Tufts University, Friedman School of Nutrition Science and Policy

NUTR 227—INTERNATIONAL NUTRITION PROGRAMS
Fall 2017

Class Meetings: **Wednesdays 3:15-6:15**
Jaharis Room 155

Instructor(s): **Erin Boyd, MS**
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Office hours: *B*y appointment

Graduate Credits: **1 credit**
Prerequisites: Nutr 203 (or instructor permission)

Course Description:
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 issues, b) the range of options for interventions that exist, and those actually used, c) approaches to problem assessment, (including the process of considering alternatives according to context), d) examples of successful nutrition interventions, e) constraints to success (what makes or breaks major program successes), and f) key global institutions and 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 nutrition programs, interventions, and public health practices.

Texts or Materials:

All materials will be posted on Trunk.

Course Objectives

On completion of the course, students will be able to use their understanding of global nutrition issues to:

1. Analyze the conceptual framework of malnutrition and its relation to global nutrition issues.
2. Identify populations at risk of malnutrition and understand options for interventions and multiple layers to reach these groups.

3. Understand the global nutrition narrative and its interlinkages with different sectors
4. Evaluate approaches for preventing and treating undernutrition; and formulate feasible and effective nutrition interventions strategies for various situations of nutrition related morbidity or mortality
5. Be familiar with global agencies' role and responsibilities in setting the nutrition agenda normatively and programmatically.

Academic Conduct: Each student is responsible for upholding the highest standards of academic integrity, as specified in the Friedman School's Policies and Procedures manual (http://nutrition.tufts.edu/student/documents) and Tufts University policies (http://uss.tufts.edu/studentaffairs/judicialaffairs/Academic Integrity.pdf). 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.

Classroom Conduct: Participation in class is expected and contributes to the course grade. No electronic devices are to be used during the lectures, and students are expected to actively engage in small group work during the lectures.

Assessment and Grading:
Grading: Semester requirements include, a) 2 short memo-style papers (2 X 20%); b) active class participation in discussions (10%); c) a term paper framed in terms of a proposed project or program design (using a template provided) (50%).

A passing grade in the course is B- or better. 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%

Assignment 1: You are the Nutrition Technical Advisor for a large-bilateral donor and you have received the proposal for addressing undernutrition at a national level (choose either DRC or Yemen). You must prepare a 1500 word memo for Director of Child Survival suggesting whether or not to fund the proposal as it is, with suggested changes, or to decide to use limited resources to support another country. You should use the SUN documents to support your argument. **Due October 4th by 11:59 EST.**

Assignment 2: Memo style paper on a topic of your choice that discusses a relevant controversy related to global nutrition programs. Topics may relate to design, intervention, monitoring or evaluation (such as use of targeted programs for special populations, provision

of breastmilk substitutes for infants, vitamin A supplementation, iron supplementation in malaria, reliance on specialized ready to use products for the prevention and treatment of acute malnutrition, the baby-friendly hospital initiative, etc.). **2000 words or less; exclusive of references. Due November 1st by 11:59 EST.**

Final Project: Proposal for funding. Text (**excluding annexes)** not to exceed 5000 words. Must include 3 annexes (annexes 1 and 2 from the template and the logframe provided). **Due December 14th by 11:59 EST.**

Accommodation of Disabilities:
Students with documented disabilities are entitled to academic accommodation appropriate to their needs. If you require accommodations for this course, please contact me confidentially prior to the end of the second week of classes.

Course Schedule:

This schedule is subject to modification at the instructor's discretion and based on availability of guest speakers

Week	Topic & Lecturer	Date	Assignments Due
1	Conceptual Framework of Malnutrition and the Global Nutrition Narrative	September 6	
2	Defining malnutrition: Measurement and Assessment , experience from Chad **Guest lecturer: Anastasia Marshak**	September 13	
3	Positive Deviance Inquiry **Guest lecturer: Monique Sternin**	September 20	
4	Improving Infant and Young Child Feeding Practices	September 27	
5	Micronutrient Deficiency Prevention and Control: Fortification, Supplementation and Behavior Change communication	October 4	Memo 1 due
6	HIV and Nutrition Programming **Guest Speaker: Rebecca Egan, FANTA**	October 11	
7	Agriculture Interventions for Nutrition	October 18	

	Sensitive Programming		
8	Prevention and Treatment of acute malnutrition: Community Management of Acute Malnutrition (CMAM)	October 25	
9	Water sanitation and hygiene Interventions	November 1	Memo 2 due
10	School based programs	November 8	
11	Cash transfers	November 15	
12	How to prevent overnutrition	November 29	
13	Final Paper due in class presentations	December 6	

Week 1: September 6

Conceptual Framework of Malnutrition and the Global Nutrition Narrative
Objectives:

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

Required Readings:

- Lancet Series 2013 Executive Summary
- Black et al., Maternal and child undernutrition and overweight in low-income and middle-income countries, *Lancet*, 2013.
- Global Nutrition Report (2016)
- SDG link (Guardian article)

Week 2: September 13
Defining malnutrition: Measurement and Assessment
Guest lecturer- Anastasia Marshak
Objectives:

- Determine the best ways to conduct measurement of individual and population level nutritional status
- Explain methodologies to ensure that measurements are conducted and analyzed properly
- Be familiar with a multisectoral intervention in Chad

Instructional Objectives: This lecture introduces concepts regarding the nutritional assessment of individuals and populations. The many definitions and metrics of malnutrition, hunger and obesity will be discussed. Why and what do we need to measure to ensure a successful nutrition program, will be covered. Optimal measurement of individual and population nutritional status to best identify individuals targeted for prevention and treatment strategies and indicators most appropriate for program evaluation will be debated.

Required Readings:

- IASC Global Nutrition Cluster and SCN Task Force on Assessment Monitoring & Evaluation. Fact sheet on the implementation of 2006 WHO Child Growth Standards for emergency nutrition programs for children aged 6-59 month. 2009.
- Duggan M.B. (2010) Anthropometry as a tool for measuring malnutrition: impact of the new WHO growth standards and reference. *Ann.Trop.Paediatr.* **30**, 1-17
- WHO/UNICEF Growth Standards
- Mothers Understand MUAC and Can Do It Well
- Chad reading

Class 3: September 20
Positive Deviance Inquiry
Guest lecturer: Monique Sternin

Objectives:

- Examine one approach to behavior change communication
- Identify problems that may be addressed through the PDI approach

Required Readings:

- Maternal-Child Health and Nutrition: The Positive Deviance/Hearth Approach. 2007 J Midwifery Womens Health 2007;52:376–383
- Sethi V, Kashyap S, Agarwal S, Pandey RM and Kondal D. Positive Deviance Collective Community Action (PDCCA) Model Improves Infant Feeding and Growth in Rural Uttar Pradesh. 11th Annual Scientific Conference of ICDDR-B. March 4, 2007.
- Gretchen G. Berggren and Tran Tuan. Evaluation of the Save the Children (SC) Poverty Alleviation/Nutrition Program (PANP), Thanh Hoa Province, Vietnam, November 1995.
- Judi Abuel. A Review of the Experiences of Catholic Relief Services Implementing the Positive Deviance/Hearth Approach: What Lessons for the Future? For CRC & USAID, 2006.
- PD in hospitals (MRSA)
- Morales and Schooley
- Vietnam example

Class 4: September 27
Improving Infant and Young Child Feeding Practices

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
- Critique different Infant and Young Child Feeding programs

Instructional Objectives: Children between 6-23 months are the most vulnerable for becoming undernourished- both chronically and acutely. In order to prevent undernutrition and to ensure optimal growth, the importance of exclusive and continued breastfeeding, as well as good complementary feeding is explored. Infant and young child feeding programs are analyzed in order to understand the different modalities through which to support infant and young child feeding.

Required Readings:

- Rollins, Nigel C et al, (2016), Why invest, and what it will take to improve breastfeeding practices? The Lancet, Volume 387, Issue 10017, 491 - 504
- Victora, Cesar G et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect (2016), The Lancet, Volume 387, Issue 10017, 475 – 490
- Yotebieng, Marcel et al. (2016), Ten Steps to Successful Breastfeeding programme to promote early initiation and exclusive breastfeeding in DR Congo: a cluster-randomised controlled trial, The Lancet Global Health , Volume 3 , Issue 9 , e546 - e555
- Horta et al. (2013). Long-term Effects of Breastfeeding
- 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**
- 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

<u>Class 5: October 4</u>
Micronutrient Deficiency Prevention and Control

Objectives:

- Explain micronutrient intervention policies and programs
- Plan different types of micronutrient interventions : Multiple Micronutrient Powders (MNPs)- Sprinkles, RUFs, lozenges, syrups, candies, *atta* flour, etc.
- Compare approaches to improving micronutrient status: Dietary diversity, supplementation, fortification, biofortification

Required Readings:

- Mason et al, 2014, The Great Vitamin A Fiasco

- 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
- 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.

Class 6: October 11

Guest Lecturer: Rebecca Egan (FANTA)

HIV and nutrition programming: Preventing mother to child nutrition, NACS, and Food by Prescription

- Analyze what is the role for 'nutrition' in HIV projects?
- Examine the evidence base for policies on nutrition interventions

Required Readings:

- Ivers, L. et. al. 2010. Food assistance is associated with improved body mass index, food insecurity and attendance at clinic in an HIV program in central Haiti: a prospective observational cohort study. AIDS Research and Therapy 7:33:1-8
- Fawzi W et al 2004. A randomized trial of multivitamin supplements and HIV disease progression and mortality. NEJM 351:23-32
- Koethe JR et al 2009. Macronutrient supplementation for malnourished HIV-infected adults: A review of the evidence in resource adequate and resource constrained settings. CID 49: 787-98

Optional Reading:

- EglimanD et al 2011. Get AIDS and Survive? The "Perverse" Effects of Aid: Addressing the Social and Environmental Determinants of Health, Promoting Sustainable Primary Care, and Rethinking Global Health Aid. Int j Oc Env Health 17:382-389

Class 7: October 18

Agriculture Interventions for Nutrition Sensitive Programming

Objectives:

- Argue the role of food security and agriculture interventions in promoting nutrition
- Assess the effects of combined agriculture and nutrition education on child growth
- Compare current activities involving food security, nutrition and agriculture interventions

Required Readings:

- Masters (2016), Economic Causes of Malnutrition (Chapter 2.2), Good Nutrition: Perspectives for the 21st Century, edited by Manfred Eggersdorfer, Klaus Kraemer et al. for Sight & Life, forthcoming 2016.

- Masters et al. (2014 Agriculture, Nutrition and Health in Global Development: Typology and Metrics for Integrated Interventions and Research Forthcoming 2014 in *Annals of the New York Academy of Sciences,* issue on "Paths of Convergence for Agriculture, Health, and Wealth"
- USAID/FFP, Malawi CSI and BEST analysis (Skim)

Optional Readings:

- Quisumbing et al, 2001, IFRPI, Empowering Women to Achieve Food Security
- ACF (2011), Maximising the Nutritional Impact of Food Security and Livelihoods Interventions: A Manual for Field Workers, pgs. 46-61.
- AVDRC (November 2012), The World Vegetable Center, Promoting Best Post Harvest Practices: Skim success stories
- Dunn, E (2013), FIELD Report No. 18: Smallholders and Inclusive Growth in Agricultural Value Chains

Class 8: October 25

Prevention and Treatment of acute malnutrition: Community Management of Acute Malnutrition (CMAM)

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).
- Gross R, Webb P. Wasting time for wasted children: severe child undernutrition must be resolved in non-emergency settings. *Lancet* 2006; 367(9517):1209-11.
- Collins S, et. al. 2006. Management of severe acute malnutrition in children. *Lancet* 368 (9551):1992-2000.
- 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.
- Defourny, I., Minetti, A., Harczi, G., Doyon, S., Shepherd, S., Tectonidis, M., Bradol, J. H., and Golden, M. 2009. A large-scale distribution of milk-based fortified spreads: evidence for a new approach in regions with high burden of acute malnutrition. *PLoS.ONE.* 4: e5455. [l*ink to MSF 'Food is not Enough' campaign*]
- FANTA (2009) Preventing malnutrition in children under 2 approach (pm2a): a food-assisted approach. Title II Technical Reference Materials. FANTA/USAID **Read Pages 1-5 only**

Class 9: November 1
Water sanitation and hygiene Interventions
Objectives:

- Assess how the water, sanitation and hygiene context can affect nutritional status
- Explain the impact of water, sanitation and hygiene interventions on nutritional status
- Compare innovative programs that address the sanitation and hygiene situation of under 2s

Required Readings:

- Spears, D. (2013). The nutritional value of toilets: How much international variation in child height can sanitation explain? Informally published manuscript, Centre for Development Economics, Retrieved from http://riceinstitute.org/wordpress/wp-content/uploads/downloads/2013/07/Spears-height-and-sanitation-6-2013.pdf
- Chambers, R. Sanitation and Stunting in India Undernutrition's Blind Spot. Economic and Political Weekly.
- Humphrey, J. Child undernutrition, tropical enteropathy, toilets, and handwashing. Lancet, 374.
- McCormick, BJJ. 2013. Frequent symptomatic or asymptomatic infections may have long-term consequences on growth and cognitive development. Series of the Old Herborn University Seminar Monograph. 27. Persisting Consequences of Intestinal Infection.
- Peterson KM, Buss J, Easley R, et al. 2013. REG1B as a predictor of childhood stunting in Bangladesh and Peru. *Am. J. Clin. Nutr.* 97:1129–33.

Class 10: November 8
School-based programs
Objectives:

- Assess how early childhood development impacts nutritional status
- Justify the objectives of school-based programs, with particular emphasis on the design of successful school-based programs
- Summarize the concepts of food for education
- Explain issues and constraints in the wide scale implementation of school programs

Required Readings:

- Bhowmick, N. Postcard from Vrindaban: In India, the World's Largest School Lunch Program Friday, Nov. 05, 2010; Read more: http://www.time.com/time/world/article/0,8599,2029625,00.html#ixzz161G9w4 Bd USDA.
- McGovern–Dole International Food for Education and Child Nutrition Program February 2009 http://www.fas.usda.gov/excredits/foodaid/ffe/mcdfactsheet.asp

- School Feeding in El Salvador: Preliminary Findings of a Case Study of the Transition
- Kuhn A. Nutrition Program Boosts Poor Students In China http://www.npr.org/templates/story/story.php?storyId=104753329
- Galloway, R. (2009), School feeding: Outcomes and costs, Food and Nutrition Bulletin, vol. 30, no. 2

Class 11 November 15

Cash Transfers
Objectives:

- Explain the principles of cash transfer programs in relation to nutrition outcomes
- Assess of large-scale national level cash transfer programs
- Compare constraints associated with cash transfers in influencing nutrition

Required Readings:

- Adato, M. and Hoddinott, J. (2010), Conditional Cash Transfer Programs: A "Magic Bullet" for Reducing Poverty?
- Lia C H Fernald, Paul J Gertler, Lynnette M Neufeld, Role of cash in conditional cash transfer programmes for child health, growth, and development: an analysis of Mexico's Oportunidades Lancet 2008; 371: 828–37
- Davide Rasella, Rosana Aquino, Carlos A T Santos, Rômulo Paes-Sousa, Mauricio L Barreto. Effect of a conditional cash transfer programme on childhood mortality: a nationwide analysis of Brazilian municipalities Lancet 2013; 382: 57–6
- Aguero et al. 2008 The Impact of Unconditional Cash Transfers on Nutrition: The South African Child Support Grant

Class 12: November 29
How to address overnutrition

Objectives:

- Examine models that include improvement in both undernutrition and overnutrition as outcomes
- Analyze different behavior change communication techniques and packages that work for addressing overnutrition

Required Readings:
- Cecchini, M et al. 2010. Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. Lancet 376:1775-1784.
- Caballero B. 2007. The global epidemic of obesity: an overview. Epidemiologic reviews 29: 1-5.

- Seligman HK 2010, Food insecurity is associated with chronic disease among low income NHANES participants. J Nutr
- Thorndike, AN, Healey, E, Sonnenberg, L, Regan, S. Participation and cardiovascular risk reduction in a voluntary worksite nutrition and physical activity program. Preventive Medicine 52: 164-166, 2011.
- Thorndike, AN, Sonnenberg, L, Riis, J, Barraclough, S, Levy, DE. A 2-phase labeling and choice architecture intervention to improve healthy food and beverage choices. Am J Public Health 2011