

# **FNH 455: Applied International Nutrition**

## **Course Syllabus**



**Instructor:** Crystal Karakochuk, PhD, RD  
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**Class Time:** Tuesdays and Thursdays 12:30-2:00

**Location:** Food Nutrition and Health (FNH) Room 60  
2205 East Mall, UBC

**Office Hours:** FNH Room 216  
Wednesday 10:00-12:30 (or by appointment)

**Teaching Assistants:** Kaitlyn Samson – [kaitlyn.samson@ubc.ca](mailto:kaitlyn.samson@ubc.ca)  
Shannon Steele – [shannon.steele@ubc.ca](mailto:shannon.steele@ubc.ca)

### **Course Description:**

The aim of this course is to provide a critical examination of nutrition interventions in the global health context. Students are required to actively participate in discussions and to work in teams to apply learned knowledge and complete an international nutrition intervention proposal.

### **Course Format:**

Course content will be delivered via in-class lectures, guest speakers, and required readings. Evaluation is based on assignments (individual and team-based), a midterm exam, and participation. The first-half of the course will focus on the critical analysis of current nutrition interventions in the global health context. The midterm (February 15<sup>th</sup>) will evaluate students learning based on all content (lectures, guest speakers, readings) up until the date of February 13<sup>th</sup>. The second half of the course will focus on application of learned knowledge of nutrition interventions to complete an international nutrition intervention proposal (teams and country will be assigned by the Instructor on January 18<sup>th</sup>). There is no final exam. The course will be delivered via UBC's new online learning platform called Canvas: <http://students.canvas.ubc.ca/>

### **Learning Objectives:**

- To demonstrate an understanding of current nutrition-specific and nutrition-sensitive interventions in low-resource countries.
- To critically examine the scientific evidence supporting current nutrition interventions, and to also understand the gaps in and limitations of the evidence.
- To appreciate the complex challenges of monitoring and evaluation of nutrition interventions in low-resource countries.
- To become familiar with global guidelines and policies regarding micronutrient supplementation and fortification in low-resource countries.
- To become familiar with specialized nutrition products and food aid products used globally.
- To integrate and apply learned knowledge throughout the duration of the course via the development of an international nutrition intervention proposal.

### **Evaluation:**

	<b>% of Final Grade</b>	<b>Important Dates/Deadlines</b>
<b>Individual Assignments</b>		
▪ Controversial commentary - 'Your perspective'	15%	February 8
<b>Exams</b>		
▪ Midterm exam	25%	February 15
<b>Team Assignments: Nutrition Intervention Proposal</b>		
▪ Concept note	10%	March 5
▪ In-class presentation	10%	Mar 20, 22, 27 & 29, Apr 3
▪ Final written report	25%	April 9
▪ Infographic	10%	April 3
<b>Participation</b>		
▪ Self-graded and instructor-graded mark	5%	April 5

## **Details of assignments and evaluation:**

### **Individual Assignment: Controversial Commentary - 'Your Perspective' (due February 8<sup>th</sup>)**

This assignment is an opportunity to reflect on a current controversial topic in international nutrition. Student's will choose one of four possible topics and provide an evidence-based and thoughtful argument to support one side of the debate:

1. Should we be focusing our resources more on the prevention or treatment of malnutrition globally (if you could only pick one)?
2. Should funding for nutrition interventions be sent to governments with documented evidence of corruption?
3. Should we be continuing to recommend universal iron supplementation to women in low-resource countries where we know iron deficiency is not a major cause of the anemia?
4. Should we be following country-specific government demands for only genetically modified organism-free (GMO-free) food aid and agricultural inputs?

Aim to deliver a clear, concise message in your commentary. It is focused on your personal perspective, there is no right or wrong answer, but it needs to be supported by evidence (a minimum of five referenced publications, excluding any that are included in the course reading list). Use 'why' or 'why not' to guide your response.

Length and formatting: 4-page max (not including the reference list), using Times New Roman font size 12, with 1.5 line spacing. Leave 2-cm margins on all sides. Please include your name, student ID, and title of your commentary on the submitted document.

References: Consecutively number references in the order in which they are first mentioned in the text. Use superscript numbers to cite a reference in the text. Only list the first author, followed by *et al.* if more than one author is named. Examples below:

In the text: "...hemoglobin concentration was adjusted for altitude based on cut-offs proposed by Sullivan *et al.*<sup>14</sup>..."

In the reference list:

14. Sullivan KM, et al. Haemoglobin Adjustments to Define Anaemia. Tropical Medicine and International Health 2008; 13(10): 1267-71.

The commentary will be evaluated out of 75 marks based on the following criteria:

- Overall impression (/20 marks): A clear, concise message is delivered on the student's personal perspective. Material was easy to follow, enjoyable to read, and educational.
- Evidence-based argument (/35 marks): The argument is supported by appropriate evidence (min of five references).
- Organization (/20 marks): Material was presented in an organized manner. References are cited correctly. Structure, grammar, and writing style are strong and without errors.

Submission: Upload your PDF on Canvas by February 8<sup>th</sup> before midnight. Late submissions will not be accepted.

## **Midterm Exam (on February 15<sup>th</sup>)**

The in-class midterm will consist of multiple-choice, matching, short-answer, and long-answer questions focused on content from January 4<sup>th</sup> to February 13<sup>th</sup> (inclusive). Examinable content includes lecture presentations and discussions (both instructor and guest speakers), and required readings. All presentations will be posted on Canvas within the week of delivery. Required readings are listed on the UBC library course reserve (you need to be on the UBC network to access library course reserve) or posted in the Module section of Canvas. You will have 75 minutes to complete the in-class exam. Please use a blue or black pen (no pencils or other colored ink).

## **Team Assignments: Applied Nutrition Intervention Proposal**

Students will be randomly assigned to one of 12 teams (assigned by Instructor by January 18<sup>th</sup>). Each team will be assigned a country or region of the world in which they will focus their team proposal. The team will work together to conduct a situational analysis of the country/region and identify a programmatic need or gap in which they will propose a nutrition intervention. There are four assignments that each team will complete (each team will submit one assignment on behalf of the whole group). It is expected that all members of the team will contribute equally.

### **Concept note (due March 5<sup>th</sup>):**

After completing the situational analysis of the country/region, students will draft a concept note that summarizes the findings of their situational analysis, identifies a programmatic need or gap in the country/region, and proposes a nutrition intervention to address that need or gap. It is important to be concise and specific in your concept note, so that it is clear what the team proposes to achieve with their nutrition intervention.

The concept note should include the following sections: background (findings of the situational analysis), the programmatic need or gap (what is the current problem?), the proposed nutrition intervention (with details of the targeted population, aims and objectives of the proposed intervention, methods, monitoring and evaluation plan), and a reference list. More details on the content of these sections will be provided in class.

Length and formatting: 3-page max (not including the reference list), using Times New Roman font size 12, with 1.5 line spacing. Leave 2-cm margins on all sides. Please include team number, assigned country/region, and title of your project on the submitted document.

References: Consecutively number references in the order in which they are first mentioned in the text. Use superscript numbers to cite a reference in text. Only list the first author, followed by *et al.* if more than one author is named. Follow the example above (as for the previous assignment).

The concept note will be evaluated out of 100 marks based on the following criteria:

- Overall impression (/20 marks): Material was presented in an interesting manner, which was easy to follow, enjoyable to read, and educational.
- Knowledge and content (/60 marks): Demonstrated knowledge and understanding of key issues. Application of material learned from class lectures, guest speakers and readings. Recommended nutrition intervention is evidence-based, appropriate, and reasonable. Clear use of sections as outlined above.
- Organization (/20 marks): Formatting guidelines were followed and material was organized. References are cited correctly. Structure, grammar, and writing style are strong and without errors.

Submission: Upload your PDF on Canvas by **March 5<sup>th</sup>** before midnight. Late submissions will not be accepted.

**In-class presentation (on March 20<sup>th</sup>, 22<sup>nd</sup>, 27<sup>th</sup>, 29<sup>th</sup> or April 3<sup>rd</sup> depending on team number):**

Each team will give an oral presentation summarizing their applied nutrition proposal. Each presentation will be 20 minutes in length (with an additional 5 minutes for questions/discussion). Please use Power point or Keynote slides. Each team member is expected to contribute to the oral presentation (you may consider having different team members present different sections) and to respond to audience/instructor questions.

The presentation will be evaluated out of 100 marks based on the following criteria:

- Overall impression (/20 marks): Material was presented in an organized and interesting manner, which was easy to follow, enjoyable, and educational.
- Knowledge and content (/60 marks): Demonstrated knowledge and understanding of key issues. Application of material learned from class lectures, guest speakers and readings. Recommended nutrition intervention is evidence-based, appropriate, and reasonable. Team is able to respond well to questions asked by the audience/instructor.
- Communication (/20 marks): Presentation was clear and understandable. Appropriate text size was used (can be read from the back of the class), slides were not over-loaded with text, photos were appropriate and relevant, references were cited appropriately, and presenters made eye contact with the class.

Presentation date: depends on team number and country/region (assigned January 18<sup>th</sup>).

**Final written report (due April 9<sup>th</sup>):**

The final report should include the following sections: background (situational analysis), the programmatic need or gap (what is the current problem?), the proposed nutritional intervention (with details of the targeted population, aims and objectives of the proposed intervention, detailed timeline, methods, monitoring and evaluation plan, training plan, and knowledge translation plan), and a reference list. More details on the content of these sections will be provided in class.

Length and formatting: 15-page max (includes all figures, tables, sections, and appendices, but not the reference list), using Times New Roman font size 12, with 1.5 line spacing. Leave 2-cm margins on all sides. Please include team number, country/region, and a title on the submitted document.

References: Consecutively number references in the order in which they are first mentioned in the text. Use superscript numbers to cite a reference in text. Only list the first author, followed by *et al.* if more than one author is named. Follow the example above (as for the previous assignment).

The final written report will be evaluated out of 100 marks based on the following criteria:

- Overall impression (/10 marks): Material was presented in an organized and interesting manner, which was easy to follow, enjoyable to read, and educational.
- Background/Situational analysis (/20 marks): Situation analysis was comprehensive, current, and concisely summarized. Analysis shows a solid understanding of the current nutritional situation of the country/region.
- Programmatic need or gap (/15 marks): A programmatic need or gap is clearly identified.
- Proposed nutrition intervention (/40 marks): Application of material learned from class lectures, guest speakers and readings re: the intervention selected. Recommended nutrition intervention is clear, evidence-based, appropriately detailed, and reasonable.
- Organization (/15 marks): Formatting guidelines were followed. References are appropriate and are cited correctly. Structure, grammar, and writing style are strong and without errors.

Submission: Upload your PDF on Canvas by **April 9<sup>th</sup>** before midnight. Late submissions will not be accepted.

### **Infographic (due April 3<sup>rd</sup>):**

Each team will create one infographic to provide a visual representation of their proposed nutrition intervention. Graphic illustrations of information should be used to convey most information (with minimal use of text).

The Land and Food Systems Learning Commons will be present instructions in-class on March 1<sup>st</sup> on how to create an effective infographic. Infographics will be displayed in the FNH Foyer during the end of class celebration on April 5<sup>th</sup>. Judges will be selected to grade the infographics based on a structured rubric. The rubric for evaluation will be shared with students on March 1<sup>st</sup>.

Size and formatting: Approximately **30 x 36 inches (horizontal or vertical)**. Please include the names of students on your team, the assigned country/region, and the title of your proposed intervention on the submitted document.

Submission: **Upload a PDF of your infographic on Canvas by April 3<sup>rd</sup> before midnight. Late submissions will not be accepted. We will print the infographic for you and we will bring to class on April 5<sup>th</sup> for display.**

### **Participation (due April 5<sup>th</sup>)**

Your participation in class is an important aspect of this course. You can participate in a variety of ways: attending class, asking questions in class, making comments in class, or posting questions or responses to questions on the online blog. Evaluation of your participation will be made by both the student and instructor.

Submit your self-graded mark along with a written justification why you feel you deserve that mark. I will also grade your participation based on my own assessment of your participation (in class and online). Although I would like to review your justification and self-graded mark, I will have the final decision on the final mark for participation.

Length and formatting: 1-page max, using Times New Roman font size 12, with 1.5 line spacing. Leave 2-cm margins on all sides. Please include your name and student ID on the submitted document.

Submission: Upload your PDF on Canvas by April 5<sup>th</sup> before midnight. Late submissions will not be accepted.

### **Additional Course Expectations**

- Class attendance, participation, and team work is expected.
- Please contact the TAs if you need help or have questions. If needed, the TAs can seek my help on any issues or questions they cannot address. Otherwise, please see me during my office hours (for course help, career planning, reference requests, etc.) or email me to schedule a time to meet.
- Please be familiar with UBC's regulations on academic misconduct and plagiarism, including disciplinary rules: <http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,54,111,959>. This applies to all aspects of FNH 455 (individual and team-based assignments, exams, etc).

**\*Tentative\* schedule of class dates, topics, and readings:**

Date:	Topic:	Readings:
Class 1: Thursday Jan 4 <sup>th</sup>	<b>Introduction and Overview of Nutrition Interventions in the Global Context</b>	<p>Chapter 1: <i>The importance of the first 1,000 days: An epidemiological perspective.</i> McDonald CM &amp; Thorne-Lyman AL. <b>The Biology of the First 1,000 Days</b>, Taylor and Francis text. (<a href="#">Found in the Module</a>)</p> <p>Multi-sectoral approaches to nutrition and the UNICEF conceptual framework of malnutrition. Online: <a href="https://www.unicef.org/eapro/Brief_Nutrition_Overview.pdf">https://www.unicef.org/eapro/Brief_Nutrition_Overview.pdf</a></p>
Class 2: Tuesday Jan 9 <sup>th</sup>	<b>Micronutrients I: Iron</b>	<p>*Paganini D, et al. <i>The effects of iron fortification and supplementation on the gut microbiome and diarrhea in infants and children: A review.</i> American Journal of Clinical Nutrition 2017; 106(Suppl): 1688S-93S.</p> <p>Chapter 8: <i>Neural tube defects: Mechanisms of folate.</i> Molloy AM. <b>The Biology of the First 1,000 Days</b>, Taylor and Francis text. (<a href="#">Found in the Module</a>)</p>
Class 3: Thursday Jan 11 <sup>th</sup>	<b>Anemia: Measurement of Hemoglobin Concentration</b>  <b>Case study and in-class lab:</b> Use of the HemoCue for Hemoglobin Measurement	<p>*Sullivan KM, et al. <i>Haemoglobin adjustments to define anaemia.</i> Tropical Medicine and International Health 2008; 13(10): 1267-71.</p>
Class 4: Tuesday Jan 16 <sup>th</sup>	<b>Anemia: Programs for Treatment and Prevention</b>  <b>Case Study:</b> WHO Policy for Daily Iron Supplementation in Anemic Populations	<p>*Karakochuk CD, et al. <i>The effect of oral iron with or without multiple micronutrients on hemoglobin concentration and hemoglobin response among nonpregnant Cambodian women of reproductive age.</i> American Journal of Clinical Nutrition 2017; 106: 233-44.</p> <p>*Bhutta ZA, et al. <i>Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost?</i> Lancet 2013; S0140-6736(13). (Reference paper only)</p>
Class 5: Thursday Jan 18 <sup>th</sup>	<b>Fortification (Folate Focus)</b>  E-lecture: Dr. Helena Pachon, Food Fortification Initiative, Emory University  *Assignment of teams and country/region	<p>Martorell R, et al. <i>Components of successful staple food fortification programs: Lessons from Latin America.</i> Food and Nutrition Bulletin 2017; 1-21.</p> <p>Pacheco Santos LM et al. <i>Prevention of neural tube defects by the fortification of flour with folic acid: A population-based retrospective study in Brazil.</i> Bulletin of the WHO 2016; 94: 22-29. (Reference paper only)</p>
Class 6: Tuesday Jan 23 <sup>rd</sup>	<b>Novel Fortification Approaches</b>	*Whitfield KC, et al. <i>Perinatal consumption of thiamin-fortified fish sauce in rural Cambodia: A randomized clinical trial.</i> JAMA Pediatrics 2016; 170(10): e162065.

	<b>Guest speaker: Dr. Kyly Whitfield, Assistant Professor, Mount Saint Vincent University</b>	
Class 7: Thursday Jan 25 <sup>th</sup>	<b>Acute Malnutrition and Emergency Nutrition</b>  <b>Case study: WFP specialized nutrition products</b>	2007 Joint statement of WHO/WFP/UNICEF/SCN on the community-based management of severe acute malnutrition ( <a href="#">Found in the Module</a> )  WFP Specialized Products sheet ( <a href="#">Found in the Module</a> )
Class 8: Tuesday Jan 30 <sup>th</sup>	<b>Micronutrients II: Zinc</b>	*Becquey E, et al. <i>Comparison of preventative and therapeutic zinc supplementation in young children in Burkina Faso: A cluster-randomized, community-based trial.</i> Journal of Nutrition 2016; 146(10): 2058-66.
Class 9: Thursday Feb 1 <sup>st</sup>	<b>Agriculture for Nutrition</b>  Guest speaker: Kristina Michaux, UBC International Nutritionist (Homestead food production in Cambodia)	Chapter 25: <i>Nutrition-sensitive interventions for the first 1,000 days.</i> Fanzo J & Swartz H. <b>The Biology of the First 1,000 Days</b> , Taylor and Francis text. ( <a href="#">Found in the Module</a> )
Class 10: Tuesday Feb 6 <sup>th</sup>	<b>Chronic Malnutrition (Stunting)</b>  <b>Review and discussion:</b> How to prepare for the midterm	None
Class 11: Thursday Feb 8 <sup>th</sup>	<b>Pediatric Infectious Disease</b>  Guest speaker: Dr. Dave Goldfarb, BC Children's Hospital  <b>Assignment due:</b> Controversial Commentary	*Owino V, et al. <i>Environmental enteric dysfunction and growth failure/stunting in global child health.</i> Pediatrics 2016; 138(6).
Class 12: Tuesday Feb 13 <sup>th</sup>	<b>Novel Assessment of Vitamin B12 Status</b>  Guest speaker: Dr. Theresa Schroder, Molecular You	None
Class 13: Thursday Feb 15 <sup>th</sup>	<b>Midterm Exam (in-class)</b>	None
Feb 19 <sup>th</sup> - 23 <sup>rd</sup>	Reading Break	

Class 14: Tuesday Feb 27 <sup>th</sup>	<b>Focused Group Project Work Day</b>	None
Class 15: Thursday Mar 1 <sup>st</sup>	<b>Creating an Infographic</b>  Guest speaker: UBC LFS Learning Commons – Duncan McHugh	Infographic examples ( <a href="#">Found in the Module</a> )
Thursday Mar 5 <sup>th</sup>	<b>Assignment due:</b> Concept note	
Class 16: Tuesday Mar 6 <sup>th</sup>	<b>Current Research in International Nutrition</b>  Guest speakers: Kaitlyn Samson and Shannon Steele, UBC MSc Candidates	None
Class 17: Thursday Mar 8 <sup>th</sup>	<b>Focused Group Project Work Day</b>	None
Class 18: Tuesday Mar 13 <sup>th</sup>	<b>Micronutrient status of women and children in the DRC</b>  Guest speakers: Tim Green, South Australian Health and Medical Research Institute, Adelaide, Australia; and Jen Foley, HarvestPlus, Washington, DC, USA	*Bouis HE, et al. <i>Improving nutrition through biofortification: A review of evidence from HarvestPlus, 2003 through 2016</i> . Global Food Security 2017; 12:49-58.
Class 19: Thursday Mar 15 <sup>th</sup>	<b>Focused Group Project Work Day</b>	
Class 20: Tuesday Mar 20 <sup>th</sup>	<b>Group presentations</b> (1, 2, and 3)	None
Class 21: Thursday Mar 22 <sup>th</sup>	<b>Group presentations</b> (4, 5, and 6)	None
Class 22: Tuesday Mar 27 <sup>th</sup>	<b>Group presentations</b> (7, 8, and 9)	None

Class 23: Thursday Mar 29 <sup>th</sup>	<b>Group presentations</b> (10, 11, and 12)	None
Class 24: Tuesday Apr 3 <sup>rd</sup>	<b>Group presentations</b> (13)  Guest speaker: Aviva Rappaport, Centre for Global Child Health, Toronto (Lucky Iron Fish in Cambodia)  <b>Assignment Due:</b> Submit PDF of Infographic	TBD
Class 25: Thursday Apr 5 <sup>th</sup>	<b>End of Course Celebration in FNH Foyer! Display of Project Infographics</b>  <b>Assignments Due:</b> Final written report and self-graded participation mark.	None

\*Publications with an asterisk can be sourced online at: <https://courses.library.ubc.ca/c.gggqBC> but a student must be signed in to the UBC network to access these documents. Book chapters and other material will be available in the Module section of Canvas.