

NUTC 203: Malnutrition Prevention and Response

Fall 2023

Welcome to NUTC 203

I am excited to meet each of you and facilitate interesting discussions about nutrition programs in low- and middle-income countries. We will look at how different nutrition focused interventions can be linked to other public health and food systems work in order to improve individual nutritional status.

I believe that the diversity of student experiences and perspectives is essential to the deepening of knowledge in this course. I consider it part of my responsibility as an instructor to address the learning needs of all of the students in this course. I 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.

I am committed to supporting students' wellbeing, including their mental health, and remain open to providing additional time or resources in support of students' academic pursuits. I recognize that the past years of the pandemic and related stresses can disrupt learning for many and am always available to discuss any additional information in the most effective way for each individual.

Important Information:

Class Meetings: Online, Asynchronous

Instructor(s): Dr. Erin Boyd (she, her)
Erin.boyd@tufts.edu
Phone: 508-404-3408

Semester Hour Units: 3 SHU

Prerequisites: Graduate standing or instructor permission

Course Communications:

I appreciate hearing questions from students and welcome individual office hours, which can be scheduled by email.

Office Hours: By appointment

I have flexible availability for office hours, and am happy to meet and discuss course content assignments, or career paths at a mutually convenient time.

Course Summary:

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: Maternal Infant and Young Child Nutrition (MIYCN); 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 understand how to combine them to address malnutrition in low- and middle-income countries.

Course Goals:

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>)

How to be Successful in this Course:

Students are expected to respond to discussion boards and their classmate's posts in a timely manner, submit assignments when due unless a previous arrangement is made with the instructor. The key to success is to communicate often if there are any questions or changes. Asking questions and sharing experiences will further enable success in this course.

Assignments and Grading:

Assignments include weekly discussion board responses and three papers which build off one another. All assignments are posted on the Canvas site under the "Assignments" tab.

Lectures and Readings

Lectures are recorded by Dr. Boyd. Students are required to watch each lecture. Readings are focused on country specific examples and case studies to enhance learning.

Written Assignments

There are three written assignments that 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.

Discussion Board Postings

Discussion boards are intended to facilitate classroom discussion on specific international nutrition topics and controversies. There will be eight discussion board questions to respond to. These will be posted onto Canvas on Sunday. Students are expected to post a reflection to the discussion board question/topic based on the assigned article by Thursday night before midnight (by 11:59pm EST). The first posting should be by September 15th (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 initial response. You are also expected to respond to at least two of your classmates' postings. Adherence to these participation requirements will be tracked and I will provide general feedback each week. Students should submit assignments and respond to discussion boards on Canvas.

The following guidelines are used in evaluating course performance:

1. Assignments will be evaluated on the basis of completeness, originality, scientific soundness, and relevance to the assigned topic.
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. Participation in all class activities and discussions. Please seek extensions in writing if you cannot meet a deadline.
5. Grading for the course will be based on the below assignment schedule and point distribution below

Assignments	Due Date	% Of Total Grade
Discussion forum participation (first one due Sept 15)	Eight times out of the semester (2,3,5,7,9,10,11,12)	30
Assignment 1- Needs Assessment (1500 words)	October 14	20
Assignment 2- Program proposal development (defining objectives) (written paper, 1500 words)	November 18	20
Final- the final paper will build on Assignments 1 and 2 for a full proposal (maximum 2500 words)	December 9	30
Total		100

Grading Range:

Grade	Score	Grade	Score	Grade	Score
A+	98.50-100	B-	80-82.49	D+	67.50-69.99
A	92.50-98.49	C+	77.50-79.99	D	62.50-67.49
A-	90-92.49	C	72.50-77.49	D-	60-62.49
B+	87.50-89.99	C-	70-72.49	F	0-59.99
B	82.50-87.49				

A passing course grade at the Friedman School is a B- or better. At the Friedman School an A+ grade and an A grade are both calculated as 4.00 grade points in a student's grade point average.

Instructions for Submission of Assignments and Exams:

Discussion board postings should be made by Thursday 11:59pm EDT and responses to classmates by Saturday 11:59pm EDT. Written assignments are due by 11:59pm EDT on the due date via Canvas. 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.

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.

Academic Conduct:

You are responsible for upholding the highest standards of academic integrity, as specified in the Friedman School's Policies and Procedures Handbook located at this web page: <https://nutrition.tufts.edu/about/policies-and-procedures>, as well as Tufts University's policies (<https://students.tufts.edu/community-standards/support-resources/academic-integrity-resources>).

This includes understanding and avoiding plagiarism, which is defined as the unacknowledged use of someone else's published or unpublished work. It is the responsibility of each student to understand and comply with academic integrity standards, as violations will be sanctioned by penalties ranging from failure on an assignment and the course to dismissal from the school.

Accommodation of Disabilities:

We are committed to ensuring that all students have the resources and individual support that you need to succeed. 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.

Remote Participation:

- This course will be delivered online and asynchronously.

Technical Support:

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

- **Telephone:** (617) 627-3376
- **Email:** canvas@tufts.edu
- **Hours:** 24 hours a day, seven days a week.

When reporting a problem, please include:

- The name and number of your online course (NUTC 203)
- Your operating system and browser
- A detailed description of the problem

This information will expedite the troubleshooting process. If you are sending a support request via email, please use your Tufts email address. Many problems with Canvas are a result of using an unsupported browser. The most up to date versions of Firefox, Chrome, Edge, and Safari are acceptable.

Course Overview:

The course is organized on Canvas by weekly modules. All readings posted for the week they are assigned, and assignments posted in the order to complete them.

Course Overview:

DATE	WEEK	COURSE TOPIC	ACTIVITIES/ASSIGNMENTS
Sept 3-9	Week 1	Overview of nutritional risks in low and middle-income countries	
Sept 10-16	Week 2	Nutrition Metrics	Discussion board
Sept 17-23	Week 3	Fortification: Micronutrient Deficiency Prevention and Control Part 1	Discussion board
Sept 24-30	Week 4	Supplementation: Micronutrient Prevention and Control Part II	
Oct 1-7	Week 5	Infant and Young Child Feeding Part I- Breastfeeding and Complementary Feeding	Discussion board
Oct 8-14	Week 6	Infant and Young Child Feeding Part II- Approaches	Assignment 1 due October 14, LO 1,2
Oct 15-21	Week 7	Maternal nutrition	Discussion board
Oct 22-28	Week 8	Prevention and Treatment of acute malnutrition; Community Management of Acute Malnutrition (CMAM)	
Oct 29- Nov 4	Week 9	Simplified approaches in wasting treatment	Discussion board
Nov 5-11	Week 10	Packages to prevent undernutrition	Discussion board
Nov 12-18	Week 11	Preventing overweight and obesity	Assignment 2 due November 18, LO 2,3
Nov 19-25	Week 12	Community Health Workers in nutrition	Discussion board
Nov 26- Dec 2	Week 13	Monitoring and Evaluation	
	Finals		Final paper due December 9, LO 1,2,3,4

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

Topics, Assignments, and Learning Objectives for Each Class Session:

Week 1

Course topic: Overview of nutritional risks in low- and middle-income countries

Learning Objectives:

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

Required readings

- Global Nutrition Report, Executive summary, 2022
- Victora CG, Christian P, Vdaletti LP, Gatica-Domínguez G, Menon P, Black RE. Revisiting maternal and child undernutrition in low-income and middle-income countries: variable progress towards an unfinished agenda. *Lancet*. 2021 Apr 10;397(10282):1388-1399. doi: 10.1016/S0140-6736(21)00394-9. Epub 2021 Mar 7. PMID: 33691094; PMCID: PMC7613170.
- IFPRI, Food Inflation and Child Undernutrition in Low- and Middle-Income Countries, November 2022
- Headey, D. D. & Hirvonen, K. Food Inflation, Poverty, and Urbanization (IFPRI Discussion Paper No. XX. (The International Food Policy Research Institute, Washington DC, 2022).

Week 2

Course topic: Nutrition Metrics

Learning Objectives:

- Demonstrate nutrition data sources and consolidated products
- Explain the concepts of the results framework and the logical framework models
- Illustrate challenges with collected and analyzing nutrition data

Required Readings:

- UNICEF, WHO, World Bank, Joint Malnutrition Estimates, 2022
- Global Hunger Index (Synopsis), 2021
- de Quadros VP, Balcerzak A, Allemand P, de Sousa RF, Bever T, Arsenault J, Deitchler M, Holmes BA. Global Trends in the Availability of Dietary Data in Low and Middle-Income Countries. *Nutrients*. 2022; 14(14):2987. <https://doi.org/10.3390/nu14142987>

Assignments due: Discussion board posting

- Leroy JL, Frongillo EA. Perspective: What Does Stunting Really Mean? A Critical Review of the Evidence. *Adv Nutr*. 2019 Mar 1;10(2):196-204. doi: 10.1093/advances/nmy101. PMID: 30801614; PMCID: PMC6416038.

Week 3**Topic: Micronutrient Deficiency Prevention and Control, Fortification****Learning Objectives:**

- Explain large scale food fortification approaches to address various micronutrient deficiencies
- Critique large scale food fortification in low- and middle-income countries
- Analyze home-based fortification approaches

Required Readings:

- Keats EC, Neufeld LM, Garrett GS, Mbuya MNN, Bhutta ZA. Improved micronutrient status and health outcomes in low- and middle-income countries following large-scale fortification: evidence from a systematic review and meta-analysis. *Am J Clin Nutr.* 2019 Jun 1;109(6):1696-1708. doi: 10.1093/ajcn/nqz023. PMID: 30997493; PMCID: PMC6537942.
- 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.
- Tang, K., Adams, K.P., Ferguson, E.L., Woldt, M., Kalimbira, A.A., Likoswe, B., Yourkavitch, J., Chrisinger, B., Pedersen, S., Segovia De La Revilla, L., Dary, O., Ander, E.L. and Joy, E.J.M. (2022), Modeling food fortification contributions to micronutrient requirements in Malawi using Household Consumption and Expenditure Surveys. *Ann. N.Y. Acad. Sci.*, 1508: 105-122. <https://doi.org/10.1111/nyas.14697>

Assignments due: Discussion board posting

- Kairiza T, Kembo G, Pallegedara A, Macheka L. The impact of food fortification on stunting in Zimbabwe: does gender of the household head matter? *Nutr J.* 2020 Mar 23;19(1):22. doi: 10.1186/s12937-020-00541-z. PMID: 32204711; PMCID: PMC7092424.

Week 4**Topic: Micronutrient Prevention and Control, Supplementation****Learning Objectives:**

- Describe different supplementation products and approaches to address multiple micronutrient deficiencies through the health system

Required readings:

- UNICEF. *Coverage at a crossroads: new directions for vitamin A supplementation programmes*. New York, 2018. (Chapters 1,2,4)
- Islam MM, Black RE, Krebs NF, Westcott J, Long J, Islam KM, Pearson JM, Sthity RA, Khandaker AM, Hasan M, El Arifeen S, Ahmed T, King JC, McDonald CM. Different Doses, Forms, and Frequencies of Zinc Supplementation for the Prevention of Diarrhea and Promotion of Linear Growth among Young

Bangladeshi Children: A Six-Arm, Randomized, Community-Based Efficacy Trial. *J Nutr.* 2022 May 5;152(5):1306-1315. doi: 10.1093/jn/nxab439. PMID: 35015856.

- Lassi ZS, Kedzior SG, Tariq W, Jadoon Y, Das JK, Bhutta ZA. Effects of Preconception Care and Periconception Interventions on Maternal Nutritional Status and Birth Outcomes in Low- and Middle-Income Countries: A Systematic Review. *Nutrients.* 2020 Feb 26;12(3):606. doi: 10.3390/nu12030606. PMID: 32110886; PMCID: PMC7146400.
- Ouédraogo, O., Zeba, A., Kaboré, S., Berthé, A., Drabo, K., Ouaro Dabiré, D., Zagré, N. (2022). Acceptance and challenges of the introduction of the routine community-based vitamin A supplementation strategy: The case of Burkina Faso. *Public Health Nutrition*, 25(5), 1355-1364. doi:10.1017/S1368980022000283

Week 5

Topic: Infant and Young Child Feeding Part I- Breastfeeding and Complementary Feeding Evidence

Learning Objectives:

- Synthesize evidence on the importance of exclusive and continued breastfeeding, as well as good complementary feeding
- Identify key time periods in the lifecycle during which to reach mothers and children

Required Readings:

- Victora, Cesar G et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect (2016), *The Lancet*, Volume 387, Issue 10017, 475 – 490
- UNICEF, 2016, *From the First Hour of Life*
- UNICEF, 2021, *Fed to Fail*

Assignments due: Discussion board posting

- Burrell A, Kueter AM, Ariful S, Rahaman H, Iellamo A, Mothabbir G. Appropriate Infant and Young Child Feeding Practices in an Emergency for Non-Breastfed Infants Under Six Months: The Rohingya Experience. *J Hum Lact.* 2020 Aug;36(3):510-518. doi: 10.1177/0890334420906838. Epub 2020 Mar 13. PMID: 32167844.

Week 6

Topic: Infant and Young Child Feeding Part II- Approaches

Learning Objectives:

- Illustrate policies that can be implemented in support of optimal infant and young child nutrition
- Demonstrate the different modalities through which to support infant and young child feeding
- Critique different Infant and Young Child Feeding intervention approaches

Required Readings:

- Vilar-Compte, M., et al. "Interventions and Policy Approaches to Promote Equity in Breastfeeding." *International Journal for Equity in Health*, vol. 21, no. 1, 2022, pp. 63–63, <https://doi.org/10.1186/s12939-022-01670-z>.

- Shakya P, Kunieda MK, Koyama M, Rai SS, Miyaguchi M, Dhakal S, et al. (2017) Effectiveness of community-based peer support for mothers to improve their breastfeeding practices: A systematic review and meta-analysis. PLoS ONE 12(5): e0177434. <https://doi-org.ezproxy.library.tufts.edu/10.1371/journal.pone.0177434>
- Samaniego, Jyn Allec R., et al. "Implementation and Effectiveness of Policies Adopted to Enable Breastfeeding in the Philippines Are Limited by Structural and Individual Barriers." *International Journal of Environmental Research and Public Health*, vol. 19, no. 17, 2022, p. 10938–, <https://doi.org/10.3390/ijerph191710938>.
- Topothai C, Topothai T, Suphanchaimat R, Waleewong O, Putthasri W, Patcharanarumol W, Tangcharoensathien V. Exclusive Breastfeeding Experiences of Thai Mothers in Metropolitan Bangkok. *Int J Womens Health*. 2022 Feb 9;14:155-166. doi: 10.2147/IJWH.S344389. PMID: 35173490; PMCID: PMC8842719.

Assignments due: Assignment 1

Week 7

Topic: Maternal nutrition

Learning Objectives:

- Synthesize evidence on maternal nutrition in relation to both women and children
- Demonstrate different approaches to improved maternal nutritional status
- Analyze child outcomes impacted by maternal nutrition

Required Readings:

- Zulfiqar A Bhutta, Balancing the benefits of maternal nutritional interventions; time to put women first!, *The American Journal of Clinical Nutrition*, Volume 109, Issue 2, February 2019, Pages 249–250
- Keats EC, Das JK, Salam RA, Lassi ZS, Imdad A, Black RE, Bhutta ZA. Effective interventions to address maternal and child malnutrition: an update of the evidence. *Lancet Child Adolesc Health*. 2021 May;5(5):367-384. doi: 10.1016/S2352-4642(20)30274-1. Epub 2021 Mar 7. PMID: 33691083.
- Christian P, Smith ER, Zaidi A. Addressing inequities in the global burden of maternal undernutrition: the role of targeting. *BMJ Glob Health*. 2020;5(3):e002186. Published 2020 Mar 18. doi:10.1136/bmjgh-2019-002186
- Hambidge KM, Westcott JE, Garcés A, Figueroa L, Goudar SS, Dhaded SM, Pasha O, Ali SA, Tshetu A, Lokangaka A, Derman RJ, Goldenberg RL, Bose CL, Bauserman M, Koso-Thomas M, Thorsten VR, Sridhar A, Stolka K, Das A, McClure EM, Krebs NF; Women First Preconception Trial Study Group. A multicountry randomized controlled trial of comprehensive maternal nutrition supplementation initiated before conception: the Women First trial. *Am J Clin Nutr*. 2019 Feb 1;109(2):457-469. doi: 10.1093/ajcn/nqy228. PMID: 30721941; PMCID: PMC6367966.

Assignments due: Online discussion board

- Yaya S, Wang R, Tang S, Ghose B. Intake of supplementary food during pregnancy and lactation and its association with child nutrition in Timor Leste. *PeerJ*. 2018 Nov 15;6:e5935. doi: 10.7717/peerj.5935. PMID: 30479899; PMCID: PMC6240437.

Date: Week 8

Topic: Treatment of Wasting

Learning 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:

- Trehan I, Bassat Q. The Unbearable Lightness of Being Malnourished: Severe Acute Malnutrition Remains a Neglected Tropical Disease. *J Trop Pediatr*. 2018 Jun 1;64(3):169-173. doi: 10.1093/tropej/fmx103. PMID: 29315432.
- Cost-effectiveness of community-based screening and treatment of moderate acute malnutrition in Mali Isanaka S, et al. *BMJ Glob Health* 2019;4:e001227. doi:10.1136/bmjgh-2018-001227
- ENN, Wasting Reset Synthesis (August 2021)
- Das JK, Salam RA, Saeed M, Kazmi FA, Bhutta ZA. Effectiveness of Interventions for Managing Acute Malnutrition in Children under Five Years of Age in Low-Income and Middle-Income Countries: A Systematic Review and Meta-Analysis. *Nutrients*. 2020 Jan 1;12(1):116. doi: 10.3390/nu12010116. PMID: 31906272; PMCID: PMC7019612.
- Aguayo VM, Badgaiyan N, Qadir SS, Bugti AN, Alam MM, Nishtar N, Galvin M. Community management of acute malnutrition (CMAM) programme in Pakistan effectively treats children with uncomplicated severe wasting. *Matern Child Nutr*. 2018 Nov;14 Suppl 4(Suppl 4):e12623. doi: 10.1111/mcn.12623. PMID: 30499254; PMCID: PMC6866122.

Week 9

Topic: Simplified Approaches to Wasting Treatment

Learning 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
- 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

Assignments due: Discussion board posting

- Cazes C, Phelan K, Hubert V, Boubacar H, Bozama LI, Sakubu GT, Tshiala BK, Tusuku T, Alitanou R, Kouamé A, Yao C, Gabillard D, Kinda M, Daures M, Augier A, Anglaret X, Shepherd S, Becquet R. Simplifying and optimising the management of uncomplicated acute malnutrition in children aged 6-59 months in the Democratic Republic of the Congo (OptiMA-DRC): a non-inferiority, randomised controlled trial. *Lancet Glob Health*. 2022 Apr;10(4):e510-e520. doi: 10.1016/S2214-109X(22)00041-9. Erratum in: *Lancet Glob Health*. 2022 May;10(5):e626. PMID: 35303461.

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

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

Required Readings:

- Akseer, Nadia, et al. "Understanding Multifactorial Drivers of Child Stunting Reduction in Exemplar Countries: a Mixed-Methods Approach." *The American Journal of Clinical Nutrition*, vol. 112, no. Supplement_2, 2020, p. 792S–805S, <https://doi.org/10.1093/ajcn/nqaa152>.
- Akseer, Nadia, et al. "Economic Costs of Childhood Stunting to the Private Sector in Low- and Middle-Income Countries." *EClinicalMedicine*, vol. 45, 2022, pp. 101320–101320, <https://doi.org/10.1016/j.eclinm.2022.101320>.
- Bhutta, Zulfiqar A., et al. "How Countries Can Reduce Child Stunting at Scale: Lessons from Exemplar Countries." *The American Journal of Clinical Nutrition*, vol. 112, no. Supplement_2, 2020, p. 894S–904S, <https://doi.org/10.1093/ajcn/nqaa153>.
- Conway, Kaitlin, et al. "Drivers of Stunting Reduction in Nepal: a Country Case Study." *The American Journal of Clinical Nutrition*, vol. 112, no. Supplement_2, 2020, p. 844S–859S, <https://doi.org/10.1093/ajcn/nqaa218>.

Assignments due: Discussion board posting

- Perumal, Nandita, et al. "Use and Misuse of Stunting as a Measure of Child Health." *The Journal of Nutrition*, vol. 148, no. 3, 2018, pp. 311–15, <https://doi.org/10.1093/jn/nxx064>.

Week 11: Nutrition Transition, addressing overweight and obesity**Objectives:**

- Explain the issue of the double burden of disease
- Analyze the causes and consequences of rising levels of overweight and obesity in low- and middle-income countries
- Summarize strategies to prevent overweight and obesity in low- and middle-income countries

Required Readings:

- WHO, The Double Burden of Malnutrition, Policy Brief (2017).
- Nugent R, Levin C, Hale J, Hutchinson B. Economic effects of the double burden of malnutrition. *Lancet*. 2020 Jan 11;395(10218):156-164. doi: 10.1016/S0140-6736(19)32473-0. Epub 2019 Dec 15. PMID: 31852601.
- UNICEF. *UNICEF programming guidance: Prevention of overweight and obesity in children and adolescents*. New York: UNICEF, 2019.
- Reyes Matos, U., Mesenburg, M.A. & Victora, C.G. Socioeconomic inequalities in the prevalence of underweight, overweight, and obesity among women aged 20–49 in low- and middle-income countries. *Int J Obes* **44**, 609–616 (2020). <https://doi.org/10.1038/s41366-019-0503-0>

Assignments due: Assignment 2, Discussion board posting

- Correa, T., Fierro, C., Reyes, M. *et al.* “Responses to the Chilean law of food labeling and advertising: exploring knowledge, perceptions and behaviors of mothers of young children”. *Int J Behav Nutr Phys Act* **16**, 21 (2019). <https://doi.org/10.1186/s12966-019-0781-x>

Week 12:**Topic: Community Health Workers in nutrition****Learning Objectives:**

- Analyze different community based public health networks
- Describe challenges using community health workers
- Describe challenges impacting community health workers’ performance

Required Readings:

- Yousafzai, Aisha K., et al. “Effect of Integrated Responsive Stimulation and Nutrition Interventions in the Lady Health Worker Programme in Pakistan on Child Development, Growth, and Health Outcomes: a Cluster-Randomised Factorial Effectiveness Trial.” *The Lancet (British Edition)*, vol. 384, no. 9950, 2014, pp. 1282–93, [https://doi.org/10.1016/S0140-6736\(14\)60455-4](https://doi.org/10.1016/S0140-6736(14)60455-4).

- Swanson, Vivien, et al. "Enhancing Behavior Change Skills in Health Extension Workers in Ethiopia: Evaluation of an Intervention to Improve Maternal and Infant Nutrition." *Nutrients*, vol. 13, no. 6, 2021, p. 1995–, <https://doi.org/10.3390/nu13061995>.
- Dagne, Samuel, et al. "Determinants of Growth Monitoring and Promotion Service Utilization Among Children 0–23 Months of Age in Northern Ethiopia: Unmatched Case-Control Study." *BMC Nutrition*, vol. 7, no. 1, 2021, pp. 1–67, <https://doi.org/10.1186/s40795-021-00470-y>.

Assignments due: Discussion board posting

- Abebe, Zeweter, et al. "Health Extension Workers' Knowledge and Knowledge-Sharing Effectiveness of Optimal Infant and Young Child Feeding Are Associated With Mothers' Knowledge and Child Stunting in Rural Ethiopia." *Food and Nutrition Bulletin*, vol. 37, no. 3, 2016, pp. 353–63, <https://doi.org/10.1177/0379572116651209>.

Week 13

Topic: Monitoring and Evaluation

Learning 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:

- Dehnavieh R, Haghdooost A, Khosravi A, Hoseinabadi F, Rahimi H, Poursheikhali A, Khajehpour N, Khajeh Z, Mirshekari N, Hasani M, Radmerikhi S, Haghighi H, Mehrolhassani MH, Kazemi E, Aghamohamadi S. The District Health Information System (DHIS2): A literature review and meta-synthesis of its strengths and operational challenges based on the experiences of 11 countries. *Health Inf Manag*. 2019 May;48(2):62-75. doi: 10.1177/1833358318777713. Epub 2018 Jun 13. PMID: 29898604.
- Rowena V. Viajar, Julieta B. Dorado, Emily O. Rongavilla, Georgina S. Caraig, Joanne Jette S. Gulay, Monitoring the implementation of nutrition intervention at the local level, *Evaluation and Program Planning*, Volume 91, 2022, 102047, ISSN 0149-7189, <https://doi.org/10.1016/j.evalprogplan.2022.102047>.

Assignments due: None (Final assignment due December 9th)