

**Tufts University, Friedman School of Nutrition Science and Policy**

**NUTC204 – Underlying Causes of Malnutrition  
Spring 2018**

**Class Meetings:** Online

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**Graduate Credits:** 1 credit

**Course Description:** This course will analyze the various nutrition programs aimed at addressing the underlying (and some of the basic) determinants of malnutrition. These determinants, commonly classified as: food security, care for women and children, access to and use of health services, safe water and sanitation, are shaped by economic and social conditions, national global contexts, as well as capacity and resources. Programs affecting nutrition outcomes are carried out in a wide variety of sectors, sometimes operating in coordination but others in isolation, including agriculture, early childhood development, education, water and sanitation, health systems, as well as social safety nets and poverty alleviation. While the primary objectives of these programs are not necessarily nutrition-related, they do articulate specific nutrition goals, actions, and indicators. They also have the potential to serve as delivery platforms to other nutrition-specific interventions. The programs that will be reviewed in this course are: food-based, cash and vouchers, agriculture, water and sanitation, health, gender-related, school-based, and intersectoral interventions.

**Course Objectives:** At the end of the course, students will be able to explain the opportunities and challenges in the design and implementation of nutrition-sensitive interventions that address the underlying causes of malnutrition; debate various modalities and pathways for improving nutrition other than direct provision of food; determine how nutrition-sensitive programs can integrate and promote nutrition as a goal of multiple sectors and contribute to achieving national development

**Texts or Materials:** Reading and other materials for this course span a variety of research articles, policy briefs, systematic reviews, short videos, program design guidebooks, and more. All materials will be made available online.

**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](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.

**Communication:** The instructors are available to meet with students by scheduling a Skype meeting via email. Students may also email instructions with questions directly. You will receive email replies within 48 hours. Please do not expect instant replies. Also feel free to contact other classmates for help on assignments or if you have questions.

**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.

#### **Assessment and Grading:**

<u>Assignment</u>	<u>Grading weight</u>
<i>10 Discussion Board Posts</i>	<i>20%</i>
<i>Debate (CBT vs. In-Kind)</i>	<i>15%</i>
<i>Policy Brief (WASH)</i>	<i>20%</i>
<i>Nutrition-sensitizing a Program (School Meals)</i>	<i>20%</i>
<i>Theory of Change and Concept Note</i>	<i>25%</i>

**Assignments and Submission Instructions:** 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 exam on time for any reason should notify the instructor by email prior to the deadline, with a brief explanation for why the extension is needed.

Assignments in this class will include:

- A case study where students are presented with a specific example of context and asked to analyze and illustrate the principle discussed in class.

- A debate where students discuss two opposing ideas to address the same problem. Students are expected to explain their choice for their preferred idea in a factual and logical manner.
- A policy brief that includes a statement and description of the problem, viable options to address it, and strategies to implement these options;
- “Nutrition-sensitizing” a program where a program with no direct nutrition objectives is described. Students are expected to add the necessary activities and indicators to make it nutrition sensitive.
- A theory of change model or a logical framework: students are asked to draw the theory of change model for a program of their choice and this through defining the outcomes/change they are seeking and the pathway and pre-conditions to reach that desired change; and
- A program concept note where a program or a project idea is presented in a concise yet comprehensive form, including context, rationale, goals, activities and expected results.

Detailed instructions for the assignments will be provided on the Canvas course site.

**Online Discussion Board:** *Students are expected to participate regularly in online discussions throughout the course. Each week, 1-2 thought-provoking questions will be posted, for which the responses will require the application of concepts and facts presented in the lectures and readings. Students will be expected to post a ‘lead post’, which directly answers the posed question, or a ‘response post’ that directly addresses another student’s post. The posts should deepen the nature of the class discussion by introducing unique ideas and insights, raising questions, and articulating opinions. Repeating other students’ statements will not suffice as posting original content. Responses may cite outside readings, respectfully challenge other’s viewpoints, raise questions, and tactfully debate often challenging or even controversial topics. This online interaction is meant to emulate a discussion that would otherwise take place in-person in a traditional classroom. See below for a rubric on the expectations of a post.*

**Rubric for online posts**

<b>Components</b>	<b>Expected Level of Competence</b>	<b>Moving Towards Expected Level of Competence</b>	<b>Below Expected Level of Competence</b>
<b>Quantity &amp; timeliness of contributions</b>	<i>Contributes 10 constructive responses to discussion post over the entire course.</i>	<i>Contributes 7-9 constructive responses to discussion posts over the entire course.</i>	<i>Does not read messages in discussion area and contributes less than 7 posts over the course of the semester.</i>

	<i>10 out of 10 pts.</i>	<i>7-9 out of 10 pts.</i>	<i>0-6 out of 10 pts.</i>
<b>Quality &amp; relevance of response</b>	<i>Responses are concise, clear and thoughtful. Responses contribute something original or build upon what has been said; they are not repetitious.</i>	<i>Responses are related to the discussion posts, but messages only address peripheral issues. Repetition of questions or points made by others</i>	<i>Responses do not relate to the discussion posts. Makes, short, irrelevant remarks or responds with minimum effort.</i>
	<i>10 out of 10 pts.</i>	<i>7-9 out of 10 pts.</i>	<i>0-6 out of 10 pts.</i>
<b>Interaction with others</b>	<i>Questions are raised to stimulate discussion, encourage a variety of viewpoints, response to questions and comments from others. Disagreements are expressed respectfully.</i>	<i>Participation is evident, but posts do not involve others or encourage others to think critically.</i>	<i>Rarely raises questions to stimulate discussion and rarely responds to the questions comments raised by others. Comments are unconstructive or non-courteous.</i>
	<i>10 out of 10 pts.</i>	<i>7-9 out of 10 pts.</i>	<i>0-6 out of 10 pts.</i>
<b>Total score out of 90 points</b>	<i>30 pts</i>	<i>30 pts</i>	<i>30 pts</i>

**Course Schedule:**

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

<u>Week</u>	<u>Date</u>	<u>Topic</u>	<u>Assignment</u>
1	XX	Underlying Causes of Malnutrition	Case study
2	XX	Theory behind nutrition-sensitive interventions	Post on Discussion Board
3	XX	Food-based interventions	Post on Discussion Board

4	XX	Cash and voucher interventions	Post on Discussion Board  **Cash/Voucher versus In-kind transfer debate
5	XX	Nutrition-sensitive agriculture	Post on Discussion Board
6	XX	Water, Sanitation, and Hygiene	Post on Discussion Board  **Policy Brief: Evidence behind WASH and Nutrition
7	XX	Health	Post on Discussion Board
8	XX	Gender, Women's Empowerment, and Family Planning	Post on Discussion Board
9	XX	School-based Programs and Early Childhood Development	Post on Discussion Board  **Adapt current program design to be nutrition sensitive
10	XX	Policies and Costs; M&E; Theory of Change	Post on Discussion Board
11	XX	Social Protection	Post on Discussion Board **Theory of change model
12	XX	Sustainable Development Goals	and **Program concept note (for which the theory of change was drawn last week)
13	XX	Measurements/Final Wrap-up	**Theory of change model and program concept note (due)

### Course Topics, Learning Objectives and Assignments

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

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#### Week 1:

**The types of malnutrition and the causes of malnutrition – Unpacking the causal framework**

**Objectives:**

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

- Differentiate between the different types of malnutrition.
- Analyze the causes of malnutrition -multi-sectoral, multi-layered- in a particular context.
- Assess the different interventions, policies, and programs that could address the various causes of malnutrition.

**Readings:**

- UNICEF (1990) *Strategy for Improved Nutrition of Children and Women in Developing Countries*. United Nations Children's Fund, New York, NY, USA.
- Black RE., Morris SS and Bryce J. (2003) "Where and why are 10 million children dying every year?" *Lancet*, 361: 2226–34.
- Salama P, Spiegel P, Talley L and Waldman R (2004) "Lessons learned from complex emergencies over past decade." *Lancet* 364: 1801–13.
- Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, Ezzati M, Grantham-McGregor S, Katz J, Martorell R, Uauy R, and the Maternal and Child Nutrition Study Group (2013) "Maternal and child undernutrition and overweight in low-income and middle-income countries" *Lancet* 382: 427–51.

**Assignments:**

- Case study

**Week 2:**

**Nutrition-sensitive interventions: what exactly are they?**

**Objectives:**

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

- Differentiate between the different terms used in nutrition programming, including the various outcome and impact indicators.
- Analyze the theory behind nutrition-sensitive interventions.
- Defend the need for long-term vision and commitment to combat malnutrition

**Readings:**

- Bhutta ZA, Das JK, Rizvi R, Gaffey M, Walker N, Horton S, Webb P, Lartey A, Black RE, The Lancet Nutrition Interventions Review Group, and the Maternal and Child Nutrition Study Group (2013) "Evidence Based Interventions for Improving Maternal and Child Nutrition: What Can be Done and at What Cost?" *Lancet*, 382: 452–77.
- Alderman H and Ruel M (2013) "Nutrition-sensitive Interventions and Programmes: How Can They Help to Accelerate Progress in Improving Maternal and Child Nutrition?" *Lancet*, 382: 536-551.

- Arnold T. (2016) “Nutrition-Specific and Nutrition-Sensitive Interventions” Chapter 5.4 In: Eggersdorfer M, Kraemer K, Cordaro JB, Fanzo J, Gibney M, Kennedy E, Labrique A, Steffen J. *Good Nutrition: Perspectives for the 21st Century*. Basel, Karger, pp 276–288. Available online at: <https://www.karger.com/Article/Pdf/452392>.

**Optional Reading:**

- ENN (2016) *Field Exchange: Special Focus on Nutrition-Sensitive Interventions* Issue 51, January 2016. Emergency Nutrition Network, UK.

**Assignment:**

- Discussion board post

**Week 3:**

**Food-based interventions (food distributions, preventive RUFs, MNPs, etc.)**

**Objectives:**

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

- Describe the different types of food-based interventions.
- Compare examples and analyze strengths and weaknesses of food based nutrition interventions.
- Summarize the theoretical concepts for how food based interventions can affect nutritional status.

**Readings:**

- WFP Decision Tree for Response Options – Nutrition Interventions – Food Products (Draft 2010)
- UNHCR (2011) *UNHCR Operational Guidance on the Use of Special Nutritional Products to Reduce Micronutrient Deficiencies and Malnutrition in Refugee Populations*. UNHCR, Geneva.
- Thompson B and Amoroso L (Eds) (2014) *Improving Diets and Nutrition: Food-Based Approaches*. FAO and CABI. Chapters 1,2,3,4 and 7.

**Assignment:**

- Discussion board post

**Week 4:**

**Cash and voucher interventions (cash, vouchers, market-based interventions)**

**Objectives:**

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

- Explain how cash-based interventions benefit nutrition and health.
- Summarize the principles of cash-based interventions.

- Debate cash-based interventions vs. food-based interventions in emergencies.

**Readings:**

- Gaarder MM, Glassman A and Todd JE (2010) "Conditional cash transfers and health: unpacking the causal chain" *Journal of Development Effectiveness* 2(1): 6-50.
- Bailey S and Hedlund K (2012) *The impact of cash transfers on nutrition in emergency and transitional contexts - A review of evidence*. Overseas Development Institute, London, UK.
- The World Bank (2016) *Cash Transfers in Humanitarian Contexts - Final draft prepared for the Principals of the Inter-Agency Standing Committee*. Strategic Note. The World Bank Group, Washington DC.
- Hoddinott J, Sandström S, Upton J (2013) "Impact Evaluation of Cash and Food Transfers in Zinder, Niger: Analytical Report". Draft Report, IFPRI, WFP.

**Assignment:**

- Discussion board post
- Debate: CBT or in-kind?

**Week 5:**

**Nutrition-sensitive agriculture (extension services, seeds & tools, home gardens, etc.)**

**Objectives:**

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

- Explain the relation between agriculture and nutrition.
- Describe the various types of agriculture-based interventions.
- Recommend types of agriculture-based interventions based on context and desired nutrition outcomes.

**Readings:**

- The World Bank (2007) *From Agriculture to Nutrition Pathways, Synergies and Outcomes*. The International Bank for Reconstruction and Development, Washington, DC.
- FAO (2015) *Designing nutrition-sensitive agriculture investments: Checklist and guidance for programme formulation*. FAO, Rome.
- Fiorella KJ, Chen RL, Milner EM, Fernald LCH (2016) "Agricultural interventions for improved nutrition: A review of livelihood and environmental dimensions." *Global Food Security* 8: 39-47.
- Pingali P and Sunder N (2017) Transitioning Toward Nutrition-Sensitive Food Systems in Developing Countries *Annual Review of Resource Economics*. 9:4.1-4.20.

**Assignment:**

- Discussion board post

**Week 6:****WASH interventions (water, sanitation, and hygiene, EED)****Objectives:**

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

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

**Readings:**

- WHO, UNICEF, USAID. (2015) *Improving Nutrition Outcomes with Better Water, Sanitation and Hygiene: Practical Solutions for Policies and Programmes*. WHO.
- Dangour A, Watson L, Cumming O, Boisson S, Che Y, Velleman Y, Cavill S, Allen E, Uauy R (2013) "Interventions to improve water quality and supply, sanitation and hygiene practices, and their effects on the nutritional status of children." *Cochrane Database Syst Rev* 2013(8).
- Ngunjiri FM, Reid BM, Humphrey JH, Mbuya MN, Pelto G, Stoltzfus RJ. (2014) Water, sanitation, and hygiene (WASH), environmental enteropathy, nutrition, and early child development: making the links. *Annals of the New York Academy of Sciences* 1308(1):118-28.
- Trehan I, Kelly P, Shaikh N, Manary M. New insights into environmental enteric dysfunction. *Arch Dis Child* 2016;0:1-4.

**Optional Readings:**

- ACF. WASH' Nutrition A practical guidebook on increasing nutritional impact through integration of WASH and Nutrition Programs (2017). ACF.
- *Interactions of: Malnutrition, Water Sanitation and Hygiene, Infections*. Version 2005, revised 2007, Action Contra la Faim (ACF).
- Kane AV, Dinh DM, Ward HD. Childhood Malnutrition and the Intestinal Microbiome Malnutrition and the microbiome. *Pediatric research* 2015;77(0):256-62.

**Assignment:**

- Discussion Board Post
- Policy Brief: Evidence behind WASH/nutrition link

**Week 7:**

## Health interventions

### Objectives:

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

- Explain at least three biological causal pathways between health and nutrition status.
- Discuss the conceptual theory around health interventions and nutritional status.
- Critique an example of health interventions and policies on how well they might impact nutrition status.

### Readings:

- Rytter MJH, Kolte L, Briend A, Friis H, Christensen VB. The Immune System in Children with Malnutrition—A Systematic Review. PLoS ONE 2014;9(8):e105017.
- Trehan I, Manary MJ. An important chapter in the infection-malnutrition story. Lancet Glob Health;4(7):e430-1.
- Greenway K. Food by Prescription: A Landscape paper. GAIN Working Paper Series No 2. 2009.
- Patel LN, Detjen AK. Integration of childhood TB into guidelines for the management of acute malnutrition in high burden countries. Public Health Action 2017;7(2):110-5.

### Optional Readings:

- Ryan KN, Stephenson KB, Trehan I, Shulman RJ, Thakwalakwa C, Murray E, Maleta K, Manary MJ. Zinc or Albendazole Attenuates the Progression of Environmental Enteropathy: A Randomized Controlled Trial. Clin Gastroenterol Hepatol 2014;12(9):1507-13.e1.
- Cichon B, Fabiansen C, Yaméogo CW, Rytter MJH, Ritz C, Briend A, Christensen VB, Michaelsen KF, Oummani R, Filteau S, et al. Children with moderate acute malnutrition have inflammation not explained by maternal reports of illness and clinical symptoms: a cross-sectional study in Burkina Faso. BMC Nutrition 2016;2(1):57.

### Assignment:

- Discussion board post

## Week 8:

### Gender, women's empowerment, and family planning

### Objectives:

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

- Explain the conceptual theory around gender and women's empowerment interventions and nutritional status.

- Summarize the evidence behind family planning and the impact on nutrition status
- Apply gender sensitive and women's empowerment concepts into a program design in order to result in improved nutrition outcomes

**Readings:**

- Maximizing synergies between maternal, infant, and young child nutrition and family planning. 2012.
- Rutstein S and Winter R. The Effects of Fertility Behavior on Child Survival and Child Nutritional Status: Evidence from the Demographic and Health Surveys, 2006 to 2012; DHS Analytical Studies No. 37. 2014.
- Improving Nutrition and Food Security through Family Planning Video.
- FAO (2012) "Gender and nutrition" *Issue Paper*, Food and Agriculture Organization of the United Nations, Rome.

**Assignment:**

- Discussion board post

**Week 9:**

**School-based programs (school meals, food for education, academic achievement)**

**Objectives:**

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

- Summarize the concepts of food-for-education.
- Compare the objectives of different types of school-based interventions and assess the strengths and weaknesses of objectives that relate to nutrition outcomes.
- Debate whether school-feeding programs are nutrition-sensitive or nutrition-specific.

**Readings:**

- Bundy D, Burbano C, Grosh M, Gelli A, Jukes Matthew, Drake L (2009) *Rethinking School Feeding Social Safety Nets, Child Development, and the Education Sector*. Directions in Development. World Bank.
- Jomaa LH, McDonnell E, Probart C (2011) "School feeding programs in developing countries: impacts on children's health and educational outcomes." *Nutrition Reviews* 69(2):83-98.
- Masset E, Gelli A (2013) "Improving community development by linking agriculture, nutrition and education: design of a randomised trial of "home-grown" school feeding in Mali" *Trials* 14:55.

- Watkins KL, Gelli A, Hamdani S, Masset E, Mersch C, Nadazdin N, Vanhees J (2015) *Sensitive to nutrition? A literature review of school feeding effects in the child development lifecycle* HGSF Working Paper Series #16, HGSF PCD, London.

**Optional Reading:**

- WFP (2013) "Revised School Feeding Policy" Policy Issues. Executive Board Second Regular Session, 4-7 November 2013. WFP, Rome.

**Assignment:**

- Discussion board post
- Program Design Concept Note: Incorporating nutrition into program design

**Week 10:**

**Measurement challenges: M&E, impact, and cost-effectiveness**

**Objectives:**

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

- Explain the process of evaluating programs and policies for effectiveness, cost-effectiveness, and impact.
- Discuss common indicators used for nutrition-sensitive interventions.
- Defend the costs associated with sustainable long-term nutrition impacts.

**Readings:**

- Horton S, Shekar M, McDonald C, Mahal A, Brooks JK (2010) *Scaling Up Nutrition What Will It Cost?* The World Bank, Washington DC. *Chapters 3 and 4.*
- Horton S, Hoddinott J (2014) *Benefits and Costs of the Food and Nutrition Targets for the Post-2015 Development Agenda Post-2015 Consensus.* Food Security and Nutrition Perspective Paper. Copenhagen Consensus Center, Denmark.
- UNSCN (2015) *Nutrition Targets and Indicators for the Post-2015 Sustainable Development Goals Accountability for the Measurement of Results in Nutrition A Technical Note.* United Nations Standing Committee on Nutrition, Geneva.
- Horton S "Chapter 2: Economics of Nutritional Interventions" In: de Pee S et al (eds.) (2017) *Nutrition and Health in a Developing World.* Springer Science, NY.

**Optional Reading:**

- FAO (2016) *Compendium of indicators for nutrition-sensitive agriculture.* Food and Agriculture Organization of the United Nations, Rome.

**Assignment:**

- Discussion board post

### **Week 11:**

#### **Social Protection (conditional cash transfers, social welfare, safety nets, etc.)**

##### **Objectives:**

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

- Describe how social protection programmes hold the potential for sustainable improvements in nutrition outcomes.
- Explain how to incorporate specific nutrition goals and actions into social safety net programmes.
- Analyze success stories from countries who attained national positive nutrition outcomes through social protection programmes.

##### **Readings:**

- FAO (2015) Nutrition and Social Protection. Food and Agriculture Organization of the United Nations, Rome.
- Freeland N, Cherrier C (2015) Social protection and nutrition: Guidance Note, Australian Government, Department of Social Affairs and Trade.
- Alderman H (2015) Leveraging Social Protection Programs for Improved Nutrition *Summary of Evidence Prepared for the Global Forum on Nutrition-Sensitive Social Protection Programs*. The World Bank, Washington DC.
- Rocha C (2009) "Developments in National Policies for Food and Nutrition Security in Brazil" *Development Policy Review*, 27 (1): 51-66.

##### **Optional Reading:**

- Leão MM, Maluf RS (2012) *Effective Public Policies and Active Citizenship: Brazil's experience of building a Food and Nutrition Security System* Abrandh and Oxfam, Brazilia.

##### **Assignment:**

- Discussion board post

### **Week 12:**

#### **Sustainable Development Goals and multi-sectoral approaches**

##### **Objectives:**

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

- Analyze the synergies in working multi-sectorally in nutrition.
- Explain the role of political commitment in long-term pathways leading to improving nutrition.
- Assess different national-level policies to combat malnutrition by addressing underlying causes of malnutrition.
- Identify the main factors of success for these policies.

**Readings:**

- Mucha N (2012) "Implementing Nutrition-Sensitive Development: Reaching Consensus". Briefing Paper, Number 20, November 2012, Bread for the World.
- Gillespie S, Haddad L, Mannar V, Menon P, Nisbett N, and the Maternal and Child Nutrition Study Group (2013) "The politics of reducing malnutrition: building commitment and accelerating progress" *Lancet* 382: 552–69.
- World Bank (2013) *Improving Nutrition Through Multi-sectoral Approaches – Report*. The World Bank, Washington, DC.
- Webb P, Luo H, Gentilini U (2015) "Measuring multiple facets of malnutrition simultaneously: the missing link in setting nutrition targets and policymaking." *Food Sec.* DOI 10.1007/s12571-015-0450-0 (open access at Springerlink.com).

**Assignment:**

- Theory of change model (due) and program concept note assignment (given)

**Week 13:**

**Assignment on theory of change and concept note for the same program are presented through shared powerpoint presentations on the discussion board. Feedback on the presentations solicited from classmates.**