

Nutrition 210 Syllabus, Spring 2019

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**Nutrition 210: Survey Research in Nutrition
Spring Semester, 2019
Friday 9-12, Jaharis Room 118**

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Goals of the course:

This course will present methods of designing and implementing field studies in the various disciplines that affect nutrition. At the end of the course, students should be capable of designing a field study related to nutrition or food consumption, its determinants and correlates, and the effectiveness of interventions. A secondary objective is that students will understand potential threats to the validity and reliability of field studies and will therefore become more critical and intelligent consumers of research results.

As part of the course, students will develop a plan for a field survey. We will divide into teams of three, and each team will choose an appropriate topic and prepare the appropriate section of the survey and submit it (in most cases) the week after we discuss that element in class. All drafts will be returned no later than the following class.

The 'term paper' assignment is the completed survey plan. An appropriate topic is one that makes suitable use of survey research methods, addresses a question or problem whose answer would be useful, and for which a focus group and pretest of the questionnaire can feasibly be conducted within the period and context of the class (i.e., locally). The survey does not have to be based on hypothesis-driven research; it can address a research question, or it could be a situation assessment. It can relate to an expected internship or job. Students will choose topics and form teams during the second week of class.

The study plan includes the following sections.

1. Statement of the research problem.
Explain what the question is, and why it matters (that is, answer the "so what?" question).
2. Review of the relevant literature.
This should demonstrate that you are familiar with research (or evaluations or other types of studies as relevant) done in the field and where your proposed study fits in.

Nutrition 210 Syllabus, Spring 2019

3. Statement of the specific research hypothesis or research question.
4. Conceptual framework of the research.

Diagram the relationships among the concepts you plan to measure, indicating with arrows the directions of causality you think exist and with pluses and minuses the anticipated nature of the relationship (direct, inverse). This will be the basis for presentation of the analytical model.
5. Concept operationalization matrix.

For each concept (that is, each box in your conceptual framework), a list of the variables you will use to measure this concept and how they will be measured.
6. Experimental or research design.

This can be brief, a paragraph or two, but explicit. Cross-sectional or longitudinal? Panel or repeat cross section? Randomized control trial?
7. Sample design and sampling plan.

This *must* include a calculation of needed sample size based on alpha level, power, and level of precision needed for the study. The sampling plan must indicate units of analysis, sampling units, sampling frame *and* the mechanics or logistics you will use to draw the sample.
8. Documentation of focus group and pretest results.

This is simply a narrative description of what you learned from the focus group(s) or open-ended interviews, and in the pretest, and how you modified your data collection instrument as a result. Mention the information you received which caused you to modify or change any of your approaches, questions, or expected relationships.
9. Your survey or data collection instrument(s), with a justification of each item in relation to the conceptual framework.

Put a number in each box of your conceptual framework. Next to each question or item in your instrument, note the number of the concept for which you need this item.
10. Analytic model(s).

Present the analysis plan, identifying the key relationships and what statistical methods you will use to demonstrate them. This should be linked to your conceptual framework. Please be specific: say precisely what relationships will be presented. For descriptive studies, say what variables you will be looking at.
11. Description of study methods:
 - a. logistics
 - b. staffing
 - c. schedule of operations including timeline
12. Budget.

Nutrition 210 Syllabus, Spring 2019

A breakdown by category and year (for multi-year projects) of the project costs using a standard budget format. This includes a Budget Narrative that explains and justifies the budget.

The entire survey report from each team is due on Monday May 6th at 11:55 pm. I will provide feedback on any draft sections handed in by Monday April 29th (*but not later*). (Please hand drafts in with specific questions about which sections require feedback.)

Basis for Grading: Term paper (study plan), 40%; timely submission of drafts of sections, 10%; quiz, 20%; exercises, 25%; and peer evaluation of group participation, 5%. Regular attendance and active participation are expected.

Human Subjects Training. All students in the school are required to complete CITI, an online training course in the ethical treatment of human subjects in research: <https://www.citiprogram.org/>. If you took Nutrition 209 or 207, you have already completed this training. If not, you must complete it as a requirement of Nutrition 210. You need it for graduation, too.

Required texts:

1. Babbie, Earl, The Practice of Social Research, 13th edition. Belmont, CA: Wadsworth Publishing Co (2012) (available from several on line sellers – shop around for a good price).

Recommended texts:

1. Bradburn, Norman; S. Sudman; B.Wansink, Asking Questions. San Francisco: Wiley and Sons, 2004.
2. DeVellis, Robert, Scale Development: Theory and Applications. Sage Publications, Applied Social Research Methods Series, 2011 or later version.
3. Dillman, Don A.; J.D. Smyth; L.M. Christian. Internet, Phone, Mail and Mixed-Mode Surveys: The Tailored Design Method Fourth Edition. John Wiley & Sons, NY 2014 (***This has been a life-saver for several PhD students – worth having on your shelf!***)
4. Krueger, Richard A.; M.A.Casey, Focus Groups: A Practical Guide for Applied Research, 5th edition. Sage Press, 2015.
5. Grosh, Margaret and Paul Glewwe, Designing Household Survey Questionnaires for Developing Countries: Lessons from Ten Years of LSMS Experience. Washington, D.C. World Bank, 2000. (Chapters are on Canvas; this is too expensive to buy)

(Based on previous students' experience I would recommend investing in Babbie, DeVellis, and Dillman.)

NOTE: All these texts are on reserve at the Health Sciences Library. Also note that some required readings are in the optional textbooks.

Nutrition 210 Syllabus, Spring 2019

Date	Session	Session Topic
Jan 18	1	Outline of Class Objectives and Expectations Ethics in Survey Research
Jan 25	2	Formulating Research Questions
Feb 1	3	Concepts and Variables
Feb 8	4	Research and Study Design; analytic models
Feb 15	5	Sampling
Feb 22	6	IRB procedures Introduction to Instrument Design
Mar 1	7	Collecting community level data; formulating nested unique identifiers Review of sampling
Mar 8	8	Qualitative Data Collection and Rapid Appraisal Methods Measuring Time Use and Task Allocation
Mar 15	9	Qualitative Data Collection: Focus groups as a data collection technique and as a preliminary to questionnaire design
Mar 22	X	SPRING BREAK
Mar 29	10	Field Operations and Budgeting
Apr 5	11	Measuring Knowledge, Attitudes, and Practices; Scale Construction *class meets in Sackler 316 on April 5 th !
Apr 12	12	Working Session: term project progress report and trouble-shooting
Apr 19	13	Measuring Socio-Economic Status: Income, Expenditure, Consumption, Wealth
Apr 26	14	Measuring Dietary Intake
May 6		Term paper due on Canvas by 11:55PM on May 6th

SESSION 1

January 18

- ✓ **Outline of Class Objectives and Expectations**
- ✓ **Approaches to field research**
 - appropriate uses of survey techniques
 - alternatives to the use of surveys
 - combining qualitative and quantitative methods
 - combining primary and secondary data sources
- ✓ **Ethical considerations in field research**
 - choosing research questions
 - use of research results
 - protection of human subjects
 - Institutional Review Board review
 - Which IRB to use for Tufts research
 - Principles of informed consent
 - Types of review (full, expedited, exempt)

Required Reading:

1. Babbie Chapter 2: Social Inquiry, Ethics, and Politics. (See also Chapter 11 on Ethics of Qualitative Field Research, pp 355 ff)
2. IRB procedures: <http://www.tufts.edu/central/research/IRB/>

Assignment: Please post to the Discussion Board on Canvas your ideas for class research projects and be prepared to form project teams in class next week. **Normally the class works in teams of three.** (Due **Tuesday January 22, 11:55PM**) *NOTE: this is earlier than the other assignments. We will post the topics by Wednesday so you can consider which ones are of interest, and post your preferences on the sign-up sheet, ranked. We will form groups in class next week.*

SESSION 2

January 25

- ✓ **Formulating research questions**
 - developing causal models and conceptual frameworks
 - developing an analytic model
 - theories, hypotheses, specific aims
 - distinguishing good survey questions from good thesis questions
- ✓ **Developing hypotheses and specific aims**
- ✓ **We will set aside some time to form class project teams.**

In class exercise: develop testable hypothesis from broad research question.

Required Reading:

1. Babbie Chapter 1 (An Introduction to Inquiry),
2. Babbie Chapter 3 (Inquiry, Theory and Paradigms),
3. Babbie Chapter 4 (Purpose and Design of Research Projects)

Nutrition 210 Syllabus, Spring 2019

Due today (actually, midnight the night before!): Please remember to post your ranked preferences for research project topics on the Google doc, which is on Canvas. We will form groups in class today.

Assignment (individual): Develop a testable hypothesis based on a broad research question (on Canvas under “assignments”) and do a conceptual framework (schematic) for that hypothesis. (This is an individual, graded assignment) (*Due January 31st, 11:55PM*)

SESSION 3

February 1

✓ **Concepts and variables:**

- turning research concepts into measurable variables
- measurement issues
- validity, reliability, accuracy
- variable computation and creation

In-class exercise: concept to variable matrix for one concept.

Required Reading:

1. Babbie Chapter 6: From Concept to Measurement
2. Hoyle, Rick H., M.J. Harris, C.M. Judd, Research Methods in Social Relations. U.S.: Wadsworth-Thomson Learning, 2002 Chapters 2 and 4 (on Canvas) (Note: read Babbie first; the Hoyle et al. reading will complement it and fill in gaps.)
3. Coon, Kathy, Women, Families, Food and Children, Chapters 4 and 5 (PhD Thesis Proposal, Oct, 1992) – excellent example of creating measurable constructs from concepts (on Canvas)

Due today: Testable hypothesis & conceptual framework (individual)

Assignment: Take home exercise: working in your groups, design a concept-to-variable matrix for one key concept in your group project. (*Due February 7th, 11:55PM*)

SESSION 4

February 8

✓ **Research and Study Design**

- types of design:
 - 1) cross sectional
 - 2) longitudinal: cohort, panel, repeat cross section
 - 3) case control
 - 4) experiments, quasi experiments
- strengths and weaknesses
- fallback options
- how to describe a study design in a proposal

✓ **Linking study design to analytic models**

In-class exercise: develop a study design for a research question (in groups).

Required Reading:

1. Babbie Chapter 9: Experiments and experimentation
2. Babbie Chapter 12: Evaluation Research
3. Hamilton, W.L. and P. Rossi, Effects of Food Assistance and Nutrition Programs on Nutrition and Health: Volume 1: Research Design. "Impact Evaluation of Ongoing Programs". USDA/ERS FANRR 19-1, February 2002. Link is: <http://www.ers.usda.gov/publications/fanrr19-1/fanrr19-1.pdf>
Assigned chapter is on Canvas.
4. Victora, CG., J-P Habicht, J Bryce, "Evidence Based Public Health: Moving Beyond Randomized Trials" *American Journal of Public Health* 94:3, March 2004, pp 400-405.
5. [West SG](#), [Duan N](#), [Pequegnat W](#), [Gaist P](#), [Des Jarlais DC](#), [Holtgrave D](#), [Szapocznik J](#), [Fishbein M](#), [Rapkin B](#), [Clatts M](#), [Mullen PD](#). Alternatives to the randomized controlled trial. *Am J Public Health*. 2008 Aug; 98(8):1359-66. doi: 10.2105/AJPH.2007.124446. Epub 2008 Jun 12.

Due today: Concept-to-variable matrix for one variable from the group's survey plan (group assignment)

Assignment: In your groups, begin drafting your survey plan, incorporating sections 1-5 (1-Statement of problem; 2-brief lit review; 3-statement of the research question/hypothesis; 4-conceptual framework; 5-**complete** concept-to-variable matrix – include **all** your variables.) (*Due February 14th, 11:55PM*)

SESSION 5

February 15

- ✓ **Sampling**
- Guest lecturer: **Breanne Langlois (Time TBD)**
 - reasons for sampling
 - types of sample
 - sampling units and units of analysis
 - nested sample designs
 - multistage samples and clustering
 - developing a sampling frame
 - area based sampling frames
 - dealing with the lack of a sampling frame
 - logistics of sampling
 - determining sample size: significance, power
 - rare events
 - resources for sample size calculation

*In-class exercise: design a **sampling plan**. [all together, not in groups]*

Required Reading:

1. Babbie Chapter 5: Sampling Logic
2. Magnani, Robert, [Sampling Guide with 2012 Addendum](#). Arlington, Va.: Food Security and Nutrition Monitoring (IMPACT) Project, for the US Agency for International Development.

Nutrition 210 Syllabus, Spring 2019

December 1997 (with 2012 addendum).

<http://www.fantaproject.org/publications/sampling.shtml>

Online Sample Size Calculators:

<http://homepage.stat.uiowa.edu/~rlenth/Power/>

<http://www.nss.gov.au/nss/home.nsf/pages/Sample+size+calculator>

<http://www.surveysystem.com/sscalc.htm>

<http://www.select-statistics.co.uk/sample-size-calculator-proportion>

<http://www.raosoft.com/samplesize.html>

Online Resource: PowerPoint presentation by Diana Stukel: Elements of Sampling and Survey Design (on Canvas)

Additional online resources: two sites that describe satellite mapping approaches to sampling... interesting to look at. The first link is an article and the second are slides developed by the author explaining the article.

1. <http://ete-online.biomedcentral.com/articles/10.1186/s12982-015-0041-8>
2. http://www.europeansurveyresearch.org/conf2015/uploads/127/1327/169/ESRA_Haenssge_Sampling.pdf

Optional Reading:

1. The Dillman et al. book has a good discussion of sampling, especially pp. 87 – 90 on post survey adjustment and sampling error. (Don't worry about the statistical formulas, but focus on the concepts.)

Due today: First part of survey plan (#1-5)

Assignment (individual): Take-home sampling exercise (posted on Canvas this afternoon). (*Individual Assignment; Due February 21st, 11:55PM*)

Also: Bring your questions for Lara Sloboda (next week, IRB procedures)

SESSION 6

February 22

- ✓ **IRB procedures**
 - Guest lecturer: **Lara Sloboda** (9-10am)
- ✓ **Introduction to Instrument Design**
 - linking instruments to conceptual framework
 - linking specific items to concepts
 - organization and design of questionnaires
 - respondent selection
 - principles of interviewing
 - in-person, phone, and mailed instruments
 - pretesting and revision
 - data handling considerations in the design of instruments

Nutrition 210 Syllabus, Spring 2019

- modes of data collection (paper vs. electronic vs. tablet; self-administered vs. interviewer-administered; phone, web, mail, in-person)

In-class exercise: questionnaire critique

Required Reading:

1. Babbie Chapter 8: Surveys
2. Dillman 4th edition: Chapters 4 (Fundamentals of writing questions), 5 (How to write Open and Closed-Ended Questions); 6 (Aural and visual Design of Questionnaires); and 7 (Ordering questions).

Recommended Reading:

3. Bradburn et al., Chapters 2 – 4 (Asking non-threatening questions; asking threatening questions; asking questions about attitudes and behavior).
4. See also Babbie Chapter 14, Analyzing Quantitative Data (for insight into designing a questionnaire to collect the necessary information)
5. Caeyers, B.; N.Chalmers; J.deWeerd, A comparison of CAPI vs PAPI through a Randomized Field Experiment. World Bank November 2010. (A formal comparison of paper-and-pencil vs. computer administered surveys.)
6. Dillman et al. has detailed discussions of each type of survey: telephone, web, mailed, and mixed mode (Chapters 8 – 11) that have useful information.

Due today: Take-home sampling exercise (*individual*)

Assignment: Draft of sections 6 and 10 (study design and analysis plan) (for your group project) (*Due February 28th, 11:55PM*)

SESSION 7

March 1

- ✓ **Review of sampling**
 - We will go over the sampling exercises and address questions relating to the exercise and to sampling issues in your term projects.
- ✓ **Collecting community level data**
- ✓ **Collecting basic demographic data**
- ✓ **Linking multiple data collection instruments at multiple levels; use of nested ID codes**

Required Reading:

1. Bradburn et al., Chapter 9 (Asking Standard Demographic Questions)
2. E. Frankenberg, Community and Price Data. (Chapter 13 in Grosh and Glewwe, with associated Q module)
3. Glewwe, Household Roster (Chapter 6 in Grosh and Glewwe, with associated Q module)
4. NOTE: As you prepare to think about your analysis plan, use Babbie Chapters 13 – 15 as background.

Nutrition 210 Syllabus, Spring 2019

In-class exercise: use of nested ID codes.

Due today: Draft of sections 6 and 10 (study design and analysis plan for your group project)

Assignment: Draft sampling plan (section 7) (*Due March 7th, 11:55PM*) **AND** begin planning your focus groups (Section 8) (*Focus group report is due March 28th, 11:55PM; you should have the Focus Group Discussion scheduled **before** Spring break.*)

SESSION 8

March 8

- ✓ **Qualitative Data Collection and Rapid Appraisal Methods**
- ✓ **Measuring Time Use and Task Allocation**

In-class exercise: developing time use variables.

Required Reading:

1. Babbie Chapter 11: Paradigms, Methods, and Ethics of Qualitative Field Research
2. Chung, Kimberly, "Using Qualitative Methods to Improve the Collection and Analysis of Data from LSMS Household Surveys" (Chapter 25 in Grosh and Glewwe) (Note: the section available on Canvas has several chapters; scroll down to Chapter 25.)
3. Harvey, A.S. and M.E.Taylor, Time Use (Chapter 23 in Grosh and Glewwe).
4. Jonathan Gershuny, Time-Use Surveys and the Measurement of National Well-Being. University of Oxford, Centre for Time-use Research, 2011 (Read it through Section 1.)
5. Nina Schlossman, time use questionnaire and interviewer instructions (on Canvas).

Recommended Reading:

1. Alcorn, T.E., M.C. Opryszko; K.J. Schwab, "Formative Ethnographic Research to Improve Evaluation of a Novel Water System in Ghana." *Am J Trop Med Hyg* 85(4) 2011 pp 801-5 (an example of the use of qualitative research to inform quantitative study).
2. Babbie Chapter 10: Unobtrusive Measures

Due today: Draft of sampling plan (Section 7).

Assignment: Draft of questionnaire (Section 9) (*Due March 14th, 11:55PM*). Continue planning your focus groups (Section 8) (*Focus group report due March 29th, 11:55PM*).

SESSION 9

March 15

Guest Lecturer: **Sara Folta**

Nutrition 210 Syllabus, Spring 2019

- ✓ **Qualitative Data Collection: Focus groups as a data collection technique and as a preliminary to questionnaire design**

Required Reading:

1. Krueger and Casey, Focus Groups, Chapters 1 – 7.

Due today: Draft questionnaire (section 9).

Assignment: Review and critique one of the other group's questionnaires (to be sent individually, *due March 28th 11:55 pm*). **And** conduct your focus groups (Section 8) (*Focus group report due March 29th, 11:55PM*).

SPRING BREAK

March 22

No class

SESSION 10

March 29

- ✓ **Field Operations and Budgeting**
 - interaction of design, sampling plan, time, and budget considerations
 - how to develop a budget
 - budget formats

Required Reading:

1. Dillman et al. has chapters on the implementation of different kinds of surveys: Chapters 8 (phone), 9 (web), 10 (mail), and 11 (mixed mode). Read these for the implementation approaches.
2. Abdur Rehman Cheema, Abid Mehmood & Fazal Ali Khan (2018) Challenges of research in rural poverty: lessons from large field surveys, *Development in Practice*, 28:5, pp 714-719 (short but recently published paper that highlights real-world examples of challenges in field work)

These next two give you an idea of what is included in planning for field operations in a face-to-face survey. Read them to see what must go into a logistic plan, but you don't need every detail:

3. "Field Operations" Chapter 5 in M. Grosh and J. Muñoz, A Manual for Planning and Implementing the Living Standards Measurement Study Survey LSMS Working Paper No 126, World Bank, Washington D.C. 1996
4. Carlo del Ninno, Survey Design and Organization. ENCOMEC Bulletin No. 2, Cornell Food and Nutrition Policy Program. May 1992.

Recommended Reading: one or more of the following.

1. "Proposal for a Study of the Effect of Withdrawing School Feeding on Schooling Indicators in Low Income Rural Areas of Honduras," Bea Rogers, Dec 1997

Nutrition 210 Syllabus, Spring 2019

2. "Economic Impacts of Improved Health," Bea Rogers, PI, proposal submitted to NIH (selections), August 2001
3. David Rush, National WIC Evaluation, Vol. III, Technical, pp. IV 1-28

Due today: Section 8 Focus Group Report

Assignment: Draft sections 11-12 (Methods and Budget) (*Due April 4th, 11:55PM*).

SESSION 11

April 5

- ✓ **Measuring Knowledge, Attitudes, and Practices**
- ✓ **Scale Construction**
 - Guest Lecturer: Jennie Coates

Room Change – Class meets in Sackler 316 today!

Required Reading:

1. Babbie Chapter 7: Typologies, Indexes, and Scales
2. De Vellis, Scale Development: Theory and Applications (Sage, 2011), Chapters 2-5 required, Chapter 6 recommended.
3. Coates, J., Experience and Expression of Food Insecurity Across Cultures. FANTA, April 2004. http://www.fantaproject.org/downloads/pdfs/Experience_Apr04.pdf

Recommended Reading:

1. [Version 3 of Household Food Insecurity Access Scale \(HFIAS\) for Measurement of Food Access: Indicator Guide](http://www.fantaproject.org/focus/foodsecurity.shtml) (2007): available at <http://www.fantaproject.org/focus/foodsecurity.shtml>
2. Bickel, G., M.Nord, C. Price, W. Hamilton, J.Cook, A Guide to Measuring Household Food Security in the United States Revised 2000. Washington, D.C.: USDA/ERS/Office of Analysis, Nutrition and Evaluation. <http://www.fns.usda.gov/fsec/FILES/FSGuide.pdf>

Due Today: Teams hand in Sections 11-12 (Methods and Budget)

Assignment: Based on your focus group and peer feedback, modify and pretest your questionnaire. (Finalized questionnaire is due April 18.)

SESSION 12

April 12

- ✓ **Working session: term project progress report and trouble-shooting.**

Assignment: Finalize questionnaire – Section 9 (*Due April 18th, 11:55PM*)

SESSION 13

April 19

Nutrition 210 Syllabus, Spring 2019

✓ **Measuring Socio-Economic Status: Income, Expenditure, Consumption, Wealth**

Required Reading (may be modified):

1. Andrew McKay, "Should Multi-Purpose Household Surveys Aim to Measure Total Household Income?" Chapter 17 in Grosh and Glewwe.
2. Beegle, K., Joachim de Weerd, Jed Friedman, John Gibson, *Policy Research Working Paper in Methods of Household Consumption Measurement through Surveys 2010*, World Bank. Available online through this link:
<http://documents.worldbank.org/curated/en/265491468312013923/pdf/WPS5501.pdf>
3. Canberra Group Handbook on Household Income Statistics, 2nd edition, 2011, *United Nations Economic Commission for Europe*. Chapters 1-3 required (PDF available on Canvas)
4. Martine Durand, "The OECD Better Life Initiative: *How's Life?* and the Measurement of Well-Being," 2014. Paper posted on Canvas.

Recommended Reading:

1. Deaton and Grosh, "The Consumption Module in the LSMS Surveys", Chapter 5 in Grosh and Glewwe. (Not every detail of this will be relevant to all students, but you should be aware of the issues raised. Skim this.)

In class activity: develop approaches to measuring economic status under varying scenarios.

Due today: Teams hand in finalized questionnaire (Section 9)

Assignment (individual): Quiz handed out today, due next week. (*April 25th, 11:55PM*).

SESSION 14

April 26

✓ **Measuring Dietary Intake**

In-class exercise: conducting a 24-hour household recall.

Required Reading:

1. Swindale, Anne, and P. Ohri-Vachaspati, Measuring Household Food Consumption: A Technical Guide. Washington, D.C.: FANTA Project, Academy for Educational Development, 2004. Revised Edition
2. Alan R. Kristal, Ulrike Peters, and John D. Potter, Is It Time to Abandon the Food Frequency Questionnaire? Cancer Epidemiol Biomarkers Prev 2005;14(12). December 2005
3. Ruel, M. T. (2003). "Is dietary diversity an indicator of food security or dietary quality? A review of measurement issues and research needs." Food & Nutrition Bulletin 24(2): 231-232.
4. Archer, E.; G. Pavela; C.J.Lavie, "The Inadmissibility of What We Eat in America and NHANES Dietary Data in Nutrition and Obesity Research...." *Mayo Clinic Special Article* July 2015 (on Canvas).
5. Park, Y., Dodd, K. W., Kipnis, V., Thompson, F. E., Potischman, N., Schoeller, D. A., . . . Subar, A. F. (2018). Comparison of self-reported dietary intakes from the Automated Self-Administered 24-h

Nutrition 210 Syllabus, Spring 2019

recall, 4-d food records, and food-frequency questionnaires against recovery biomarkers. *Am J Clin Nutr*, 107(1), 80-93. doi:10.1093/ajcn/nqx002

6. Marjorie L McCullough. Dietary assessment in the digital age: the ongoing quest for better methods. *Am J Clin Nutr* 2018;107:1–2.

Recommended reading:

1. TBA from INDDX study.

Due today: Quiz (hand in at start of class)

Term paper due May 6 (11:55 pm) on Canvas

No extensions for students expecting to graduate this year.