

**NUTC 203: Malnutrition Prevention and Response**

Friedman Graduate Certificate Program  
Friedman School of Nutrition Science and Policy  
Tufts University

**FALL 2022**

*September 6-December 11, 2022 – Updated September 15, 2022*

**Class Meetings:** Asynchronous recorded lectures with weekly discussion board postings and reactions

**Instructor:** Dr. Erin Boyd  
Erin.boyd@tufts.edu  
Phone: 508-404-3408

**Office Hours:** By Appointment

**Tufts Graduate Credit:** 3.0 SHU

**Prerequisites:** Graduate standing or instructor permission

**Course Description:** 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. Fundamentals on metrics and techniques to monitor and evaluate effectiveness will be covered. 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 malnutrition in international programs.

**Course Goals:**

By the end of the course, students will:

1. Students will learn how to effectively combine different nutrition interventions to maximize impact on preventing and addressing malnutrition.
2. Students will learn several delivery modalities of nutrition interventions and be able to analyze the best way to meet nutrition needs in different contexts.
3. Students will be able to identify constraints associated with successful development and delivery and utilization of program responses.
4. Students will be able to compare how policies and guidelines at global, national and local levels can be used to guide the successful implementation of programs.

**Texts or Materials:** No textbooks required; all materials will be available on (<https://canvas.tufts.edu>)

**Academic Conduct:** Each student is responsible for upholding the highest standards of academic integrity, as specified in the [Friedman School's Policies and Procedures Handbook](#) and Tufts University policies (<http://students.tufts.edu/student-affairs/student-life-policies/academic-integrity-policy>). It is the responsibility of each student to understand and comply with these standards, as violations will be sanctioned by penalties ranging from failure on an assignment and the course to dismissal from the school.

### Late Policy

Assignments must be submitted on or before the due date. Extensions will only be granted if requests are made at least 5 days before the due date. The grade for any assignment received after the due date will be reduced by 20% per day for up to three days.

### Communication Policy

Students should seek out information themselves, from your peers, as well as on the weekly questions discussion forums. If you do not find your answer, contact the instructor as soon as possible. Please do not wait. Due to the potential time differences you need to plan time for the instructor to answer your question. The instructor and course manager will make every attempt to answer within 48 hours.

### Technical Support

All technical support questions should be directed to Friedman support staff at [friedmanonline@tufts.edu](mailto:friedmanonline@tufts.edu) or via skype, FriedmanOnline. Students should contact technical support for technical issues, Monday through Friday 9 am - 5pm (Eastern Time).

### Assessment and Grading:

#### The following guidelines are used in evaluating course performance:

1. Class assignments will be evaluated on the basis of completeness, originality, scientific soundness and relevance to the assigned topic, as well as participation as deemed appropriate by the course instructors.
2. Written work will be evaluated on the quality of thought, completeness and adherence to guidelines, scientific integrity, and ability to incorporate and communicate ideas and information effectively.
3. Adherence to instructions and guidelines of the assignments.
4. On-line discussion forums

The three assignments are all written papers and will build off one another. Assignment 1 (maximum 1500 words) will entail choosing a country and researching the nutrition situation of vulnerable groups. In Assignment 2 (maximum 1500 words), the nutrition problem that you choose to address in the country from Assignment 1 will be have objectives to address needs outlined. The final term paper (maximum 2500 words) will use the work from Assignments 1 and 2 to construct a full proposal to a hypothetical donor (of your choice) from an implementing partner of your choice.

Grading for the course will be based on the below assignment schedule and distribution:

Assignments	Due Date	% Of Total Grade
Discussion forum participation ( <b>first one due Sept 15</b> )	Weekly	30
Assignment 1- Needs Assessment (1500 words)	October 14 <sup>th</sup>	20

Assignment 2- Program proposal development (defining objectives) (written paper, 1500 words)	November 18 <sup>th</sup>	20
Final- the final paper will build on Assignments 1 and 2 for a full proposal (maximum 2500 words)	December 9 <sup>th</sup>	30
<b>Total</b>		100

**Grading Range:**

The passing grade at the Friedman School is a B minus. Also, at Friedman an A+ grade and an A grade are both calculated as 4.00 grade points in a student’s grade point average. Course grades will be based on the below (subject to revision during the course):

- A > 94%
- A- 90 - <94
- B+ 87 - <90%
- B 84 - <87%
- B- 80 - <84%

**Instructions for Submission of Assignments and Exams:** Assignments received after their deadline will not be accepted or graded unless extension is approved in advance. Students who are unable to complete an assignment or exam on time for any reason should notify the instructor by email, text message, or phone call prior to the deadline, with a brief explanation for why the extension is needed.

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

**Diversity Statement:** We believe that the diversity of student experiences and perspectives is essential to the deepening of knowledge in this course. We consider it part of our responsibility as instructors to address the learning needs of all of the students in this course. We will present materials that are

respectful of diversity: race, color, ethnicity, gender, age, disability, religious beliefs, political preference, sexual orientation, gender identity, socioeconomic status, citizenship, language, or national origin among other personal characteristics.

### **Class Participation**

Class participation for this course is an integral component of the learning agenda. Just as we would expect you to attend every lecture in a 'live' class, we expect everyone to participate in the discussion boards, described below.

**DISCUSSION BOARDS:** Every week, a discussion board topic will be posted onto Trunk by Sunday night, 10pm EST. **Please respond to the discussion board by the Thursday of that particular week before midnight (by 11:59pm EST). The first posting should be by September 15<sup>th</sup> (for Week 2).** Discussion board topics may be a class activity relating to the lecture material, 'quiz'-like questions pertinent to the lecture material or current 'hot' topics/debates in nutrition programming community. The nature of the questions will require between 350-500 words response.

Read through your classmates' postings and please reply to at least two of your classmates by the Sunday (before midnight EST) of each of the aforementioned weeks (which gives you 2 days after the due date for the initial discussion board post to react to your classmate's posts).

We will track adherence to these participation requirements, provide general feedback each week, and will assign a grade at the end of the semester based on the quality and timeliness of these required contributions. There is a grading rubric available on trunk to help better define expectations.

**Weekly Class Schedule (may be changed at the instructor's discretion)**

<b>Week</b>	<b>Dates</b>	<b>Topic</b>	<b>Assignments due</b>
Week 1	September 6-11	Global Recommendations and Nutrition Responses (no discussion board)	
Week 2	September 12-18	Nutrition Program Development, Delivery and Utilization	
Week 3	September 19-25	Nutrition Program Planning, Delivery Metrics and Cost Effectiveness	
Week 4	September 26-October 2	Micronutrient Deficiency Prevention and Control (Part 1)	
Week 5	October 3-9	Micronutrient Prevention and Control: Supplementation and Behavior Change Communication (Part II)	
Week 6	October 10-16	Infant and Young Child Feeding Part I- Breastfeeding and Complementary Feeding	Assignment 1 due October 14, LO 1,2
Week 7	October 17-23	Infant and Young Child Feeding Part II- Approaches	
Week 8	October 24-30	Prevention and Treatment of acute malnutrition; Community Management of Acute Malnutrition (CMAM)	
Week 9	October 31- November 6	Simplified approaches in CMAM to improve coverage	
Week 10	November 7-13	Packages to prevent undernutrition	
Week 11	November 14-20	Nutrition Transition	Assignment 2 due November 18, LO 2,3
Week 12	November 21-27	Community Health Workers- networks, motivation, delivery	
Week 13	November 28- December 4	Monitoring and Evaluation (no discussion board)	
Finals	December 5-11		Final paper due December 9, LO 1,2,3,4

## **Objectives and Readings**

### **Week 1:**

#### **Global Nutrition Response Recommendations**

In this class we will explore the primary nutrition issues facing the global community by examining data and debates surrounding global nutrition programs. The main conceptual models of causation, prevention and treatment discussed. Key social, cultural, political and economic factors that impact nutrition program development, delivery and success, and proposed analytic frameworks will be highlighted.

#### ***Objectives:***

- Summarize global trends in nutrition programming
- Compare conceptual models explaining nutrition causality
- Categorize current global recommendations for programming

#### **Required readings:**

- Lancet 2021 article
- Global Nutrition Report (2020 Executive summary)

#### **Online Discussion readings:**

- Osendarp et al, 2021 The COVID-19 crisis will exacerbate maternal and child undernutrition and child mortality in low- and middle-income countries

### **Week 2:**

#### **Nutrition Program Development, Delivery and Utilization**

#### ***Objectives:***

- Demonstrate program design basics
- Explain the concepts of the results framework and the logical framework models
- Illustrate the issues and constraints in the successful delivery and utilization of nutrition programs

#### **Required Readings:**

- Pelletier, D., et al., The Program Assessment Guide: An Approach for Structuring Contextual Knowledge and Experience to Improve the Design, Delivery, and Effectiveness of Nutrition Interventions. *Journal of Nutrition*, 2011. 141(11): p. 2084-2091.
- Tumilowicz, A., et al., Using implementation research for evidence-based programme development: a case study from Kenya. *Maternal & Child Nutrition*, 2015. 11: p. 1-5.

#### **Online Discussion Reading:**

- WFP Afghanistan

### **Week 3:**

#### **Nutrition Program Planning, Delivery Metrics and Cost Effectiveness**

#### ***Objectives:***

- Assess advocacy, funding and leadership of the global nutrition agenda
- Compare how much interventions cost, and how this is measured

- Analyze issues and constraints associated with program implementation, delivery and utilization
- Illustrate the role of metrics in strengthening the delivery and utilization of programs

#### Required Readings:

- Prof Zulfiqar A Bhutta PhD, Jai K Das MBA, Arjumand Rizvi MSc, Michelle F Gaffey MSc, Neff Walker PhD, Prof Susan Horton PhD, Prof Patrick Webb PhD, Prof Anna Lartey PhD, Prof Robert E Black PhD, Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost? *The Lancet* - 3 August 2013 (Vol. 382, Issue 9890, Pages 452-477)
- Webb, P., et al., Measuring Nutrition Governance. *Food and Nutrition Bulletin*, 2016. 37(4\_suppl): p. S170-S182.
- Hodge, J., et al., Is There an Enabling Environment for Nutrition-Sensitive Agriculture in East Africa? *Food and Nutrition Bulletin*, 2015. 36(4): p. 503-519.

#### Online Discussion Readings:

- Garrett J.L. Improving Results for Nutrition: A commentary on an agenda and the need for Implementation Research *J Nutr* March 1, 2009, Vol 138 no 3 646---650
- Verhoef M., Mulkins A., Kania A., Findlay---Reece B., Mior S. Identifying the barriers to conducting outcomes research in integrative health care clinic settings---a qualitative study *BMC Health Services Research* 2010, 10:14

#### Week 4:

#### Micronutrient Deficiency Prevention and Control (Part 1)

##### Objectives:

- Explain micronutrient intervention policies and programs
- Develop strategies for different types of fortification:
  - National fortification
  - Household fortification
    - Multiple Micronutrient Powders (MNPs)- Sprinkles, ready to use foods, etc.

#### Required Readings:

- Fiedler JL, Sanghvi TG., Saunders MK: The cost of micronutrient interventions: Policy Issues and Interventions. Technical Brief A2Z, USAID 7 pages
- Sazawal, S., Dhingra, P., Dhingra, U., Gupta, S., Iyengar, V., Menon, V. P., ... Black, R. E. (2014). Compliance with Home-based Fortification Strategies for Delivery of Iron and Zinc: Its Effect on Haematological and Growth Markers among 6-24 months Old Children in North India. *Journal of Health, Population, and Nutrition*, 32(2), 217–226.
- Darnton-Hill et. al. 2005. Micronutrient deficiencies and gender: social and economic costs. *Am. Jou. Clinical Nutrition*. 81 (5): 1198S-1205S.
- Stein, A. et. al. 2007. Plant breeding to control zinc deficiency in India: how cost-effective is biofortification? *Public Health Nutr.*: 10 (5): 492–501

#### Online Discussion Reading:

- Zambia refuses GMO foods
- <http://www.theepochtimes.com/n3/280808-gmos-a-global-debate-zambia-strongest-anti-gmo-stance-in-africa/>

- <http://www.nytimes.com/2002/08/30/world/between-famine-and-politics-zambians-starve.html>

## **Week 5: Micronutrient Prevention and Control: Supplementation and Behavior Change Communication (Part II)**

### **Objectives:**

- Describe different approaches to prevent and treat micronutrient deficiencies at a community and household level
- Compare approaches to improving micronutrient status: Dietary diversity, supplementation, fortification, biofortification

### **Required readings:**

- Mason et al, 2014, Vitamin A Policies Need Rethinking.
- Guideline: Daily iron and folic acid supplementation in pregnant women. Geneva: World Health Organization; 2012  
[archived]([http://www.who.int/nutrition/publications/micronutrients/guidelines/daily\\_ifa\\_supp\\_pregnant\\_women/en/](http://www.who.int/nutrition/publications/micronutrients/guidelines/daily_ifa_supp_pregnant_women/en/))
- Wang J, Chang S, Zhao L, et al. Effectiveness of community-based complementary food supplement (Yingyangbao) distribution in children aged 6-23 months in poor areas in China. Wieringa F, ed. *PLoS ONE*. 2017;12(3):e0174302. doi:10.1371/journal.pone.0174302.
- Nepal brief from John Snow International

### **Online Discussion Reading:**

- Latham M. Vitamin A Fiasco. World Public Health Nutrition

## **Week 6: Infant and Young Child Feeding Part I- Breastfeeding and Complementary Feeding**

### **Objectives:**

- Synthesize evidence on the importance of exclusive and continued breastfeeding, as well as good complementary feeding
- Demonstrate the different modalities through which to support infant and young child feeding

### **Required Readings:**

- Why Invest in Breastfeeding (Lancet 2016)?

### **Online Discussion Readings:**

- None this week

## **Week 7: Infant and Young Child Feeding Part II- Approaches**

### **Objectives:**

- Illustrate policies that exist to support optimal infant and young child nutrition
- Critique different Infant and Young Child Feeding programs

### **Required Readings:**

- Guyon AB, Quinn AJ et al Implementing an integrated nutrition package at large scale in Madagascar: the essential nutrition actions framework. *Food and Nutrition Bulletin* 30:233-244, 2009

- Ten Steps DRC (Lancet, 2016)
- UNICEF 2010. The Community Infant and Young Child Feeding Counseling Package: Participant Materials. \*\* please skim so you are familiar\*\*
- WHO 2013. The Essential Nutrition Actions: improving maternal, newborn, infant and young child health and nutrition. \*\* please skim so you are familiar\*\*

**Online discussion readings:**

- IYCF in emergencies

**Week 8: Treatment of Wasting**

**Objectives:**

- Explain the basic concepts and rationale of preventing and treating acute malnutrition
- Summarize the protocols of CMAM and its implementation
- Justify the role of community mobilization in the successful implementation of CMAM

**Required Readings:**

- Community-Based Management of Severe Acute Malnutrition: Joint Statement by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children’s Fund (2007).
- Sadler, K., Puett, C., Khetran, E., and Mothabbir, G. Briefing: Community Case Management of Severe Acute Malnutrition in Southern Bangladesh. 2010. Dhaka, Bangladesh, Save the Children, Bangladesh and Feinstein International Center, Medford USA.

**Online Discussion Readings:**

- Role of Community Mobilization in CTC Approach  
<http://www.youtube.com/watch?v=irhPJVPzhdg>
- BBC News piece 2010. Legal fight over Plumpy'nut, the hunger wonder---product  
<http://news.bbc.co.uk/2/hi/europe/8610427.stm>
- New York Times Magazine article Sept 2010. The Peanut Solution.

**Week 9: Simplified Approaches in the Community Management of Acute Malnutrition (CMAM)**

**Objectives:**

- Analyze the main types of simplified approaches
- Identify evidence gaps in relation to the implementation of simplified approaches

**Required Readings:**

- Adaptations to the Management of Acute Malnutrition in the Context of COVID-19  
[https://www.actionagainsthunger.org/sites/default/files/publications/CMAM\\_Adaptations\\_Project\\_Final\\_Report\\_January\\_2022.pdf](https://www.actionagainsthunger.org/sites/default/files/publications/CMAM_Adaptations_Project_Final_Report_January_2022.pdf)
- Treatment of Wasting Using Simplified Approaches, A Rapid Evidence Review  
<https://www.unicef.org/media/97006/file/Simplified-Approaches-Rapid-Evidence-Review.pdf>
- Decision Making Guidance,  
[https://www.simplifiedapproaches.org/files/ugd/2bbe40\\_8c181c7c429e47b69fb51da399473e20.pdf](https://www.simplifiedapproaches.org/files/ugd/2bbe40_8c181c7c429e47b69fb51da399473e20.pdf)

**Online Discussion Readings:**

TBD

**Week 10: Packages to Reduce Undernutrition:****Objectives:**

- Explain the different interventions that can be bundled to mitigate stunting
- Summarize the importance of the 1000-day window of opportunity

**Required Readings:**

- ENGINE Ethiopia Mid-term evaluation
- Huicho Luis et al., 2016, Child health and nutrition in Peru within an antipoverty political agenda: a Countdown to 2015 country case study, Lancet Global Health.
- WHO, WHA Global Nutrition Targets 2025: Stunting Policy Brief.

**Online Discussion Reading:**

- TBD

**Week 11: Nutrition Transition****Objectives:**

- Explain the issue of the double burden of disease
- Discriminate the changing landscape of nutrition programming in both urban and rural contexts
- Summarize the public health impact of nutrition transition, which countries are most affected and review of examples to address nutrition transition

**Required Reading:**

- Cecchini, M et al. 2010. Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. Lancet 376:1775-1784.
- Grijalva-Eternod CS, Wells JCK, Cortina-Borja M, Salse-Ubach N, Tondeur MC, et al. (2012) The Double Burden of Obesity and Malnutrition in a Protracted Emergency Setting: A Cross-Sectional Study of Western Sahara Refugees. PLoS Med 9(10): e1001320. doi:10.1371/journal.pmed.1001320
- Ghosh et al, Understanding the complexity of under and over nutrition in Egypt, Feed the Future
- Misra, Obesity and the Metabolic Syndrome in Developing Countries, 2008
- Tanumihardjo, 2007, Poverty, Obesity, and Malnutrition: An International Perspective Recognizing the Paradox, Journal of the American Dietetic Association.
- WHO, 2012, Population based approaches to Childhood Obesity Prevention

**Online Discussion Reading:**

- Cuevas-Nasu L., Hernandez---Prado B., Shamah---Levy T., Monterrubio EA., del Carmen Morales--Ruan M., Moreno---Macias LB. Overweight and obesity in school children aged 5-11 years participating in food assistance programs in Mexico. Salud Publica Mex 2009 51 suppl 4:S630--637

**Week 12: Community Health Workers, networks and motivation****Objectives:**

- To analyze different community based public health networks
- Describe challenges using community health workers

- Describe challenges impacting community health workers' performance

**Required Readings:**

- Ethiopia Health Extension Worker
- Pakistan Health extension worker and Lady Health Worker Readings

**Online discussion readings:**

TBD

**Week 13: Monitoring and Evaluation**

***Objectives:***

- To describe with the conceptual framework for a project design
- To summarize key indicators for measuring changes in nutritional status
- To demonstrate best practices to measure infant and young child feeding behaviors

**Required Readings:**

- WHO Infant and Young Child Feeding Indicators
- WHO and UNICEF Indicators to identify acute malnutrition
- Arimond M et al 2010. Simple food group diversity indicators predict micronutrient adequacy of women's diet in 5 diverse, resource-poor settings. J Nutri 140: 2059S-2069S.
- Monitoring and evaluation sample sheet
- Conceptual framework overview

**Online discussion readings:**

- None this week, but you can fill out the conceptual framework for your final project