



PubH 6915
Nutrition Assessment
Fall, 2016

Credits: 2
Meeting Days: Mondays
Meeting Time: 10:10 to 12:05 pm
Meeting Place: Mayo Building, 12th floor, Room 1250
Instructors: Lisa Harnack, DrPH: 323 WBOB, 612-626-9328, 612-624-0315 (fax), harna001@umn.edu
Sarah E. Cusick, PhD: Rm. 365, 717 Delaware St. SE, 612-625-8549, scusick@umn.edu
Ellen W. Demerath, PhD: 455 WBOB, 612-624-8231, ewd@umn.edu
Office Hours: By appointment

I. Course Description

Dietary, biochemical, and anthropometric methods for assessing nutritional status are discussed in this class with a focus on the public health application of each.

II. Course Prerequisites

Public health nutrition major or instructor consent

III. Course Goals and Objectives

1. To become familiar with the current best practices in dietary, biochemical, and anthropometric assessment of nutritional status.
2. To know the rationales, advantages, and disadvantages of these various approaches to nutritional assessment, including comparison of the reliability and validity of different methods.
3. To apply this knowledge to select nutrition assessment methods for hypothetical clinical and research situations.

IV. Methods of Instruction and Work Expectations

Regular class periods will be in a lecture and discussion format.

Students are expected to attend all classes, complete all assignments, and to participate in discussions.

V. Course Text and Readings

Principles of Nutritional Assessment, 2nd Edition. RS Gibson. Oxford University Press: New York, 2005 (required).

Supplemental required readings to augment the text and to provide examples of programs will be posted on the course Moodle site. To access the course website, go to <http://myu.umn.edu>, log in with your ID/password, click on the "My Courses" tab, and select "PubH 6915"

Moodle 2 student orientation and training can be found at:
<http://uttc.umn.edu/training/tutorials/moodle/orientation/>

VI. Course Outline/Weekly Schedule/Assignments

Date	Session	Topic	Text	Readings
Sept 12	1a	Introduction to biochemical assessment	373-402	Arab
	1b	Lipids		
Sept 19	2a	Vitamin A	477-497	Drakesmith
	2b	Iron	443-476	
Sept 26	3a	Folic acid and B ₁₂	595-640	Pfeiffer
	3b	Zinc and Iodine	711-731; 749-766	
Oct 3	4a	Antioxidants: Carotenoids, vitamin E, vitamin C	508-516; 529-554	Prentice Walsh
	4b	Vitamin D and calcium	497-508; 641-657	
Oct 10	5a	Using and interpreting nutritional biomarkers		
Assign 1 Due				
Oct 17	6a	Overview of dietary assessment methods	41-64	
	6b	Food record and dietary recalls		
	6c	Under reporting		
Oct 24	7a	Day-to-day variation in diet	129-148	Kristal
	7b	Food frequency questionnaires		
Oct 31	8a	Practice choosing methods	105-128	Illner
	8b	Meal observation and plate waste		
	8c	New methods under development		
Nov 7	9a	Measure of the food environment		McKinnon
	9b	Practice choosing methods		
Nov 14	10a	Dietary supplement use assessment	65-90	
	10b	Food and nutrient database considerations		
	Assign. 2 due	10c		
Nov. 21	11a	Rationale for anthropometric assessment	233-244	Ogden, 2014
	11b	Stature and weight and indicators/Demonstration	245-272	
Nov. 28	12a	Body composition indicators/Demonstration	273-298	Ulijaszek and Kerr, 1999
	12b	Reliability and Validity of Anthropometrics		
Dec. 5	13a	Reference data: Percentiles and Z scores	299-334;	WHO, 2006
	Assign. 3 due	13b	335-352;	Ziegler, 2012
Dec. 12	14a	Laboratory assessment of body composition	353-372	Castillo- Martinez et al., 2012
	14b	Anthropometry in the elderly and other special populations		
Dec. 19				
Final Due				

Readings

Unit 1: Biochemical Assessment

Arab L. Biomarkers of fat and fatty acid intake. *J Nutr.* 2003;133:925S-932S.

Drakesmith H. Next-generation biomarkers for iron status. In Baetge, Dhawan, and Prentice (eds): *Next-Generation Nutritional Biomarkers to Guide Better Health Care*. Nestle Nutr. Inst. Workshop Ser, vol 84:59-69. Nestec Ltd., Vevey/S. Karger AG., Basel, 2016.

Pfeiffer CM, Johnson CL, Jain RB, et al. Trends in blood folate and vitamin B-12 concentrations in the United States, 1988-2004. *Am J Clin Nutr.* 2007; 86:718-27.

Prentice A, Goldberg GR, Schoenmakers I. Vitamin D across the lifecycle: physiology and biomarkers. *Am J Clin Nutr.* 2008 Aug;88(2):500S-506S.

Walsh JS, Evans AL, Bowles S, Naylor KE, Jones KS, Schoenmakers I, Jacques RM, Eastell R. Free 25-hydroxyvitamin D is low in obesity, but there are no adverse associations with bone health. *Am J Clin Nutr.* 2016;103:1465–71.

Unit 2: Dietary Assessment

Illner, AK, Freisling H, Boeing H, Huybrechts I, Crispim SP, Slimani N. Review and evaluation of innovative technologies for measuring diet in nutritional epidemiology. *Int J Epidemiol* 2012;41:1187-1203.

Kristal AR, Peters U, Potter JD. Is it time to abandon the food frequency questionnaire? *Cancer Epidemiol Biomarkers Prev.* 2005;14(12):2826-2828.

McKinnon RA, Reedy J, Morrissette MA, Lytle LA, Yaroch AL. Measures of the food environment: A compilation of the literature, 1990-2007. *Am J Prev Med* 2009;36(4S): S124-S133.

Unit 3: Anthropometric Assessment

Castillo-Martínez L, García-Peña C, Juárez-Cedillo T, Rosas-Carrasco O, Rabay-Gánem C, and Sánchez-García S (2012) Anthropometric Measurements and Nutritional Status in the Healthy Elderly Population. In: VR Preedy (ed.) *Handbook of Anthropometry: Physical Measures of Human Form in Health and Disease*, Springer Link, 2012, pp 2709-2730. ISBN: 978-1-4419-1788-1 (Online)
http://link.springer.com/chapter/10.1007%2F978-1-4419-1788-1_169

Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. *JAMA.* 2014 Feb 26;311(8):806-14. doi: 10.1001/jama.2014.732.

Ulijaszek SJ, Kerr DA. Anthropometric measurement error and the assessment of nutritional status. *Brit J Nutr* 1999 82:165-177.

WHO Multicentre Growth Reference Study Group. WHO Child Growth Standards based on length/height, weight and age. *Acta Paediatr Suppl.* 2006 Apr;450:76-85.

Ziegler EE1, Nelson SE. The WHO growth standards: strengths and limitations. *Curr Opin Clin Nutr Metab Care.* 2012 May;15(3):298-302. doi: 10.1097/MCO.0b013e3283511478.

Assignments / Examinations

1. A 3-page take-home evaluation of a journal article including biochemical/laboratory indicators **(due Oct 10)**. *Submit to Dr. Cusick.*
2. A take-home series of short essay questions designed to build students' skills in selecting dietary assessment methods for specific objectives and population groups **(due Nov 14)**. *Submit on the Moodle site.*
3. A calculation of the reliability and validity of a mock dataset of anthropometric measurements using Excel formulas **(due Dec. 5)**. *Submit on the Moodle site.*
4. 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 **(due Dec. 19)**. The hypothetical situation will be provided to students on the last day of class. Scores on exams received after the due date will be reduced for each day late. No exams will be accepted more than three days late, and a zero will be assigned. *Submit on the Moodle site.*

VII. Evaluation and Grading

Grades for the three assignments for Units 1 – 3 will each comprise 20% of the final grade, and the final examination will be worth 40% toward the final grade.

The University utilizes plus and minus grading on a 4.000 cumulative grade point scale in accordance with the following:

- A 4.000 – Represents achievement that is outstanding relative to the level necessary to meet course requirements
- A- 3.667
- B+ 3.333
- B 3.000 – Represents achievement that is significantly above the level necessary to meet course requirements
- B- 2.667
- C+ 2.333
- C 2.000 – Represents achievement that meets the course requirements in every respect
- C- 1.667
- D+ 1.333
- D 1.000 - Represents achievement that is worthy of credit even though it fails to meet fully the course requirements
- S Represents achievement that is satisfactory, which is equivalent to a C- or better.

For additional information, please refer to:

<http://policy.umn.edu/Policies/Education/Education/GRADINGTRANSCRIPTS.html>.

Course Evaluation

The SPH will collect student course evaluations electronically using a software system called CoursEval: www.sph.umn.edu/courseval. The system will send email notifications to students when they can access and complete their course evaluations. Students who complete their course evaluations promptly will be able to access their final grades just as soon as the faculty member renders the grade in SPHGrades: www.sph.umn.edu/grades. All students will have access to their final grades through OneStop two weeks after the last day of the semester regardless of whether they completed their course evaluation or not. Student feedback on course content and faculty teaching skills are an important means for improving our work. Please take the time to complete a course evaluation for each of the courses for which you are registered.

Incomplete Contracts

A grade of incomplete "I" shall be assigned at the discretion of the instructor when, due to extraordinary circumstances (e.g., documented illness or hospitalization, death in family, etc.), the student was prevented

from completing the work of the course on time. The assignment of an "I" requires that a contract be initiated and completed by the student before the last official day of class, and signed by both the student and instructor. If an incomplete is deemed appropriate by the instructor, the student in consultation with the instructor, will specify the time and manner in which the student will complete course requirements. Extension for completion of the work will not exceed one year (or earlier if designated by the student's college). For more information and to initiate an incomplete contract, students should go to SPHGrades at: www.sph.umn.edu/grades.

University of Minnesota Uniform Grading and Transcript Policy

A link to the policy can be found at onestop.umn.edu.

VIII. Other Course Information and Policies

Grade Option Change (if applicable)

For full-semester courses, students may change their grade option, if applicable, through the second week of the semester. Grade option change deadlines for other terms (i.e. summer and half-semester courses) can be found at onestop.umn.edu.

Course Withdrawal

Students should refer to the Refund and Drop/Add Deadlines for the particular term at onestop.umn.edu for information and deadlines for withdrawing from a course. As a courtesy, students should notify their instructor and, if applicable, advisor of their intent to withdraw.

Student Conduct, Scholastic Dishonesty and Sexual Harassment Policies

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see: http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

Use of Personal Electronic Devices in the Classroom:

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom. For complete information, please reference: <http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Scholastic Dishonesty:

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code: http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf) If it is determined that a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html>.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: <http://www1.umn.edu/oscai/integrity/student/index.html>. If you

have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class-e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

Makeup Work for Legitimate Absences:

Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see: <http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>.

Appropriate Student Use of Class Notes and Course Materials:

Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Sexual Harassment

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy: <http://regents.umn.edu/sites/default/files/policies/SexHarassment.pdf>

Equity, Diversity, Equal Opportunity, and Affirmative Action:

The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy: http://regents.umn.edu/sites/default/files/policies/Equity_Diversity_EO_AA.pdf.

Disability Accommodations:

The University of Minnesota is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center Student Services is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DRC at 612-626-1333 or ds@umn.edu to arrange a confidential discussion regarding equitable access and reasonable accommodations.

If you are registered with DS and have a current letter requesting reasonable accommodations, please contact your instructor as early in the semester as possible to discuss how the accommodations will be applied in the course.

For more information, please see the DS website, <https://diversity.umn.edu/disability/>.

Mental Health and Stress Management:

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

The Office of Student Affairs at the University of Minnesota:

The Office for Student Affairs provides services, programs, and facilities that advance student success, inspire students to make life-long positive contributions to society, promote an inclusive environment, and enrich the University of Minnesota community.

Units within the Office for Student Affairs include, the Aurora Center for Advocacy & Education, Boynton Health Service, Central Career Initiatives (CCE, CDes, CFANS), Leadership Education and Development – Undergraduate Programs (LEAD-UP), the Office for Fraternity and Sorority Life, the Office for Student Conduct and Academic Integrity, the Office for Student Engagement, the Parent Program, Recreational Sports, Student and Community Relations, the Student Conflict Resolution Center, the Student Parent HELP Center, Student Unions & Activities, University Counseling & Consulting Services, and University Student Legal Service.

For more information, please see the Office of Student Affairs at <http://www.osa.umn.edu/index.html>.

Academic Freedom and Responsibility: *for courses that do not involve students in research:*

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college (Dr Kristin Anderson, SPH Dean of Student Affairs), or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

** Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".*

Student Academic Success Services (SASS): <http://www.sass.umn.edu>:

Students who wish to improve their academic performance may find assistance from Student Academic Support Services. While tutoring and advising are not offered, SASS provides resources such as individual consultations, workshops, and self-help materials.

9/2014