Tufts UNIVERSITY | Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy

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NUTC 0230: Interpreting Nutrition Evidence
Spring 2024

Welcome to NUTC 0230!

My name is Dr. Lara Hyde and I'll be your professor this semester, joined by Dr. Adela Hruby as a guest lecturer. You can call me Lara. I've been teaching this course for five years. I always enjoy teaching Interpreting Nutrition Evidence because studying how nutrition research is conducted and communicated in the evolving media landscape demonstrates both the challenge and importance of doing so responsibly. My career has been dedicated to translating the underlying science behind nutrition fads to create accessible and engaging videos on social media platforms. I am enthusiastic about incorporating your perspectives as we learn together to understand and critique study designs investigating emerging topics in nutrition. I am committed to creating a course that is inclusive through both content and design. I believe that the diversity students bring to this course is a strength and resource. If you encounter barriers, please let me know immediately so that we can determine if limitations can be addressed by design adjustments or alternative accommodations. I welcome feedback that will assist me in improving the usability and experience for all students. As students, I understand that you may experience a range of challenges that may interfere with learning and/or reduce your ability to participate in class activities. I value you as a whole person and I can be a resource for you to make course-specific accommodations, and please know there are additional confidential resources available to you through Tufts.

Important Information:

Class Meetings: Online

Lead Instructor: Lara Hyde, PhD, (she/her) lara.park@tufts.edu

Guest Lecturer: Adela Hruby, PhD, (she/her) adela.hruby@tufts.edu

Semester Hour Units: 3

Prerequisites: NUTC 0200: Foundations of Nutrition Science or NUTC 0202: Principles of Nutrition Science, or a prior course in general nutrition.

Course Communications:

Weekly course emails will be sent through Canvas describing upcoming course content and relevant instructions. Students are welcome to email the lead instructor anytime at lara.park@tufts.edu; responses will be sent within 48 hours - usually within 24hrs.

Office Hours:

Lead Instructor: *Zoom, by appointment*

Students are encouraged to schedule Zoom office hours to ask questions, review assignments, discuss concepts, or even to have the opportunity to get to know each other through this virtual environment.

Course Summary:

This course will familiarize students with the terms and tools required to navigate the scientific literature and dissect the components of nutrition research articles. The course covers literature searches, study designs, anatomy of a research paper, and common statistical terms. Through "hands-on" exercises, including literature reviews and case studies of how

nutrition-related scientific evidence is translated in press releases and social media, students will gain the skills required to translate and communicate this body of knowledge responsibly.

Course Goals:

The primary purpose of this course is for you to learn how to interpret nutrition evidence (mostly involving humans, with a few other animal studies for good measure) for lay audiences - those who may read or rely on your work to guide their own nutrition-related behaviors or professional decision-making. The basis of interpreting nutrition evidence lies in having the ability to read, understand, and interpret literature published in peer-reviewed journals. By the end of the this course, you will be able to analyze a nutrition manuscript, identify related literature, describe the manuscript's major strengths and weaknesses, and finally, write articles targeted to non-scientific audiences that responsibly convey the manuscript's importance, both within a broader context as well as its specific implications for your reader, using non-technical language, so as to positively affect health and well-being.

Texts or Materials:

All assigned readings listed on the schedule will be available for the duration of the semester on Canvas (https://canvas.tufts.edu) as PDFs or via links, or via the Hirsh Health Sciences Library access system, in cases where finding the literature is part of the assignment. In this course, we rely on peer-reviewed articles published in major medical and nutrition journals. Reading lots of studies, although uncomfortable and confusing at first, is the best way to get comfortable with them and grasp the approach that scientists take when they write about their science. In fact, it's precisely what all nutrition students themselves have to practice regularly in what's known as "Journal Club."

Recommended Text: Swinscow, TDV, *Statistics at Square One*, Ninth Edition, BMJ Publishing Group, 1997.

Access for **free** at http://www.bmj.com/about-bmj/resources-readers/publications/statistics-square-one. If you are not at all familiar with statistics, this small manual is a great place to begin. Hard copy and Kindle editions are available on Amazon.com.

Optional Texts: Miller, JE. *The Chicago Guide to Writing about Multivariate Analysis.* University of Chicago Press, 2005.

This is an all-around useful text to understand what makes for good scientific writing. If only every scientist read this, peer review would be a much easier process. If you don't happen to find it exceptionally useful, pass it along to your scientist friends.

Girden, ER, Kabacoff, RI. *Evaluating Research Articles from Start to Finish*. 3rd Edition. Sage Publications, 2011.

This book explains many study designs and analytic methods, alongside presenting critiques and case studies of research articles.

Library Resource Page

The extraordinary librarians at Hirsh Health Sciences Library have created a very useful series of pages specifically for this course. There are links to major nutrition stakeholders, interesting blogs, databases, citation tools, citation formatting, etc. **Bookmark this link today!**
http://researchguides.library.tufts.edu/nutr230c

How to be Successful in this Course:

In order to succeed in this course, it is recommended to provide yourself with the time to fully delve into the material independently in advance of group discussions, so that discussions can be an opportunity to engage and support your peers in interpreting nutrition evidence together. Assignments are designed to challenge you to dissect and reflect on study designs used in nutrition research and how the media has translated these findings for the public. Understanding nutrition

research can be intimidating at first and you are encouraged to be proactive in reaching out to your instructor and peers for further support; I am always happy to schedule zoom calls to address questions. Further, your success will also be amplified by diving into the nutrition literature around a topic of your interest in your final assignment; use this as an opportunity to enhance your knowledge about a nutrition field that is relevant to your career and/or personal interests.

Assignments and Grading:

The assignments and discussions for this course are designed to allow you to practice and demonstrate that you understand the course and module objectives. They are both reflective and evaluative. Refer to the table below for the weighted contributions to your grade.

Items	**% of Grade**
Discussions (5 total, 7 points each)	35%
Assignments (7 total, 5 points each)	35%
Final Assignment (30 points)	30%

Discussions: Discussions—particularly video chats—are one of the best ways to get to know your colleagues and create connections that are otherwise challenging to create in the context of an online classroom. Discussion groups will include 3–5 of your classmates (group assignments will be made the first week of class mostly based on time zone), and it will be up to the group to select a 30–45-minute period in a given week to conduct the discussion. Discussions are to take place online, in any **recordable** medium you choose. The easiest tool for these discussions is **Zoom** (https://tufts.zoom.us/). Zoom allows you to record your conversations and email me the link to the recording so that I can watch it, give you feedback, and answer any questions that came up. Note that whoever initiates the Zoom meeting, as the moderator, will be responsible for hitting the "record" button and then emailing me the link. Be sure to log into Zoom using your Tufts UTLN and password for full functionality. If a *synchronous* discussion is absolutely impossible in a given week owing to work/life, please use the online **Forum** (not chat rooms) on Canvas to conduct your discussion. Discussions are graded according to the "Discussion Grading Rubric," located on Canvas. Discussion guidelines and questions relevant to a particular week's topic will be distributed ahead of time, as necessary. Please remember to contribute in a professional and constructive way, particularly in the face of disagreement. NUTC 230 has been using video conferencing for synchronous discussions for the last 10 years, and it has been very well received by students, so we are continuing to implement the approach this year. If, however, it proves unfeasible for the majority of students/groups over the course of the semester, we will modify our discussion approach accordingly. As we live with responsibilities outside of this class, a synchronous discussion may not be possible for every member of every group each week a discussion is assigned. Instructions for how to manage such contingencies will follow. Lastly, I plan to drop in on a discussion or two, or more, of each discussion group over the course of the semester, so please remember to invite me!

Assignments: Throughout the semester, you will be required to produce a literature search assignment identifying different types of study designs, several reflective assignments to share your perspectives following case studies, and analytical assignments challenging you to dissect a study design and interpret the findings. While you are encouraged to discuss these assignments with your peers, each assignment must represent your own work in your own words. Rubrics accompanying the different assignment types are available on Canvas.

Final Assignment: The largest assignment of the semester requires you to produce your own case study by selecting a research article representing one of the study designs taught in the course on a topic of your interest, with accompanying press release and media pieces. Submission of the assignment is spread over the course of several weeks including an interpretation of the research study, press release, media pieces, and creation of your own media translation of the research. A rubric accompanying the assignment is available on Canvas.

Grading Range:

A **passing grade in the course is B- or better**. Final letter grades (A+ though F) for the course will be assigned based on the following criteria (we round up):

90–100	A range (90–<93 = A-, 93+ = A, A+ given for superlative work)
80–89	B range (80–<83 = B-, 83–<87 = B, 87–<90 = B+)
70–79	C range (70–<73 = C-, 73–<77 = C, 77–<80 = C+)
60–69	D range (60–<63 = D-, 63–<67 = D, 67–<70 = D+)
<60	F

Instructions for Submission of Assignments:

Written assignments, except for discussion transcripts/videos, should be submitted as a word document, 1-inch margins, 11-point font, single-spaced, on the Canvas site. All assignments and video recordings must be submitted by **Sunday** the week they are assigned, no later than **11:59PM EST/EDT** or your local time, whichever is later, unless otherwise specified (e.g., term assignment has an end-of-semester due date). Please let me know if you are taking the course in a time zone other than the east coast of the U.S. Late assignments will be accepted; however, 10% will be deducted for every day late if a pre-approved extension has not been granted. You are encouraged to reach out in advance of the assignment deadline if an extension is necessary; that said, if you have extenuating circumstances, just talk to me as soon as possible.

Academic Conduct:

You are responsible for upholding the highest standards of academic integrity, as specified in the Friedman School's Policies and Procedures Handbook (https://nutrition.tufts.edu/about/policies-and-procedures), as well as Tufts University's policies (https://students.tufts.edu/community-standards/support-resources/academic-integrity-resources). This includes understanding and avoiding plagiarism, which is defined as the unacknowledged use of someone else's published or unpublished work. It is the responsibility of each student to understand and comply with academic integrity standards, as violations will be sanctioned by penalties ranging from failure on an assignment and the course to dismissal from the school.

Accommodation of Disabilities:

We will do our best to ensure each of you has the resources you need to succeed. Tufts University is committed to providing equal access and support to all students through the provision of reasonable accommodations so that each student may access their curricula and achieve their personal and academic potential. If you have a disability that requires reasonable accommodations, please contact the Friedman School Assistant Dean of Student Affairs at 617-636-6719 to make arrangements for determination of appropriate accommodations. Please be aware that accommodations cannot be enacted retroactively, making timeliness a critical aspect for their provision.

Tufts Zoom:

This course is entirely online with pre-recorded lectures accessible through Canvas and live peer discussions scheduled through Zoom. Additionally, office hours by appointment can be scheduled through Zoom. Note that just going to Zoom.com without the *Tufts* prefix won't give you the same functionality or options, so be sure to use https://tufts.zoom.us/) and log in with your Tufts UTLN and password.

On-Campus and Remote Participation:

This course will be delivered remotely therefore no on-campus participation is required.

Course Overview:

The course is organized around the principle study designs, in 5 modules, with accompanying case studies and additional material presented each week:

1 The Basics

2 "Other" Study Designs

3 Trials

4 Cohort Studies

5 Case-Control Studies

Case studies, used through most of the course, are designed to allow each of you to acquire greater skill in interpreting nutrition evidence by examining previous examples of both "good" and "bad" interpretations of nutrition science. Through case studies, students will be able to:

- Apply skills they have acquired to interpret study design, methodology, statistics, and discussions of nutrition science manuscripts.
- Identify pitfalls and opportunities in the communication of nutrition science to lay audiences.
- Evaluate press releases and media reports related to nutrition science manuscripts for validity and accuracy of messaging.
- Discuss ramifications of poorly interpreted science.

Lectures, readings, and assignments (including discussions) are to be completed in the week they are assigned and are due by Sunday, midnight, at the end of that week, unless specific assignment deadlines are indicated. All materials are posted on Canvas.

WEEK	COURSE TOPIC	LECTURER	ASSIGNMENTS DUE
Week 0 Jan. 17	Course Introduction	N/A	Assignment #1: "Getting to Know You" questionnaire
Week 1 Jan. 22	Getting to Know Databases and Other Resources; Searching for Information	Hyde	None
Week 2 Jan. 29	Peer Review; Citing Sources; Keeping Up with the Literature	Hyde, Hruby	Assignment #2: Citation, Table of Contents, and Subject/Author Alerts Discussion #1
Week 3 Feb. 5	Epidemiology; Outline and Hierarchy of Epidemiologic Study Design	Hruby	Assignment #3: Search and Classify Study Designs
Week 4 Feb. 12	Other Study Designs; Case Study #1 Crazed for Cocoa	Hruby, Hyde	Assignment #4: 3-2-1 Reflection
Week 5 Feb. 19	Visualizing Correlations; Case Study #2 Chocolate and Nobels	Hyde	Assignment #5: 3-2-1 Reflection Discussion #2

Week 6 Feb. 26	Trials; Data, Displays, Distributions, Populations, and Descriptive Statistics; Confidence Intervals, the Null Hypothesis, and P Values	Hruby	Read over Final Assignment (nothing due)
Week 7 March 4	Case Study #3 Salt Swap	Hyde	Assignment #6: Critical Review of a Research Paper Discussion #3
Week 8 March 11	Basic Statistical Tests; Case Study #4 Hope and Hype of Intermittent Fasting	Hruby, Hyde	Assignment #7: 3-2-1 Reflection
Week 9 March 18	Cohort Studies; Risk, Odds, and their Interpretation; Case Study #5 Is 10,000 Steps per Day the Magic Number?	Hruby, Hyde	Final Assignment Part I
Week 10 March 25	Case Study #6 When Food Processing Goes Ultra; Bias and Confounding	Hyde, Hruby	Final Assignment Part II Discussion #4
Week 11 April 1	Case-Control Studies; Case Study #7 Mediterranean Diet and ADHD	Hruby, Hyde	Final Assignment Part III Discussion #5
Week 12 April 8	None	None	Final Assignment Part IV
Week 13 April 15	None - Finals Week	None	Final Assignment Part V

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

Date of Class: **Week 0: January 17**
Course Topics: **Course Introduction**
Assignments Due (Jan. 21): *Assignment #1: Getting to Know You Questionnaire*

Date of Class: **Module 1 | Week 1: January 22**
Course Topics: **Getting to Know Databases and Other Resources; Searching for Information**
Learning Objectives:
- List scientific literature databases as well as news media and other databases.
- Show how to access, navigate, and optimize library resources.
- Conduct searches for relevant scientific literature using appropriate databases.

Required Reading: None
Optional Reading:
- Dietary Guidelines Advisory Committee, *Scientific Report of the 2020 Dietary Guidelines Advisory Committee*. USDA/ARS, 2020.
- Nestle, M., *Dietary Guidelines Advisory Committee Releases Report*. Foodpolitics.com, 2020.
- USDA/HHS, *Dietary Guidelines for Americans 2020-2025.* 9th Edition. DietaryGuidelines.gov, 2020.
- Rabin, RC, *U.S. Diet Guidelines Sidestep Scientific Advice to Cut Sugar and Alcohol*. NYT, 2020.

Assignments Due: *None*

Date of Class: **Module 1 | Week 2: Jan. 29**
Course Topics: **Peer Review, Citing Sources, Keeping Up with the Literature**
Learning Objectives:
- Describe peer review and identify which journal articles are peer-reviewed.
- Identify credible sources of scientific literature and appropriate sources for various health indices (e.g. national prevalence estimates).
- Make use of citation/reference software to keep track of sources.
- Develop a system to keep up with nutrition science (e.g. hunting, foraging, having it delivered).

Required Reading:
- Sense About Science, *Peer Review: The Nuts and Bolts*. Senseaboutscience.org, 2021.
- West, JD, *Misinformation In and About Science*. PNAS, 2021.
- Hamblin, J, *A Credibility Crisis in Food Science*. The Atlantic, 2018.
- Oransky, I, *How Publish or Perish Promotes Inaccuracy in Science - and Journalism*. AMA J Ethics, 2015.

Assignments Due (Feb. 4): *Assignment #2: Citation, Table of Contents, and Subject/Author Alerts; Discussion #1*

Date of Class: **Module 1 | Week 3: Feb. 5**
Course Topics: **Epidemiology; Outline and Hierarchy of Epidemiologic Study Design**
Learning Objectives:
- Describe the notion of "population perspective" and its relevance to clinical, community, and public health applications.
- Define terms, including risk factor/exposure/determinant and outcome/endpoint/event.
- Compare and contrast approaches using nutrition as medicine (based on the natural history of disease) with nutrition for public health interventions and discuss why these concepts are crucial to evaluating appropriateness of study design.
- Explain basic descriptive epidemiology, such as prevalence and incidence.
- Classify major epidemiologic study designs as observational versus intervention, analytic versus descriptive.

Required Readings:
- World Cancer Research Fund/American Institute for Cancer Research, *Judging the evidence.* dietandcancerreport.org, 2018

Assignments Due (Feb. 11): *Assignment #3: Search and Classify Study Designs*

Date of Class: **Module 2 | Week 4: Feb. 12**
Course Topics: **Other Study Designs; Case Study #1 Crazed for Cocoa**
Learning Objectives:
- Describe how a publication flows and the rationale for its presentation.
- Evaluate an animal research study by critiquing the design and interpreting figures and tables.
- Critique press releases and media reports related to nutrition science manuscripts for validity and accuracy of messaging.
- Discuss ramifications of poorly interpreted science.

Required Reading/Assignments:
- Sun, M, et al, *Dietary Cocoa Ameliorates Non-Alcoholic Fatty Liver Disease and Increases Markers of Antioxidant Response and Mitochondrial Biogenesis in High Fat-Fed Mice*. J Nutr. Biochem, 2021.
- Pennsylvania State University, *Dietary Cocoa Improves Health of Obese Mice; Likely has Implications for Humans*. EurekAlert.org, 2021.
- Khanna, M, *Eating Cocoa Helps Massively in Losing Weight, Shows Study*. India Times, 2021.
- Schirru, C, *Lose Weight Thanks to Chocolate? Possible According to a Study*. Tekdeeps, 2021.
- Chadwick, J, *Can Eating Chocolate Help You to LOSE Weight?* Daily Mail, 2021.

Assignments Due (Feb. 18): *Assignment #4: 3-2-1 Reflection*

Date of Class: **Module 2 | Week 5: Feb 19**
Course Topics: **Visualizing Correlations; Case Study #2 Chocolate and Nobels; Association and Causality**
Learning Objectives:
- Describe an ecological study design and discuss its strengths and limitations
- Evaluate an ecological research study by critiquing the design and interpreting figures and tables
- Critique press releases and media reports related to nutrition science manuscripts for validity and accuracy of messaging
- Discuss ramifications of poorly interpreted science
- Compare and contrast correlation and causation.

Required Reading:
- Messerli, FH, *Chocolate Consumption, Cognitive Function, and Nobel Laureates*. NEJM, 2012.
- Pritchard, C, *Does Chocolate Make You Clever?* BBC News, 2012.
- Weisenthal, J, *There's a Shocking Connection Between Eating More Chocolate and Winning the Nobel Prize*. Business Insider, 2014.
- Jogalekar, A, *Chocolate Consumption and Nobel Prizes: A Bizarre Juxtaposition If There Ever Was One*. Scientific American, 2012.
- Donois, K, *What a Link Between Chocolate and Nobel Prizes Reveals About Our Trust in Scientists*. The Conversation, 2020.

Assignments Due (Feb. 25): *Assignment #5: 3-2-1 Reflection, Discussion #2*

Date of Class: **Module 3 | Week 6: Feb. 26**
Course Topics: **Trials; Data, Displays, Distributions, Populations and Descriptive Statistics; Confidence Intervals, Null Hypotheses, and P Values**
Learning Objectives:
- Explain the importance of randomization, placebos, and blinding in trials
- Describe why and identify where trials are registered
- Describe the foundations of the scientific method of inquiry
- Explain the basics of the scientific method and hypothesis testing
- Define P values and confidence intervals and describe their role in assessing chance

Required Reading:
- Rowe, SB & Alexander, N, *Communicating Nutrition and Other Science: A Reality Check*. Nutrition Today, 2016.
- Swinscrow, TDV, *Statistics at Square One*. 9th Edition, Chapters 1-6, BMJ Publishing Group, 1997.
- Vaux, DL, *Research Methods: Know When Your Numbers are Significant*. Nature, 2012.

Assignments Due: None

Date of Class: **Module 3 | Week 7: March 4**
Course Topics: **Case Study #3 Salt Swap**
Learning Objectives:

- Evaluate a randomized clinical trial by critiquing the design and interpreting figures and tables.
- Critique press releases and media reports related to nutrition science manuscripts for validity and accuracy of messaging.
- Discuss the importance and relevance of generalizability of the study population.
- Interpret P values and confidence intervals to assess the role of chance.

Required Reading/Assignments:

- Neal, B, et al, *Effect of Salt Substitution on Cardiovascular Events and Death*. NEJM, 2021.
- Ingelfinger, JR, *Can Salt Substitution Save At-Risk Persons from Stroke?* NEJM, 2021.
- The George Institute for Global Health, *Landmark Study Shows Simple Salt Swap Could Prevent Millions of Deaths Each Year*. GeorgeInstitute.org, 2021.
- European Society of Cardiology, *Low-sodium Salt Prevents Stroke*. EurekAlert.org, 2021.
- Brody, JE, *Cutting Out Even a Little Salt Can Have Big Health Benefits*. NYT, 2021.
- O'Riordan, M, *Massive SSaSS Study Shows Switch to Salt Substitute Cuts Stroke, CVD*. TctMD, 2021.

Assignments Due (March 10): *Assignment #6: Critical Review of Research Paper, Discussion #3*

Date of Class: **Module 3 | Week 8: March 11**
Course Topics: **Basic Statistical Tests; Case Study #4 Hope and Hype of Intermittent Fasting**

Learning Objectives:

- Evaluate a randomized clinical trial by critiquing the design and interpreting figures and tables.
- Critique press releases and media reports related to nutrition science manuscripts for validity and accuracy of messaging.
- Analyze individual studies within the context of a larger body of evidence.
- Compare and contrast studies to identify potential reasons for disparate findings between studies.
- Define basic statistical tests (t-tests, paired t-tests, non-parametric counterparts, and chi-square tests), and describe how to interpret the results
- Define basic tests of association and describe how to interpret the results.
- Explain why a specific statistical test was used in a given study.
- Interpret P values and confidence intervals to assess the role of chance.

Required Reading/Assignments:

- ACP-ASID, *Effective Clinical Practice Compendium of Primers*. 2000
- Templeman, I, et al, *A Randomized Controlled Trial to Isolate the Effects of Fasting and Energy Restriction on Weight Loss and Metabolic Health in Lean Adults*. Sci Transl. Med., 2021.
- University of Bath, *Intermittent Fasting 'No Magic Bullet for Weight Loss' Says New Study*. EurekAlert.org, 2021.
- AAAS, *Alternate-Day Intermittent Fasting Leads to Less Fat Loss Than Traditional Daily Energy Restriction*. EurekAlert.org, 2021.
- Pawlowski, A, *Fasting is 'Nothing Special' for Weight Loss, Study Finds. Experts Disagree*. Today, 2021.
- Finley, S, *Intermittent Fasting's Weight Loss Downside Revealed by Scientific Study.* Fit&Well.com, 2021.

Assignments Due (March 17): *Assignment #7: 3-2-1 Reflection*

Date of Class: **Module 4 | Week 9: March 18**
Course Topics: **Cohort Studies; Risk, Odds, and their Interpretations, Case Study #5 Is 10,000 Steps per Day the Magic Number?**

Learning Objectives:

- Describe the key design components of cohort studies.
- Explain the importance of researcher blinding.
- Discuss the strengths and limitations of cohort studies, especially in nutrition.
- Discuss the importance and relevance of generalizability of the study population within cohort studies.
- Compare and contrast precision and validity (distinguish between bias and precision).
- Distinguish between external validity (generalizability) and internal validity.
- Define the major types of epidemiologic bias - confounding, selection bias, and information bias, and describe how study design features can avoid bias and address confounding.
- Discuss the framework for assessing valid statistical associations using alternative explanations of chance, bias, and confounding.
- Define and interpret risk and odds.
- Evaluate a prospective cohort study by critiquing the design and interpreting figures and tables.
- Critique press releases and media reports related to nutrition science manuscripts for validity and accuracy of messaging.
- Identify a research article on a topic of interest with accompanying press release and media pieces.

Required Reading:

- Folker, AP & Sandøe, P, *Leaping "Out of Doubt" - Nutrition Advice: Values at Stake in Communicating Scientific Uncertainty to the Public*. Health Care Analysis, 2008.
- Rowe, SB & Alexander, N, *Nutrition/Health Risk Communication Revisited: Are You Communicating Like Spock or Captain Kirk?* Nutrition Today, 2015.
- Paluch, AE, et al., *Steps Per Day and All-Cause Mortality in Middle-Aged Adults in the Coronary Artery Risk Development in Young Adults Study.* JAMA Netw Open, 2021.
- Spartano, N, *What are the Next Steps for Developing a National Steps Guideline?* Jama Netw Open, 2021.
- UMass Amherst, Steps Per Day Matter in Middle Age, But Not as Many as You May Think. EurekAlert, 2021.
- Stenson, J, *How Many Steps A Day Should You Take? Study Finds 7,000 Can Go a Long Way.* NBC News, 2021.
- Reynolds, G, *How Much Exercise Do We Need to Live Longer?* NYT, 2021.

Assignments Due (March 24): *Final Project Part I*

Date of Class: **Module 4 | Week 10: March 25**
Course Topics: **Case Study #6 When Food Processing Goes Ultra; Bias and Confounding**

Learning Objectives:

- Discuss the strengths and limitations of cohort studies, especially in nutrition.
- Discuss the importance and relevance of generalizability of the study population within cohort studies.
- Evaluate a prospective cohort study by critiquing the design and interpreting figures and tables.
- Critique press releases and media reports related to nutrition science manuscripts for validity and accuracy of messaging.

- Independently critique a research article on a topic of interest.

Required Reading/Assignments:

- Wang, L, et al., *Association of Ultra-Processed Food Consumption with Colorectal Cancer Risk Among Men and Women: Results from Three US Prospective Cohort Studies.* BMJ, 2022.
- Monteneiro, C & Cannon, G, *The Trouble with Ultra-Processed Foods*. BMJ, 2022.
- Tufts Now, *New Study Links Ultra-Processed Foods and Colorectal Cancer in Men*. Tufts.edu, 2022.
- Lee, B, *Ultra-Processed Foods Associated With Colorectal Cancer, Premature Death, 2 New Studies Show*. Forbes, 2022.
- O, D, *The Worst Eating Habit for Colon Cancer, New Study Suggests.* Eat This Not That, 2022.
- Bendix, A, *Even More Evidence Links Highly Processed Food to a Greater Risk of Cancer and Death.* NBC News, 2022.

Assignments Due (March 31): *Final Project Part II, Discussion #4*

Date of Class: **Module 5 | Week 11: April 1**
Course Topics: **Case-Control Studies; Case Study #7 Mediterranean Diet and ADHD**

Learning Objectives:

- Describe the key distinguishing design elements of a case-control study.
- Discuss the importance and relevance of generalizability of the study population and selection methods within case-control studies.
- Compare and contrast the differences between study designs and the kind of information that can be attained through each of them, why some study designs are more feasible than others for given research questions.
- Discuss the strengths and limitations for each study design.
- Independently critique accompanying press releases on your selected research article.

Required Reading:

- Rios-Hernández, A, et al. *The Mediterranean Diet and ADHD in Children and Adolescents*. Pediatrics, 2017.
- Universidad de Barcelona, *Mediterranean Diet Linked to a Lower Risk of Attention-Deficit/Hyperactivity Disorder.* Science Daily, 2017.
- Wedge, M, *The Mediterranean Diet and ADHD.* Psychology Today, 2017.
- Chu, W, *Med Diet Approach Could Help Children with ADHD: Study.* Nutraingredients, 2017.
- Norton, A, *Could the Mediterranean Diet Help Prevent ADHD?* Health Day/WebMD, 2017.

Assignments Due (April 7): *Final Project Part III, Discussion #5*

Date of Class: **Module 5 | Week 12: April 8**
Course Topics: **Final Project**

Learning Objectives:

- Critique accompanying media pieces on your selected research article

Required Readings: None

Assignments Due (April 15): *Final Project Part IV*

Date of Class: **Module 5 | Week 13: April 15 (Finals Week)**
Course Topics: **Final Project**

Learning Objectives:

- Translate findings from your selected research article to the public through accessible methods

Required Readings: None

Assignments Due (April 21): *Final Project Part V*

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