displaced people, governments and the international humanitarian system have responded, at the international, national and community levels. Prerequisite: Graduate standing and instructor consent.</p>					

141063	Introduction to SAS Programming				
Subject: NUTR	Catalog Nbr: 0237	2019 FALL	Primary	Gail Rogers	gail.rogers@tufts.edu

Course Bulletin

This half-semester course will provide students with sufficient knowledge of how to obtain, manage, clean and prepare data in SAS for Windows. Emphasis will be placed on the basics of SAS programming and data manipulation. Upon completion, students should be able to use data in SAS and be familiar with the procedure steps required to import and export data, create SAS data sets, produce descriptive statistics, and clean and transform data in preparation for statistical analyses. In-class exercises and weekly homework assignments will allow students to acquire hands-on experience solving common SAS programming tasks. Important to Note: This course is designed for students with no SAS programming experience. Students with a basic knowledge of SAS should not take this course. Prerequisite: Graduate standing or instructor consent. Meets first half of fall semester.

141108	Nutrition, Health, and Disease I: Pregnancy to Adolescence			
Subject:	Catalog Nbr:			
NUTC	0269			
2020 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu	
2020 SPRG	Primary	Kathrina Prelack	kprelack@tufts.edu	
<p>This course examines the relationship between nutrition, health, and chronic disease spanning from pregnancy through the different stages of childhood. Energy and nutrient requirements to support pregnancy and lactation, as well as common nutrition related concerns during this life stage are addressed. 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. Pre-requisite: NUTC 202: Principles of Nutrition Science, or an equivalent course. This course is offered January 15, 2020-April 19, 2020. Final grades are posted May 11, 2020.</p>				

141110	Genetic Epidemiology			
Subject:	Catalog Nbr:			
CRHA	EPI507			
Genetic Epidemiology				

141124	Computational Biology: Genomes, Networks, Evolution			
Subject:	Catalog Nbr:			
CRBU	BE562			
Computational Biology: Genomes, Networks, Evolution				

141193	Trending Insights: Social Media Analysis and Visualization			
Subject:	Catalog Nbr:			

Course Bulletin

CRBU	0747
Trending Insights: Social Media Analysis and Visualization	

141194	Environmental Health Science, Policy and Law
Subject:	Catalog Nbr:
CRBU	EH805
Environmental Health Science, Policy and Law	

141195	Nutrition and Disease Prevention: A Life Course Approach
Subject:	Catalog Nbr:
CRBU	HS742
Nutrition and Disease Prevention: A Life Course Approach	

141196	Food and Security
Subject:	Catalog Nbr:
CRBU	ML712
Food and Security	

141197	Biological Database Analysis
Subject:	Catalog Nbr:
CRBU	BF768
Biological Database Analysis	

141208	Social Media Marketing
Subject:	Catalog Nbr:
CRBU	MK845
Social Media Marketing	

141379	Nutrition, Health, and Disease II: Adulthood		
Subject:	Catalog Nbr:		
NUTC	0270		
2020 SUMR	Primary	Kelly Kane	Kelly.Kane@tufts.edu
2020 SUMR	Primary	Kathrina Prelack	kprelack@tufts.edu
<p>This course covers basic epidemiologic methods and concepts, including study design, calculation and interpretation of basic measures of disease frequency and measures of effect, sources of inaccuracy in experimental and observational studies, causal inference, and an introduction to the statistical evaluation and interpretation of epidemiological data. Students will discuss past and recent publications in order to apply their understanding of abstract concepts and specific quantitative methods to the interpretation and critique</p>			

Course Bulletin

of published work. Pre-requisite: NUTC 202: Principles of Nutrition Science, or an equivalent course. This course is offered May 20, 2020-August 23, 2020. Final grades are posted September 8, 2020.

141462	Grant Writing			
Subject:	Catalog Nbr:			
NUTR	0400			
2019 SUMR	Primary	Sarah Booth	Sarah.Booth@tufts.edu	
<p>Students will receive didactic training on the principles of the grant writing process. Students will be required to write specific aims for a grant proposal on a topic of the instructor's choosing. A class on writing skills will help students form a clear and concise series of specific aims. A class on available citation databases and reference management techniques will guide students on effective literature searches and management of citations. The entire class will critique each set of specific aims in an interactive session. Thereafter, the student, working with his/her advisor if possible, will devise and write a research grant proposal using the format described below. During this time lectures will focus on specific topics relevant to grant writing. All will be encouraged to seek one-on-one assistance from participating statisticians while formulating the initial experimental design. Designated time outside of the classroom is required for each student to write a grant. The final grant will then be distributed to the entire class with advance time for the advisor, course instructors, and students to have time to read each grant, give feedback, and prepare questions. During the final weeks of the course, each student will defend their grant proposal in front of the class. Each student will be expected to explain to the class the formulated research question and the specific aims, and respond to questions and comments from the advisor, course instructors and other students. Throughout the course, case studies on responsible ethical conduct in research, including responsible peer-review, will be discussed to facilitate the student's development of ethical reasoning in research. Pre-Requisites: Enrolled in a doctoral program or by permission from course instructor. Sarah Booth and Kathryn Barger</p>				

141586	MAHA Capstone Project			
Subject:	Catalog Nbr:			
NUTR	0299			
2020 SPRG	Primary	Elizabeth Stites	elizabeth.stites@tufts.edu	
2020 SPRG	Primary	Dyan Mazurana	Dyan.Mazurana@tufts.edu	
2020 SPRG	Primary	Daniel Maxwell	Daniel.Maxwell@tufts.edu	
<p>All MAHA students must present an Oral and Written MAHA Capstone Project to fulfill the MAHA Capstone Project degree requirement. The MAHA Capstone Project (only available for MAHA students; enroll in NUTR 0299 via SIS for spring semester) is a unique opportunity for students to work long and hard—longer than one usually can in professional life, and with more intellectual freedom and rigor—on an issue that they are passionate about. Students draw on their learning at Tufts and previous humanitarian experiences to develop this comprehensive written study. The specific format of the final product is flexible to allow students to achieve their pedagogical aims for the study. Each student is matched with a MAHA Capstone Project faculty advisor who will help guide them through the process.</p>				

141610	Scientific Basis of Nutrition: Micronutrients			
Subject:	Catalog Nbr:			

Course Bulletin

NUTR	0245				
	2019 FALL	Primary	Edward Saltzman		edward.saltzman@tufts.edu
<p>NUTR 245 is one course of a pair of courses designed to provide students with an in-depth understanding of nutrition and its scientific underpinnings. NUTR 245 focuses on micronutrients, including fat- and water-soluble vitamins and minerals. The second course of the sequence, NUTR 246, focuses on macronutrients and energy. The course will cover micronutrient sources; digestion and absorption; bioavailability; homeostasis; functions throughout the lifecycle including roles in promotion of health and prevention of disease; and deficiency and toxicity states. Additional concepts will include micronutrient fortification, dietary supplements as sources of micronutrients, gene-diet interactions, and the social determinants of micronutrient nutrition and their implications. Prerequisites: Undergraduate chemistry and biology, or by instructor permission.</p>					

141611	Scientific Basis of Nutrition: Macronutrients				
	Subject:	Catalog Nbr:			
	NUTR	0246			
	2019 SPRG	Primary	Erin Hennessy		erin.hennessy@tufts.edu
	2020 SPRG	Primary	Lara Park		Lara.Park@tufts.edu
<p>NUTR 246 is one course of a pair of courses (with NUTR 245) designed to provide students with an in-depth understanding of nutrition and its scientific underpinnings. NUTR 246 focuses on macronutrients and energy, and will cover topics related to energy metabolism, carbohydrates and fiber, lipids and lipoproteins, and amino acids and proteins while NUTR 245 focuses on micronutrients including fat- and water-soluble vitamins and minerals. The course has been designed to review and build upon students' existing knowledge of biology and chemistry, and will provide instruction in biochemical and physiologic principles necessary to understand the aspects of macronutrients described above. The focus of the course will be on the scientific basis for and real-world application of macronutrients and energy. The course is divided into 4 sections in 3-week cycles: energy/energy metabolism, carbohydrates and fiber, lipids and lipoproteins, amino acids and proteins. Each section will address five major questions: what, where, why, when, and how. For example, What is a carbohydrate? What is its function? Where do I obtain carbohydrates (food sources)? Why does my body need carbohydrates? When do my needs change (across the lifecourse)? How does my body digest/absorb/metabolize carbohydrates? Prerequisite: Undergraduate-level biology and chemistry, or by instructor consent.</p>					

141612	Advanced Data Analysis				
	Subject:	Catalog Nbr:			
	NUTR	0394			
	2019 FALL	Primary	Elena Naumova		elena.naumova@tufts.edu
<p>This project-based course capitalizes on student interests to formulate research questions with understanding of data limitations, conduct multi staged data analysis, and select proper data visualization and graphical representation tools. Students will learn advanced modern analytical tools and techniques essential for analysis in a variety of disciplines such as Climate, Environment, Nutrition and Health applications (knowledge of only one of these disciplines. This course also covers research design, the scientific method, data quality and validity, data management, and research ethics in data analysis. Students should attempt to identify data sets relevant to their specific interests prior to the course. Instructor will approve data set suitability. If</p>					

Course Bulletin

students cannot identify appropriate datasets, the instructor will provide a dataset. Designated time outside of the classroom is required for each student to work with the team partner to provide and receive feedback on homework assignments. Prerequisites: Students should have basic working knowledge of statistical methods in environmental and/or nutrition research and epidemiology. Recommended courses that cover those topics include: Biostatistics I and II (NUTR 0206/0309) or Statistical Methods in Nutrition Research and Regression Analysis for Nutrition Policy (NUTR 0207/NUTR 0307) or equivalent. Ability to analyze data by use of R is preferable, but students may utilize other statistical programs as long as those programs are sufficient for the analysis that is proposed.

141649	Food Writing	
	Subject:	Catalog Nbr:
	CRBU	ML681
Food Writing		

141654	Corporate Social Responsibility Marketing	
	Subject:	Catalog Nbr:
	CRBU	MK867
Corporate Social Responsibility Marketing		

141665	Fundamentals of Nonprofit Management	
	Subject:	Catalog Nbr:
	CRBU	OB841
Fundamentals of Nonprofit Management		

141666	Financial Management	
	Subject:	Catalog Nbr:
	CRBU	FE722
Financial Management		

141667	Global Supply Chains	
	Subject:	Catalog Nbr:
	CRBU	AD680
Global Supply Chains		

141720	Social Media for Health and Nutrition Communication	
	Subject:	Catalog Nbr:
	NUTR	0213
	2020 SPRG	Primary
		Marisa Hastie
		Marisa.Hastie@tufts.edu

Course Bulletin

In this course we will examine the diverse uses of social media in the current health and nutrition field and develop a framework for students to apply for future social media usage in professional endeavors. Attention will be paid to the critical analysis of the appropriateness, potential target populations, communication and health behavior strategies, the risks and benefits, and the overall intended outcomes and reach of social media communication. In small groups, students will ultimately design, implement, and develop evaluation tools for a social media campaign/initiative of their choosing. Enrollment limited to 20 students. Priority enrollment is given to: 1) Nutrition Interventions, Communication, and Behavior Change (NICBC) students (for whom the course is a requirement); 2) Second-year students; 3) Students that need the course for their specialization.

141784	Nutrition and Entrepreneurship			
Subject:	Catalog Nbr:			
NUTR	0280			
2019 SPRG	Primary	Karen Bressler	Karen.Bressler@tufts.edu	
2020 SPRG	Primary	James Edgerton	Jimmy.Edgerton@tufts.edu	
<p>This course is designed to introduce students to the theory and practice of entrepreneurship. Entrepreneurial theory and practice relevant to the nutrition/food space will be discussed from the perspectives of a stand-alone start-up company and within larger organizations. This course is designed for students interested in exploring how entrepreneurship can be incorporated into food and nutrition and who may wish to begin to build an entrepreneurial skill set. Course topics will include ideation, finding potential investors, pitch development and pitching skills, competitive analysis, market sizing, business plan development, basic entrepreneurial finance and legal issues, entrepreneurial ethics, and management skills needed to run an entrepreneurial venture. Final products of the course will be a pitch presentation and a written business plan. Prerequisite: Graduate standing or instructor consent. Instructor: Jimmy Edgerton</p>				

141821	Food Writing Media			
Subject:	Catalog Nbr:			
CRBU	ML681			
Food Writing Media				

141823	Fundamentals of Non-Profit Management			
Subject:	Catalog Nbr:			
CRBU	OB841			
Fundamentals of Non-Profit Management				

141855	Basic Neurosciences			
Subject:	Catalog Nbr:			
CRBU	BN777			
Basic Neurosciences				

Course Bulletin

141867	Applied Genetic Analysis	
	Subject: CRBU	Catalog Nbr: BS859
Applied Genetic Analysis		

141868	Theory of Social Policy and Change	
	Subject: CRBR	Catalog Nbr: HS508
Theory of Social Policy and Change		

141958	Hot Topics and Controversies in Nutrition	
	Subject: NUTR	Catalog Nbr: 0286
<p>Virtually no topic attracts more public attention or generates more controversies than nutrition. In this intensive week-long course, the scientific underpinnings of several hot topics and controversies will be explored. Topics will include exploration of popular diets (e.g., low glycemic index and the Paleo diet), dietary gluten, FODMAPS, the relationship between saturated fat and heart disease, and use of dietary supplements. For each topic, participants will learn why the topic is hot or controversial, and will gain an appreciation of the current state of scientific evidence as well as gaps in knowledge. The class will engage in debates and group discussions designed to illuminate perspectives of consumers, nutrition professionals and health care providers. Students will be assigned reading to be completed in advance of the course. Students will complete daily assignments and a final project that will be due after completion of the week-long course. No prerequisites. Community and Alumni Discounts are not available for this course.</p>		

141959	A Complex Systems Approach to Healthcare and Its Impact on Diet and Nutrition	
	Subject: NUTR	Catalog Nbr: 0287
<p>Understanding healthcare systems is key to recognizing the role of nutrition in healthcare. Healthcare-related issues, such as the nature of healthcare systems, the social determinants of health, shifting demographics and the challenges of healthcare access are multiple, complex and they represent one of the greatest challenges of our time. This course will employ a complex system perspective to cover topics like healthcare policy, healthcare systems design and the essentials of healthcare management from a wide range of models, cultures and settings. From this perspective, the evolving relationships between patients, physicians, hospitals, insurers, employers, communities, and government will be explored. The role of nutrition science and nutrition delivery will also be examined within this framework. The intensive one-week course will call for the active participation of all class members through engagement in individual and group activities, debates and discussions. Students will be assigned reading to be completed in advance of the course. Students will complete daily assignments and a final project that will be due after completion of the week-long course. No prerequisites. Community and Alumni Discounts are not available for this course.</p>		

Course Bulletin

141960	Global Diet and Cardiometabolic Risk
Subject: NUTR	Catalog Nbr: 0288
<p>Diets around the world are undergoing a rapid transition, resulting in increased risk for many chronic diseases. This course is designed for a broad range of students who are interested in understanding the impact of diet on obesity, cardiovascular disease (CVD), and diabetes around the world. Participants will gain knowledge of global trends in dietary and cardiometabolic risk factors and will be introduced to methods that are used to learn to estimate disease burden that can be attributed to diet. Course participants will also be introduced to how effective population-based interventions to reduce the burden of cardiometabolic diseases through nutrition are developed and tested. This course is suitable for all students who are interested in global nutrition and health, and especially for those who are interested in the translation of epidemiologic evidence into public health policy. Students will be assigned reading to be completed in advance of the course. Students will complete daily assignments and a final project that will be due after completion of the week-long course. Prerequisite: NUTR 0204: Principles of Epidemiology or course equivalent or instructor consent. Community and Alumni Discounts are not available for this course.</p>	

141961	Nutrition and Entrepreneurship
Subject: NUTR	Catalog Nbr: 0289
<p>This course is designed to introduce students to the theory and practice of entrepreneurship that is relevant to the nutrition and food. The didactic component of this course focuses on fundamentals of entrepreneurship. Application to nutrition and food will be developed during in-class activities such as discussions, by student pitch presentations, and by pitch presentation feedback from students and instructors. This course is designed for students interested in exploring how entrepreneurship can be incorporated into food and nutrition and who may wish to begin to build an entrepreneurial skill set. No pre-requisites or professional experience is required. Community and Alumni Discounts are not available for this course.</p>	

141962	Intermediate and Advanced Data Analysis Retreat
Subject: NUTR	Catalog Nbr: 0290
<p>The Intermediate and Advanced Data Analysis Retreat (IADAR) is a five-day intensive intended for students seeking statistical support analyzing research data. Lecture topics include Preparing Data Analysis Plan, Preparing Data for Analysis, Data Visualization, Characterization of Distributions, Correlation Measures, Trend Analysis, Modeling and Diagnostics, Elements of Spatial Data Analysis, and Writing Methods and Results. IADAR will provide students with resources to support their research, including individualized paper outline, code examples in R and Stata, labs, readings, as well as open work sessions with instructors and faculty for specific data analysis questions. This course is suitable for a wide variety of young professionals engaged in independent study or advanced research, from upper-level undergraduates to post-doctoral students from any discipline or department. Community and Alumni Discounts are not available for this course.</p>	

142095	Pathophysiology of Human Disease
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Course Bulletin

Subject: NUTR	Catalog Nbr: EH208
Pathophysiology of Human Disease	

142096	Pathophysiology Human Disease
Subject: CRHA	Catalog Nbr: EH208
Pathophysiology Human Disease	

142097	Advanced Topics in Obesity Epidemiology and Prevention
Subject: CRHA	Catalog Nbr: ID541
Advanced Topics in Obesity Epidemiology and Prevention	

142098	Explaining Health Behavior: Insights from Behavioral Economics
Subject: CRHA	Catalog Nbr: SBS503
Explaining Health Behavior: Insights from Behavioral Economics	

142100	Strategic Logistics Management
Subject: CRBU	Catalog Nbr: AD690
Strategic Logistics Management	

142384	Food Marketing
Subject: CRBU	Catalog Nbr: M565
Food Marketing	

142517	Nutrition and Innovation
Subject: NUTC	Catalog Nbr: 0280
2019 FALL	Primary
Barbara Lyle	Barbara.Lyle@tufts.edu
<p>Have you ever thought: "This would be a great idea for a new nutrition product or service?" but didn't get very far in pitching the idea to others? In this class you will develop skills for identifying and advocating solutions to important consumer needs through case studies, team discussions, and real-life assignments. You'll gain experience cultivating an innovator's mindset in order to effectively understand real consumer needs, identify, improve and prioritize solutions, and take your idea pitching skills to a new level. What you learn in</p>	

Course Bulletin

this course applies to those engaged in industry as well as more broadly in the health field, including public and community health. This course is open only to students who are in the Online Graduate Certificate Program.

142657	The Art and Science of Verbal Communication
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Subject:	Catalog Nbr:
NUTR	0300

2019 FALL	Primary	Mihir Mankad	Mihir.Mankad@tufts.edu
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This course is intended to turn you into a more persuasive and effective public speaker – someone who speaks with the ease, confidence, clarity, and modes of persuasion that are critical in today’s health science, nonprofit, policy and business worlds. We will cover a range of speaking scenarios, including presentations, impromptu and prepared podium speeches, as well as simulations of a press conference or media interview on camera. The course helps you develop your own personal style by deepening your understanding of the persuasive tools, recommendations, refutations, modes of analysis, and variations in audiences that motivate listeners to turn business, policy and diplomacy ideas into action. Priority enrollment for NICBC students. Meets the first half of the fall semester.

142739	Elementary Mathematics for Economics
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Subject:	Catalog Nbr:
CRBU	0505

Elementary Mathematics for Economics

142881	Eco Epi Cntl of Imp tParasit Dis
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Subject:	Catalog Nbr:
CRHA	IID201

Eco Epi Cntl of Imp tParasit Dis

142882	Health Literacy: Measuring Acc
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Subject:	Catalog Nbr:
CRHA	SBS515

Health Literacy: Measuring Acc

142883	History of Food
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Subject:	Catalog Nbr:
CRBU	0880

History of Food

142901	Basics of U.S. Public Policy
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Course Bulletin

Subject: Catalog Nbr:

NUTR 0234

2020 SPRG

Primary

Jerold Mande

Jerold.Mande@tufts.edu

This course introduces students to the U.S. public policymaking process from our Constitution, through the three branches of government, to the press, with emphasis on food and nutrition policies and programs. Much of the course focuses on the nuts and bolts of policymaking and will utilize examples from current policy debates. Case studies, developed for the diverse interests of Friedman School students, are used to underscore policy lessons, facilitate small group discussion, and introduce students to several policy initiatives (e.g., food labeling) with which all Friedman students need to be familiar. Priority enrollment: MS/DI and NICBC students. Prerequisite: Graduate student or instructor consent.

142902

Social Psychology of Eating Behavior

Subject: Catalog Nbr:

NUTR 0273

This project aims to develop a course that uses innovation techniques from the technology industry to generate intensive problem-solving experiences that result in transformational learning experiences. Students will participate in a Hackathon and complete an Innovation Time Off project geared toward public health issues (e.g., obesity, health care access). The course covers classic and new Social Psychological phenomenon applied to public health nutrition issues. After taking the course, students should be able to summarize key phenomena and generate insights about a particular nutrition problem of interest. Prerequisites: Recommended: NUTR 0211: Theories of Behavior Change and Their Application in Nutrition and Public Health Interventions or NUTB 0211: Theories of Behavior Change, and graduate standing or instructor consent. Not offered in the Fall semester.

142903

Science of Food

Subject: Catalog Nbr:

CRBU 0619

142904

Statistical Genetics I

Subject: Catalog Nbr:

CRBU 0858

142905

Fnd Nonprof Mgmt

Subject: Catalog Nbr:

CRBU 0841

Course Bulletin

142906	Mktg Social Chg		
Subject:	CRBU	Catalog Nbr:	0867

142907	Food Wrtg Media		
Subject:	CRBU	Catalog Nbr:	0681

142908	Lead Sust Ent		
Subject:	CRBU	Catalog Nbr:	0835

142909	Perinatal Epi		
Subject:	CRBU	Catalog Nbr:	0759

142910	Nutrition Product Regulations: Labeling and Claims			
Subject:	NUTC	Catalog Nbr:	0281	
	2020 SPRG	Primary	Susan Mitmesser	Susan.Mitmesser@tufts.edu
	2020 SPRG	Primary	Cathy Weir	Cathy.Weir@tufts.edu
<p>Understanding the regulatory environment is critical to the successful development, manufacturing, labeling, and delivery of nutrition-related products to the consumer. Knowing how to manage risk while navigating the regulatory path to market is essential. Students in this course will become familiar with: the nutrition-related regulations applicable to the production and marketing of foods and beverages, dietary supplements and ingredients, as well as medical foods and devices; how to represent scientific evidence accurately and appropriately when substantiating label claims and advertisements; and develop a working knowledge of potential legal ramifications by examining relevant case studies. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered January 15, 2020-April 19, 2020. Final grades are posted May 11, 2020.</p>				

142911	Underlying Causes of Malnutrition			
Subject:	NUTC	Catalog Nbr:	0204	
	2020 SPRG	Primary	Heather Stobaugh	Heather.Stobaugh@tufts.edu

Course Bulletin

In this course, we will look at the different nutrition-sensitive interventions to address the underlying causes of malnutrition. Interventions affecting nutrition outcomes can be in multiple sectors, such as agriculture, early childhood development, education, water and sanitation, health systems, as well as social safety nets and poverty alleviation. At the end of the course, students will gain an understanding of the design and implementation, as well as opportunities and challenges of such interventions; be able to explain how nutrition-sensitive programs can integrate and promote nutrition as a goal of multiple sectors and contribute to achieving national development. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered January 15, 2020-April 19, 2020. Final grades are posted May 11, 2020.

143036	Success & Challenges Health Behavior Change			
	Subject:	Catalog Nbr:		
	CRHA	SBS508		

143037	Appld Biomarkers in Cancer Epi			
	Subject:	Catalog Nbr:		
	CRHA	EPI246		

143038	Tumor Metabolism & Signaling			
	Subject:	Catalog Nbr:		
	CRHA	GCD213		

143050	Introduction to Demographic Methods			
	Subject:	Catalog Nbr:		
	CRHA	GHP220		

143061	Data Visualization and Effective Communication			
	Subject:	Catalog Nbr:		
	NUTR	0393		
	2020 SPRG	Primary	Elena Naumova	elena.naumova@tufts.edu
	2020 SPRG	Primary	Corby Kummer	Corby.Kummer@tufts.edu
<p>This course provides students with tools and techniques to analyze and critique current forms of data visualization in both public media and research literature; and to construct high quality graphical displays with a keen understanding of the ethical challenges and the role of communication. Using research data provided by the instructor, students will build a portfolio of graphical displays and descriptions intended for both</p>				

Course Bulletin

scientific journals and popular media. Emphasis is on: a) developing a conceptual understanding of the statistical context that surrounds graphical displays; b) critically evaluating graphical displays from a broad range of disciplines; and c) building effective graphical displays for intended audiences.

143265	Current Controversies in Nutrition		
Subject: NUTC	Catalog Nbr: 0285	2020 SUMR	Primary
	Adela Hruby	Adela.Hruby@tufts.edu	
<p>Virtually no discipline attracts more public attention or generates more controversies than nutrition. The reasons for this vary. Food and nutrition can be viewed through multiple lenses: the personal, familial, communal, cultural, political, historical, and scientific. This course explores the scientific underpinnings of several hot topics and controversies, which will be examined from the perspectives of scientists and consumers (of food and media), with an undercurrent fostering self-understanding of implicit biases. The class will engage in debates and discussions designed to illuminate different perspectives. Students will have the opportunity to research, evaluate, and present their findings on a nutrition-related topic that is of concern to them. Prerequisites: junior or senior standing, or consent of the Online Graduate Certificate Program Director. If you are a Tufts undergraduate student please contact nutritioncertificates@tufts.edu. This course is offered May 20, 2020-August 23, 2020. Final grades are posted September 8, 2020.</p>			

143279	PhD Continuation Summer		
Subject: NUTR	Catalog Nbr: 0398	PhD Continuation Summer	

143291	Applied Optimization in Food and Nutrition Policy		
Subject: NUTR	Catalog Nbr: 0407	<p>Optimization problems arise in fascinating ways throughout food and nutrition policy: in regression, the fundamental algorithms are based on least-squares and maximum likelihood optimization; in economics, demand theory centers on utility maximization subject to a budget constraint, and supply theory uses cost minimization subject to a production target; in nutrition policy, USDA's Thrifty Food Plan minimizes a squared distance function subject to both a budget constraint and nutrition constraints; and in logistics, maximizing profit while minimizing the delivery cost from distribution centers to grocery stores explains key developments in the food retail industry. This course teaches (or, for some students, re-teaches) selected topics in differential calculus and matrix algebra as preparation for constrained optimization using the Lagrangian method and computational approaches in Excel and R. The course is designed for Ph.D. students (commonly in their first year) and mathematically curious master's students (commonly in their second year), as preparation for further study of advanced quantitative research tools.</p>	

143298	Doctoral Seminar in Biochemical and Molecular Nutrition		
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Course Bulletin

Subject:	Catalog Nbr:			
NUTR	0250			
2020 SPRG	Primary	Stefania Lamon-Fava	stefania.lamon-fava@tufts.edu	

This course is designed to lay the foundation for nutrition research through a mix of student-led topic discussions and student presentations of research data, and faculty-led workshops on research methodologies. Students will become acquainted with a variety of approaches to research design, helping them to develop their own research projects and to evaluate the products of their research. This course is required for all doctoral students in the Biochemical and Molecular Nutrition (BMN) program and Masters students admitted to the BMN doctoral program. BMN students will be required to take this course for two years. Students from other Friedman School programs and Masters-level students may be considered only with the instructor's consent.

143331	Writing Well About Food and Nutrition
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Subject:	Catalog Nbr:			
NUTR	0322			
2020 SPRG	Primary	Corby Kummer	Corby.Kummer@tufts.edu	

This course is an intensive workshop on finding your own voice and using it to write clearly and powerfully about food, food policy, and nutrition. Skills acquired in this course are intended to complement other skills that Friedman School students acquire such as research design and interpretation, scholarly citation, and data analysis. Students will write a series of short and longer articles designed to help them learn to structure research and information gathered from a variety of sources into concise, persuasive, engaging narratives with a clear sense of direction that requires craft and practice. A series of short assignments will give students a chance to practice writing a family dietary history, an informational article, solving cooking problems, and other forms. A final assignment will bring together the elements introduced in class in a long-form reported article. Priority enrollment for NICBC students. Enrollment limited to 20 students. Prerequisite: NUTR 0220 or complete a writing sample for exemption, and graduate standing or instructor consent. NUTR 0220 may not be taken concurrently with NUTR 0322.

143444	Health Properties of Food
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Subject:	Catalog Nbr:
NUTC	0206

In a world of conflicting food messages, how do we know which foods are good for us? And what is the evidence for why you might want to incorporate foods like avocados, beans, and berries more often into the meals you prepare? Students in this course will explore the relationship between diet and health by examining the habitual eating patterns (eg: Mediterranean-style, vegetarian, etc.) that have been shown to prevent and/or treat chronic diet-related conditions, such as hypertension, heart disease, type 2 diabetes, and certain cancers. They will also learn about the nutritional components of the foods and beverages commonly present in these healthy eating patterns, and look at the science-based evidence that supports the health effects of individual foods and beverages. Prerequisite: Graduate standing or instructor consent.

143506	Food Law and Regulation
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Course Bulletin

Subject:	Catalog Nbr:			
NUTR	0284			
	2020 SPRG	Primary	Nicole Negowetti	Nicole.Negowetti@tufts.edu

This interdisciplinary course focuses on food law, an area where many important legal, environmental, economic, and social justice concepts intersect in our society. Students will engage in analysis of the following topics: national regulation of food (production, safety, labeling, and marketing); food and consumer rights; food technology and the law (biotechnology, genetic modification of crops and livestock); food production (including an overview of the farm bill, the National Organic Program, and alternative food systems); food, energy, and water; food, nutrition, and public health; and food justice, including issues of equity, food access, land and labor rights. The course will introduce students to legal research, analysis, and writing. It will challenge students to understand and analyze a complex regulatory area where problem solving often requires careful assessment of various branches and levels of government (local, state, and federal), administrative authorities, and potential causes of action (statutory and common law). The course also explores the policy issues, intra-governmental relationships, and political dynamics that shape the regulation of food. Enrollment limited to 20 students. Prerequisite: NUTR 0203: Fundamentals of Nutrition Policy & Programming: How Science & Practice Interact OR NUTR 0215: Fundamentals of U.S. Agriculture OR NUTR 0234: Basics of U.S. Public Policy and graduate standing or instructor consent.

143507	Water Science and Systems Analysis			
	Subject:	Catalog Nbr:		
	NSWM	0200		
	2019 FALL	Primary	Linda Abriola	Linda.Aabriola@tufts.edu
<p>This course focuses on hydrology, water resources engineering, water quality analysis, and systems thinking aspects of water. Students gain a broad understanding of the scientific theories and principles related to processes governing water availability and quality and the practice of applying this theory, along with data and models, to address a range of problems of water resources engineering and management. The course is structured around model applications to case studies, which facilitates exploration of issues related to uncertainty, model complexity, and scale. Enrollment available to SWM-MS students only. Enrollment restricted to SWM-MS students only. Prerequisites: Prior course in calculus. First day of class: September 3.</p>				

143550	Food Writing for Media			
	Subject:	Catalog Nbr:		
	NUTR	0283		
Check back soon for course description				

143551	Environmental Life Cycle Assessment			
	Subject:	Catalog Nbr:		
	NUTR	0331		
	2020 SPRG	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu
<p>Which protein source is more environmentally sustainable: chicken, tofu, or salmon? What processes in a food company's supply chain should be targeted to reduce energy use and costs? How would shifting to</p>				

Course Bulletin

nationally recommended diets impact the environment? These are a few examples of the myriad questions that can be addressed with life cycle assessment (LCA). LCA is a tool in the field of industrial ecology that quantifies the resource use and emissions of a product or system along its entire life cycle, from raw material extraction to final disposal. A central objective of this method is informing evidence-based decision-making toward sustainability by policy makers, NGOs, companies, and individuals. This course covers the intellectual foundations of LCA and provides hands-on experience applying the tool, with a focus on topics, data sources, and methodological issues relevant to food and agriculture. Prerequisite: Graduate standing or instructor consent. Friedman students are strongly encouraged to take this course in their second year.

143552	Creating Value Through Operations & Technology
Subject: CRBU	Catalog Nbr: OM726

143553	Obesity Epidemiology
Subject: CRHA	Catalog Nbr: ID537

143554	Decision Theory
Subject: CRHA	Catalog Nbr: RDS284

143555	Corporate Sustainability Strategy
Subject: CRBU	Catalog Nbr: SI849

143556	Comp Immunology
Subject: CRBU	Catalog Nbr: MI713

143557	Social Epidemiology
Subject: CRBU	Catalog Nbr: EP775

Course Bulletin

143558	Energy Metabolism			
	Subject:	Catalog Nbr:		
	CRBU	NU757		

143559	Human Neuropsychology			
	Subject:	Catalog Nbr:		
	CRBU	BN775		

143560	Food Policy and Food Systems			
	Subject:	Catalog Nbr:		
	CRBU	ML720		

143628	Water Leadership and Impact Management			
	Subject:	Catalog Nbr:		
	NSWM	0203		
	2020 SPRG	Primary	Kevin Oye	Kevin.Oye@tufts.edu
	2020 SPRG	Primary	Joshua Ellsworth	Joshua.Ellsworth@tufts.edu
<p>To drive positive impact towards the sustainable management of water resources, effective leaders must both grasp technical aspects of water challenges and balance competing demands from multiple stakeholders with differing levels of power and influence. SWM professionals need to develop both the mindset and the skillset to analyze complex socio-political contexts, work with diverse actors to identify specific problems and opportunities, create practicable solutions, and to persuade, negotiate, and lead others to achieve objectives. This course focuses on developing, in an integrated manner, the creative thinking and planning skills to identify and innovate solutions to tough challenges. It covers systems and problem analysis, participatory project design, budget preparation, and effective teamwork. Enrollment restricted to SWM-MS students only.</p>				

143629	Water Economics and Policy			
	Subject:	Catalog Nbr:		
	NSWM	0205		
	2020 SPRG	Primary	William Moomaw	william.moomaw@tufts.edu
	2020 SPRG	Primary	Brian Roach	Brian.Roach@tufts.edu
	2020 SPRG	Primary	Erum Sattar	Erum.Sattar@tufts.edu
<p>The main component of this course provides an overview of the economic principles related to sustainable water management, including market dynamics, efficiency and welfare analysis, economic externalities, valuation of water resources, and cost-benefit analysis. Other economic topics include the management of</p>				

Course Bulletin

water as a common property resource, water pricing as a conservation tool, private vs. public water management, behavioral economics, and the role of water in equitable sustainable human development. The course ties water economics directly to water policy through two sub-components of the course: one covering water law and policy and another covering water conflict resolution. Prerequisites: The course assumes students have taken a one-semester introductory economics course covering the basic operation of economic markets, and an introductory statistics course covering hypothesis testing and regression analysis, and a calculus course. Enrollment restricted to SWM-MS students only.

143630	Sustainable Water Management Practicum			
Subject:	Catalog Nbr:			
NSWM	0298			
2019 SUMR	Primary	Linda Abriola		Linda.Aabriola@tufts.edu
<p>Students continue to develop and practice skills learned in four core classes and track electives. Through six to eight weeks of professional experience in a field site off-campus, the students will focus on enhancing their research and management capacities in a water related project. Prior to the summer, the students leverage the SWM faculty network and approach external institutions to secure an opportunity and to develop their practicum goals. The practicum is designed to fit students individually, based upon their strengths, interests, and career goals. Upon completion of the field site portion, students return to the Medford campus to deliver a paper or product and to present their experiences to the larger community. This required summer practicum is supported by a stipend of up to \$3,000 intended to cover travel and living expenses for the duration of the practicum. Prerequisites: Successful completion of all SWM Core courses and Track courses. Enrollment restricted to SWM-MS students only.</p>				

143632	Humanitarian Leadership: The Political and Policy Challenges of Being in Charge			
Subject:	Catalog Nbr:			
NUTR	0329			
2020 SPRG	Primary	Gregory Gottlieb		Gregory.Gottlieb@tufts.edu
<p>The past several decades humanitarian assistance has undergone many changes, from mostly focusing on natural disasters where westerners rushed personnel and relief items to the site of the disaster, to now where the vast majority of funding and personnel is provided in complex emergencies brought about by conflict and staffed by a more broadly international staff. The end of the Cold War, 9/11, the wars in Iraq, Afghanistan, Yemen, and especially Syria have engendered complexities for humanitarians that seem to dwarf past responses. For those who are tasked with leading humanitarian efforts, the combination of complex program challenges, counter-humanitarian groups, politics, and national security policy considerations, complicates leading humanitarian responses. Under such complicated and difficult circumstances, effective and considered leadership is needed more than ever at all levels of engagement. Prerequisite: Graduate standing or instructor consent. This course is cross-listed with Fletcher (DHP D234).</p>				

143658	Case Studies in Global Mental Health Delivery			
Subject:	Catalog Nbr:			
NUTR	GH208			

Course Bulletin

143678	Introduction to Epidemiology	
	Subject:	Catalog Nbr:
	CRBU	EP714

143680	Obesity and Society	
	Subject:	Catalog Nbr:
	CRBU	SB800

143721	Nutrition and Health	
	Subject:	Catalog Nbr:
	NUTR	0251
<p>This course will introduce student to how nutrition relates to human health. We will focus on how diet and nutrition contributes to physical and mental well-being as well how diet and nutrition contribute preventing or promoting disease. Topics will include heart disease, cancer, and common chronic diseases. No prerequisites.</p>		

143723	Obesity	
	Subject:	Catalog Nbr:
	NUTR	0252
<p>Obesity is the greatest diet-related health problem of our time. The obesity epidemic has spawned innumerable fad diets and exercise regimens. This course will examine factors that lead to obesity, health consequences of obesity, and treatment options. This course is suitable for students with no nutrition background. No prerequisites.</p>		

143801	Applied Bayesian Analysis	
	Subject:	Catalog Nbr:
	CRHA	BST228

143809	Case Studies in Global Mental Health Delivery	
	Subject:	Catalog Nbr:
	CRHA	GH208

Course Bulletin

143810	Decision Ana For Hlth/Med Prac
Subject: CRHA	Catalog Nbr: RDS280

143811	Intro Geno & Bio Hlth Resrch
Subject: CRHA	Catalog Nbr: BST280

143866	Introduction to Social and Biological Networks
Subject: CRHA	Catalog Nbr: BST267

143901	Development of Sustainable Environmental Responsibility
Subject: CRBU	Catalog Nbr: GE522

143912	Nutritional Epidemiology
Subject: CRBU	Catalog Nbr: EP758

143913	Advanced Regression: Env Epi
Subject: CRHA	Catalog Nbr: ID271

143973	Applied Longitudinal Analysis
Subject: CRHA	Catalog Nbr: BST226

143974	Intro Quant Meths Montng Eval
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Course Bulletin

Subject:	Catalog Nbr:
CRHA	BST216

143975	Nutrition and Global Health
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Subject:	Catalog Nbr:
CRHA	ID217

143976	Data Science II
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Subject:	Catalog Nbr:
CRHA	BST261

144008	Translating Nutrition Evidence into Multimedia for the Public
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Subject:	Catalog Nbr:
NUTR	0337

The course is designed to draw on the strengths of students from all Tufts Friedman departments, who seldom have the chance to test and benefit from each others' expertise and developing skills. Working in groups of three, students will identify an area of common interest, and through the semester structure a multi-media article incorporating text, infographics, audio and potentially video to produce an article publishable in the general media. Particular emphasis will be placed on clarity of writing and conception. Guest lectures will focus on social media, podcasting, researching, and video skills. Pre-requisite: Graduate level or instructor consent.

144010	Cardiopulmonary Pathophysiology
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Subject:	Catalog Nbr:
CRBU	HS575

144129	Food Lab
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Subject:	Catalog Nbr:
NUTR	0343

Focusing on one food group, grains and bread, this course will bring together food system sustainability, nutrition science, and the culinary arts. We will use an interdisciplinary framework to explore the food system, including such topics as: historic and current food values, new models for wholesome breads, the terroir of flour, activism, non-commodity and commodity plant breeding and milling, and the power of cooking and eating together to impact social, cultural, and economic change. Roundtable discussions and Cook Together events will provide students with opportunities to collaborate on research, design and participate in projects,

Course Bulletin

and develop professional relationships across disciplines and beyond Tufts University. Pre-requisites:
Graduate standing or instructor consent

144218	Special Topics in Gastronomy
Subject: CRBU	Catalog Nbr: ML610

144378	Branding
Subject: CRBU	Catalog Nbr: MK487
Branding	

144379	Branding
Subject: CRBU	Catalog Nbr: MK854
Branding	

144380	Infectious Disease Epi
Subject: CRBU	Catalog Nbr: EP755

144389	Lead Sustainable Enterprises
Subject: CRBU	Catalog Nbr: OB835

144400	Econometrics for Health Policy
Subject: CRHA	Catalog Nbr: GHP525

144401	Societal Response to Disasters
Subject: CRHA	Catalog Nbr: ID205

Course Bulletin

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144460	Stat Methods Epi
Subject: CRBU	Catalog Nbr: BS852

144467	Applied Genetic Epidemiology and Biostatistics in Nutrition Research			
Subject: NUTR	Catalog Nbr: 0375			
2020 SPRG	Primary	Jiantao Ma	Jiantao.Ma@tufts.edu	
<p>This course is designed for graduate students who are interested in conducting or better interpreting epidemiological studies relating genetics to dietary intakes, disease, or health. There is an increasing awareness that various aspects of diet and genetics may both be important contributing factors in chronic disease. This course provides an overview of the statistical tools available to conduct and interpret genetic association analyses of complex disease, with a focus on nutrition. We also review the strengths and weaknesses of the available methods, and provide hands-on experience applying methods such as genome-wide association, haplotype, RNA-sequencing, and gene-diet interaction analyses. Students will become familiar with the Tufts Computing Cluster, Unix tools, R, and other specialized genetic software. Pre-requisites: NUTR 0204 or PH 0201: Principles of Epidemiology and NUTR 0206: Biostatistics 1 or PH 0205: Principles of Biostatistics, and NUTR 0309: Statistical Methods for Nutrition Research II and graduate standing or instructor consent.</p>				

144468	Corporate Social Responsibility in the Food Industry			
Subject: NUTR	Catalog Nbr: 0278			
2020 SPRG	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu	
2020 SPRG	Primary	Sean Cash	Sean.Cash@tufts.edu	
<p>The role of the corporation in achieving societal goals is controversial and has evolved over time. The food industry in particular has the potential to impact human health, food access, ecological sustainability, working conditions, and community well-being. This course will provide students with an overview of prevailing theories of the social responsibilities of corporations; how CSR activities may benefit food businesses; how businesses can conduct, monitor, and measure the impacts of CSR practices; how consumers respond to these efforts; and emerging topics relevant to CSR in the food industry. We will draw upon academic research, case studies, and insights from current professionals to illustrate these concepts. Pre-requisite: Graduate standing or instructor consent.</p>				

144488	Nutrition for Cooks			
Subject: NUTC	Catalog Nbr: 001W			

Course Bulletin

Nutrition for Cooks

144503	Global Noncommunicable Diseases
Subject: CRHA	Catalog Nbr: GHP216

144583	Human Rights Dilemma in Child Protection
Subject: CRHA	Catalog Nbr: GHP553

144584	International Perspectives: Justice for Children
Subject: CRHA	Catalog Nbr: GHP511

144607	Molecular Basis of Organ System Diseases
Subject: CRBU	Catalog Nbr: MM707

144650	Grant Writing for Funding of Research and Health Care Projects
Subject: CRHA	Catalog Nbr: GHP263

144690	Intermediate Statistical Computing & Applied Regression Analysis
Subject: CRBU	Catalog Nbr: BS805

144691	Principles of Injury Control
Subject: CRHA	Catalog Nbr: ID240

Course Bulletin

144692	Introduction to Medical Pharmacology	
	Subject:	Catalog Nbr:
	CRBU	PM730