Mel and Enid Zuckerman College of Public Health
University of Arizona

SYLLABUS
APPLIED FIELD METHODS IN GLOBAL HEALTH NUTRITION
HPS 635
Fall 2020
Online

Time: Tuesday 9-11:50 AM

Instructor(s) and Contact Information: Halimatou Alaofè, PhD
Drachman Hall A208
halaofe@email.arizona.edu
Phone: (520) 626-5614

Instructor Availability: By appointment

Catalog Description: This course examines the principles and methods used in nutritional assessment in clinical, public health and research settings in low- and high-income countries. Dietary assessment, anthropometric, clinical, and biochemical techniques will be primary components of the course. Everything from brief nutritional screening techniques to rigorous, advanced techniques for collecting the best quality data will be covered. This course will give students the tools they need to plan clinical and research nutrition assessments and to interpret the scientific literature for incorporation into an evidence-based nutrition practice.

Course Description: The course covers dietary assessment, anthropometry, and micronutrient status through lectures, in-class discussions, assignments, and data collection, analysis, and presentation. Laboratory and field methods for population wide nutritional deficiency assessment, nutritional screening and surveillance, dietary assessment, hunger, and food security as well as diet diversity and food group indices will be examined. Clinical methods including biochemical and clinical factors related to macro and micronutrient deficiency will be discussed. Using practical training and/or demonstrations, students will learn how to select and apply these methods in program-based or research-based settings. Issues of validity and reliability of these methods will be addressed mainly in the context of strengths and limitations of each method. This course will give students the tools they need to plan clinical and research nutrition assessments and to interpret the scientific literature for incorporation into an evidence-based nutrition practice.

Course Prerequisites: No prerequisites.

Course Objectives and Expected Learning Outcomes:

Course Objectives: During this course, students will:

2. Know the rationales, advantages, and disadvantages of these various approaches to nutritional assessment, including comparison of the reliability and validity of different methods.
3. Gain an understanding of the appropriate applications of the various methods and the interpretation of results.
4. Apply this knowledge to select nutrition assessment methods for hypothetical clinical and research situations.
5. Obtain hands-on experience and basic training in common anthropometric methods, use of food composition tables, and determination of anemia and selected micronutrients levels.

**Learning Outcomes:** By the end of this course, students will be able to:

1. Understand questions that can be addressed in populations using nutritional status indicators.
2. Describe performance characteristics (validity, reliability, dependability, sensitivity, and specificity) of nutritional status indicators and measures and how they are assessed.
3. Know means of assessing diet, energy expenditure and physical activity, body composition and growth, and micronutrient status and under what circumstances they would be used.
4. Collect, analyze, and interpret nutrition assessment data of individuals and groups by manipulating class-generated data.
5. Design comprehensive nutrition assessment plans (including dietary intake, anthropometrics, biochemical and medical tests, physical findings, and a patient’s personal and medical history) for different clinical and research situations by completing an assessment plan for a case study.

**Master of Public Health Competencies Covered**

<table>
<thead>
<tr>
<th>Competency Domain</th>
<th>Learning Outcomes</th>
<th>Method of Assessment</th>
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</thead>
<tbody>
<tr>
<td><strong>Evidence-based Approaches to Public Health</strong></td>
<td>Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate</td>
<td>WHO’s Anthro software will be used to assess the nutritional status of children. Students will also determine the prevalence of anemia, iron and vitamin A using the biochemical data of mother-child pair (Activity 2).</td>
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<td>Interpret results of data analysis for public health research, policy or practice</td>
<td>Students will provide three take-home essays, which will involve acquisition and demonstration of skills in analysis and interpretation of data (Assignments 1-3).</td>
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<td><strong>Planning &amp; Management to Promote Health</strong></td>
<td>Assess population needs, assets and capacities that affect communities’ health</td>
<td>Students will collect data throughout the term on their own nutritional status that will be anonymously entered into a class data set. They will be assigned a question to investigate the data (Group Project).</td>
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<td>Design a population-based policy, program, project or intervention</td>
<td>A take-home final examination asks students to propose an integrated nutrition assessment plan, incorporating dietary, biochemical, and anthropometric methods in response to a hypothetical situation and problem (Final Exam).</td>
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<tr>
<td><strong>Communication</strong></td>
<td>Communicate audience-appropriate public health content, both in writing and through oral presentation</td>
<td>Students will be evaluated in three ways: 3 written homework assignments; 3 activities and an ongoing Group Project that will lead to a class presentation (Written homework assignments; activities, Group Project, presentation).</td>
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</table>
Recommended Textbooks


There is no required textbook for this course. These texts are meant to be used as a background resource. We will be drawing upon additional resources for more current US content. Please see the reading list posted on the course D2L site for additional recommended readings. Web links and/or electronic copies of the required readings are posted on the course D2L site.

Methods of Instruction

This course is organized around weekly sections on the course D2L site. Regular class periods will be in a lecture and discussion format. Activities will be used to teach and apply techniques of dietary data collection and interpretation, anthropometry (weight, height, and circumferences) and micronutrient status. The course D2L site will provide the course announcements, syllabus, readings, lectures, and all class assignments.

How to Succeed in this Class

1. Read the assignments.

2. Class participation is essential. Be prepared for class discussions. You will need to support your opinions, and statements with facts from the readings and lectures.

3. You are welcome to email the instructor regarding class issues. Place “Student in HPS 635” in the subject line of your email. This will ensure that the instructor reads your email in a timely fashion.

4. Attend every class.

Course Requirements and Evaluations

This class will evaluate students in a variety of ways. There will be 3 homework assignments that cover main aspects of the course material and 3 activities. There will also be an ongoing Group Project that will require data collection throughout the semester, culminating in a class presentation at the end of the term.

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Points (pts)</th>
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<tbody>
<tr>
<td>Assignments 1-3 (50 each)</td>
<td>150</td>
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<tr>
<td>Activities 1-3 (50 each)</td>
<td>150</td>
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<tr>
<td>Group Project</td>
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<tr>
<td>Data Entry (24-h recall, Anthro/body comp, EE), 10 pts</td>
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<tr>
<td>Abstract, 40 pts</td>
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<tr>
<td>Slides &amp; Presentation (group), 40 pts</td>
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<tr>
<td>Evaluating of fellow student’s slides, 10 pts</td>
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<tr>
<td>Mid-Term exam</td>
<td>100</td>
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<tr>
<td>Final exam</td>
<td>100</td>
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<tr>
<td><strong>Total Points</strong></td>
<td><strong>600</strong></td>
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<table>
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<tr>
<th>Grade</th>
<th>Percent</th>
<th>Points</th>
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A   95-100%  540-600  
B   80-94%  480-564  
C   70-79%  420-474  
D   60-69%  360-414  
E   < 60%   <360

University policy regarding grades and grading systems is available at: http://catalog.arizona.edu/policy-type/grade-policies

Assignment Descriptions and Guidelines
Assignment descriptions and guidelines (these will be addressed in greater detail throughout the semester):

- **Assignment 1**: A 2-3 page (double-spaced, 12 font size) take-home essay addressing the following question, using readings and insights from class discussion periods (questions subject to slight changes). Start with an introductory paragraph and end with a concluding paragraph that consolidates your main points.

  Dietary data may be summarized into a healthy eating index (HEI) score and/or a dietary diversity score. For both approaches a) summarize how the approach is implemented, b) describe a situation or setting in which it may be useful, and c) describe an advantage and disadvantage of the approach.

- **Assignment 2**: A short take-home critique (2-3 pages, double-spaced, 12 font size) of a journal article (of the student’s choosing) regarding appropriateness of use of anthropometry, e.g., rationales for measurements, measurement protocols, reliability and validity, reference data, cut-offs, and interpretation of results.

- **Assignment 3**: A 2-3 page (double-spaced, 12 font size) take-home evaluation of a journal article including biochemical/laboratory indicators.

- **Group Project**— Students will collect data throughout the term on their own nutritional status (e.g. physical activity level and estimated energy expenditure; dietary intake from a 24-h recall; anthropometry and body composition) that will be anonymously entered into a class data set. They will work in groups of 2-3 and will be assigned a question to investigate in the data. Based on their analysis of the data, they will come up with a 10-minute slide presentation as a group and will independently write an abstract (no more than 250 words) summarizing their findings. Presentations will be pooled on the second-to-last day of class and formally shared by each group.

Activities

Each student will participate in three activities for practical aspects of nutrition assessment. During each activity, students will complete practical exercises focusing on commonly used methods and measurement reliability. Activities are as follows:

- **Activity 1: Use of Food Composition Tables**  
  Students’ dietary intake from a 24-hour recall will be used to determine their nutrient intake.

- **Activity 2: Anthropometric Measurements**  
  Students will collect data on their own nutritional status throughout the term on their own nutritional status (e.g. physical activity level and estimated energy expenditure; dietary intake from a 24-h recall; anthropometry and body composition) that will be anonymously entered into a class data set. They will work in groups of 2-3 and will be assigned a question to investigate in the data. Based on their analysis of the data, they will come up with a 10-minute slide presentation as a group and will independently write an abstract (no more than 250 words) summarizing their findings. Presentations will be pooled on the second-to-last day of class and formally shared by each group.  

  **Sept 29**

- **Activity 2: Anthropometric Measurements**  
  Students will collect data on their own nutritional status throughout the term on their own nutritional status (e.g. physical activity level and estimated energy expenditure; dietary intake from a 24-h recall; anthropometry and body composition) that will be anonymously entered into a class data set. They will work in groups of 2-3 and will be assigned a question to investigate in the data. Based on their analysis of the data, they will come up with a 10-minute slide presentation as a group and will independently write an abstract (no more than 250 words) summarizing their findings. Presentations will be pooled on the second-to-last day of class and formally shared by each group.  

  **Oct 20**
WHO’s Anthro software will be used to assess the nutritional status of children from a sample dataset.

- **Activity 3: Determination of Selected Micronutrients Levels**  
  Students will determine the prevalence of anemia, iron and vitamin A using the biochemical data of mother-child pair from a sample dataset.

**Examination**

1. **Mid-term Exam** – The format is multiple choice and short answer. It will cover dietary assessment

2. **Final Exam** -- A take-home final examination asking students to propose an integrated nutrition assessment plan, incorporating dietary, biochemical, and anthropometric methods in response to a hypothetical situation and problem (**Dec 15**).
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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Aug 25</td>
<td>Course overview and introduction to Applied Field Methods in Global Health Nutrition</td>
</tr>
<tr>
<td>Sept 01</td>
<td>Dietary assessment methods</td>
</tr>
<tr>
<td>Sept 08</td>
<td>Dietary assessment: accuracy, precision and validity</td>
</tr>
<tr>
<td>Sept 15</td>
<td>Using food and nutrient databases</td>
</tr>
<tr>
<td>Sept 22</td>
<td>Assessing the intakes of individuals and groups using the Dietary Reference Intakes</td>
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<tr>
<td>Sept 29</td>
<td><strong>Activity 1</strong>: Use of food composition tables</td>
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<td><strong>Dietary Assignment Due</strong></td>
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<td>Oct 06</td>
<td>Mid-term exam</td>
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<td>Adult anthropometry and body composition</td>
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<td>Oct 13</td>
<td>Growth and childhood anthropometry</td>
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<tr>
<td>Oct 20</td>
<td><strong>Activity 2</strong>: Anthropometric measurements</td>
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<td><strong>Anthropometric Assignment Due</strong></td>
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<td>Oct 27</td>
<td>Biochemical assessment: Iron, Zinc and Iodine</td>
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<tr>
<td>Nov 03</td>
<td>Biochemical assessment: Vitamin A, folate and vitamin B12</td>
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<td>Nov 10</td>
<td><strong>Activity 3</strong>: Determination of anemia and selected micronutrients levels</td>
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<td><strong>Physical activity level and energy expenditure Assignment Due</strong></td>
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<td>Nov 17</td>
<td>Clinical Assessment: Medical history and physical examination</td>
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<td>Nov 24</td>
<td>Assessment of protein-energy malnutrition</td>
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<td>Dec 01</td>
<td>Class Presentations</td>
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<td></td>
<td><strong>Group Paper Due</strong></td>
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<tr>
<td>Dec 08</td>
<td>Class Presentations</td>
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<tr>
<td>Dec 15</td>
<td>Final exam</td>
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Required Reading Assignments

Aug 25  Course overview and introduction to Applied Field Methods in Global Health Nutrition
  • Robert D. Lee and David C Nieman, Nutritional Assessment – Chapter 1: Introduction to nutritional assessment

Sept 01  Dietary assessment methods
  • Robert D. Lee and David C Nieman, Nutritional Assessment – Chapter 3: Measuring Diet

Sept 08  Dietary assessment: accuracy, precision and validity
  • Gibson RS. 2005: Chapters 5-7

Sept 15  Using food and nutrient databases

Sept 22  Assessing the intakes of individuals and groups using the Dietary Reference Intakes
  • Robert D. Lee and David C Nieman, Nutritional Assessment – Chapter 2: Standards for Nutrient Intake

Oct 06  Adult anthropometry and body composition
  • Robert D. Lee and David C Nieman, Nutritional Assessment – Chapter 6: Anthropometry
  • Gibson RS. Chapters 10-13: Anthropometric Assessment of Body Size; Anthropometric Assessment of Body Composition; Anthropometric Reference data; Evaluation of Anthropometric Indices.
Oct 13  **Growth and childhood anthropometry**

Oct 27  **Biochemical assessment: Iron, Zinc and Iodine**

Nov 03  **Biochemical assessment: Vitamin A, folate and vitamin D**
- Saskia de Pee et al. 2016: Chapters 8 & 9
- Ralph Green; Indicators for assessing folate and vitamin B-12 status and for monitoring the efficacy of intervention strategies, The American Journal of Clinical Nutrition; 94(2): 666S–672S,

Nov 17  **Clinical Assessment: Medical history and physical examination**
- Gibson RS. 2005: Chapters 26: Clinical Assessment
- D. Lee and David C Nieman, Nutritional Assessment – Chapter 10: Clinical Assessment of Nutritional Status

Nov 24  **Assessment of protein-energy malnutrition**
ACADEMIC POLICIES:

**Required examinations, papers and projects**: Specify the number of quizzes, examinations and papers. Identify the date and time of the **final exam** (or project due date), with links to the Final exam regulations: http://www.registrar.arizona.edu/staff/courses/final-exams?audience=staff&cat1=10

**Absence and Class Attendance/Participation**: (Expected attendance, participation levels)

In-person courses: The UA’s policy concerning class attendance, participation, and administrative drops is available at: http://catalog.arizona.edu/2015-16/policies/classatten.htm

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, http://policy.arizona.edu/human-resources-religiousaccommodation-policy.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored, http://uhap.web.arizona.edu/policy/appointed-personnel/7.04.02

**Communications**

You are responsible for reading emails sent to your UA account from your instructor and the announcements that are placed on the course website. Information about readings, news events, your grades, assignments and other course related topics will be communicated to you with these electronic methods. The official policy can be found at: https://www.registrar.arizona.edu/personal_information/official-student-email-policy-use-email-official-correspondence-students

**Accessibility and Accommodations**:

At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, you are welcome to let me know so that we can discuss options. You are also encouraged to contact Disability Resources (520-621-3268) to explore reasonable accommodation. If our class meets at a campus location: Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable. For additional information on Disability Resources and reasonable accommodations, please visit http://drc.arizona.edu/students

**Code of Academic Integrity**: Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercise must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity, available through the office of the UA Dean Students: http://deanofstudents.arizona.edu/policies-and-codes/code-academic-integrity

**Classroom Behavior**: (Statement of expected behavior and respectful exchange of ideas: Present policies to foster a positive learning environment, including use of cell phones, mobile devices, etc.).

Students are expected to be familiar with the UA Policy on Disruptive Student Behavior in an Instructional Setting found at: http://policy.arizona.edu/education-and-student-affairs/disruptivebehavior-instructional-setting

**Threatening Behavior Policy**

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to one’s self, http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students
**Nondiscrimination and Anti-harassment Policy**
The University of Arizona is committed to creating and maintaining an environment free of discrimination, [http://policy.arizona.edu/humanresources/nondiscrimination-and-anti-harassment-policy](http://policy.arizona.edu/humanresources/nondiscrimination-and-anti-harassment-policy)

**UA Smoking and Tobacco Policy**
The purpose of this Policy is to establish the University of Arizona’s (University) commitment to protect the health of University faculty, staff, students, and visitors on its campuses and in its vehicles, [http://policy.arizona.edu/ethics-and-conduct/smoking-and-tobacco-policy](http://policy.arizona.edu/ethics-and-conduct/smoking-and-tobacco-policy)

**Syllabus Changes**
Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructors.

**Plagiarism: What counts as plagiarism?**
- Copying and pasting information from a web site or another source, and then revising it so that it sounds like your original idea.
- Doing an assignment/essay/take home test with a friend and then handing in separate assignments that contain the same ideas, language, phrases, etc.
- Quoting a passage without quotation marks or citations, so that it looks like your own.
- Paraphrasing a passage without citing it, so that it looks like your own.
- Hiring another person to do your work for you, or purchasing a paper through any of the on- or offline sources.

**Additional Resources for Students**
- UA Academic policies and procedures are available at: [http://catalog.arizona.edu/2015-16/policies/aaindex.html](http://catalog.arizona.edu/2015-16/policies/aaindex.html)
- Student Assistance and Advocacy information is available at: [http://deanofstudents.arizona.edu/student-assistance/students/student-assistance](http://deanofstudents.arizona.edu/student-assistance/students/student-assistance)