NUTC 0285: Current Controversies in Nutrition
Summer 2019

Class Meetings: Online, primarily via Canvas

Instructor(s): Adela Hruby, Ph.D., M.P.H.
Email: adela.hruby@tufts.edu
Skype: adela.hruby
WebEx: https://tufts.webex.com/meet/ahruby01 Code: 730 145 251

Office Hours: Online, by appointment

Graduate Credits: 3 credits

Prerequisites: None

Course Description: Virtually no discipline attracts more public attention or generates more controversies than nutrition. The reasons for this vary. Food and nutrition can be viewed through multiple lenses: the personal, familial, communal, cultural, political, historical, and scientific. This course explores the scientific underpinnings of several hot topics and controversies, which will be examined from the perspectives of scientists and consumers (of food and media), with an undercurrent fostering self-understanding of implicit biases. The class will engage in debates and discussions designed to illuminate different perspectives. Students will have the opportunity to research, evaluate, and present their findings on a nutrition-related topic that is of concern to them.

Course Objectives: By the end of the course, students will be able to identify their own biases in approaching current hot topics/controversies, in approaching sources of information about these topics, and where such biases/world view originated; recognize and describe how they personally, as well as the average consumer, currently make informed decisions about the healthfulness of foods for themselves and/or for others; relay the scientific and historical underpinnings of select current topics/controversies in nutrition; develop skills to critically evaluate sources of non-scientific nutrition information and misinformation, including traditional and “new” media, as well as the nutrition information itself, to become more informed consumers; summarize the current state of scientific evidence and the gaps in knowledge of a given topic; and explain the scientific, social, cultural, media, and/or political origins of the controversial nature of a given topic.

Texts or Materials: With the exception of the book (below), all assigned readings listed on the schedule will be available for the duration of the semester on Canvas (https://canvas.tufts.edu), or via the Hirsch Health Sciences Library access system, in cases where finding the literature is part of the assignment. In this course, we rely primarily on popular media and similar readings, supplemented with peer-reviewed articles published in major medical and nutrition journals for those hoping to gain more depth of understanding (these are marked as “Optional”). Reading studies will be new to most of you, and you are not expected to approach these articles as scientists, or to understand every part of them. You will be briefly introduced to how to scan a paper and how to approach it for the purposes of this course.

The required book is:

**Diversity Statement**: We believe that the diversity of student experiences and perspectives is essential to the deepening of knowledge in this course. We consider it part of our responsibility as instructors to address the learning needs of all of the students in this course. We will present materials that are respectful of diversity: race, color, ethnicity, gender, age, disability, religious beliefs, political preference, sexual orientation, gender identity, socioeconomic status, citizenship, language, or national origin, among other personal characteristics.
Course Topics and Assignment Schedule at a Glance: The course begins on May 22 and continues through “Final Exam Week” (August 19–25). This 14-week course is primarily organized around a handful of current hot topics/controversies, presented as case studies supported primarily by popular media pieces, accompanied by relevant research for those willing to explore and learn at a deeper level. These topics are organized in a way to allow each student to acquire greater skill in understanding the origins of putative controversies, how media often drives controversies, and how nutrition scientists understand and approach these topics.

<table>
<thead>
<tr>
<th>WEEK NO.</th>
<th>WEEK OF</th>
<th>COURSE TOPIC</th>
<th>ASSIGNMENTS DUE BY END OF WEEK (11:59PM ET SUNDAY)</th>
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<tbody>
<tr>
<td>1</td>
<td>May 22</td>
<td>Course Introduction (half week)</td>
<td>Getting to Know You Survey</td>
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<td>2</td>
<td>May 27</td>
<td>Personal Biases and Reading Nutrition News</td>
<td>A1. My World View</td>
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<td>3</td>
<td>June 3</td>
<td>Casting a Critical Eye on Nutrition Information</td>
<td>A2. Is This Legit?</td>
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<td>4</td>
<td>June 10</td>
<td>Topic 1: Saturated Fat, Part 1</td>
<td>3-2-1 Reflection 1</td>
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<td>5</td>
<td>June 17</td>
<td>Topic 1: Saturated Fat, Part 2</td>
<td>3-2-1 Reflection 2</td>
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<td>6</td>
<td>June 24</td>
<td>Topic 1: Saturated Fat, Part 3</td>
<td>3-2-1 Reflection 3</td>
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<td>A3. What Topics Do You Think Are Controversial?</td>
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<td><strong>WebEx Discussion #1, 6/29, 10am ET</strong></td>
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<td>7</td>
<td>July 1</td>
<td>Topic 2: Grains, Gluten, and Celiac, Part 1</td>
<td>3-2-1 Reflection 4</td>
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<td>8</td>
<td>July 8</td>
<td>Topic 2: Grains, Gluten, and Celiac, Part 2</td>
<td>3-2-1 Reflection 5</td>
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<td><strong>WebEx Discussion #2, 7/13, 10am ET</strong></td>
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<td>10</td>
<td>July 22</td>
<td>Topic 3: Organic vs. Conventional Foods, Part 2</td>
<td>3-2-1 Reflection 7</td>
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<td><strong>A4. Identify a Final Project Topic</strong></td>
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<td>11</td>
<td>July 29</td>
<td>Topic 4: Dietary Supplements, Part 1</td>
<td>3-2-1 Reflection 8</td>
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<td><strong>A5. Supplement Claims</strong></td>
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<td>12</td>
<td>August 5</td>
<td>Topic 4: Dietary Supplements, Part 2</td>
<td>3-2-1 Reflection 9</td>
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<td><strong>A6. Outline of Final Project Topic</strong></td>
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<td>13</td>
<td>August 12</td>
<td>Topic 5: Hydration, Part 1</td>
<td>3-2-1 Reflection 10</td>
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<td><strong>A7. Video Presentation of Final Project</strong></td>
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<td>14</td>
<td>August 19</td>
<td>Topic 5: Hydration, Part 2</td>
<td>A8. Final Project due</td>
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This schedule is subject to modification at the instructor’s discretion.
Detailed Description of Course Topics, Assignment Schedule, and the Learning Objectives for Each Class Session:

**Weeks 1 through 3**

In this first part of the course, we cover the introduction to the course and the course’s theoretical approach, and, moreover, begin to explore the world view with which you enter this exploration of hot topics and controversies. Your own beliefs and biases will predispose you to accepting or arguing against contradictory evidence, information, or sources. Therefore, becoming aware of these is key to your understanding how you approach the topics that follow.

**Week 1: May 22-May 26 (half-week)**

**Class Topic(s):** Course Introduction

**Required Lectures/Materials:**
Watch 1 lecture:
- Course Introduction

Read:
- Introduction in *The Gluten Lie*.

**Assignments Due:**
Review the syllabus. Organize your schedule. Get familiar with the work ahead.
Complete the “Getting to Know You” survey available at [URL and password on Canvas only](#).

**Week 2: May 27-June 2**

**Class Topic(s):** Personal Biases and Reading Nutrition News

**Learning Objectives:**
- Identify and describe your own personal beliefs about specific topics in food/nutrition.
- Investigate some of the origins of these beliefs, and recognize how these beliefs affect your daily dietary practices.
- Explore the rigidity or fluidity of these beliefs in the face of supporting or contradictory evidence.

**Required Lectures/Materials:**
Watch 2 lectures:
- Understanding Your Nutrition and Media World Views
- Wheat from Chaff: How to Read Nutrition News with a Critical Eye and Identify Nutrition Experts and Imposters

Read:
- Chapters 1, 2, and 3 in *The Gluten Lie*.

**Assignments Due:**
**A1. My World View.** This assignment is geared toward helping you understand your own world view, beliefs, and biases regarding nutrition and media about nutrition. Please respond using the document/guide on Canvas.
Week 3: June 3-9

Class Topic(s): Casting a Critical Eye on Nutrition Information

Learning Objectives:
- Identify signatures of nutrition quackery versus nutrition expertise.
- Review and practice strategies to identify misleading nutrition information in popular and social media, blogs, infomercials, etc.

Required Lectures/Materials:
Watch 2 lectures:
- Whom Do We Trust and Why?
- Casting a Critical Eye on Nutrition Information

Read:
- Chapters 4, 5, and 6, and the “Unpacked Diet” sections in The Gluten Lie.

Assignments Due:
A2. Is This Legit? Find four articles about nutrition sourced from (“legitimate”) popular news media, blogs, health web sites, etc. Two of these should be articles in which you trust the information, two of which should be articles in which you do not trust the information. Every pair of articles (trusted and not trusted) should be on the same topic (of your choice). For each article, provide:
  a) the title, author, and URL/hyperlink,
  b) a paragraph about the content and approach of the article (e.g., the objective or “why” of the piece, its central thesis/argument, length, reading level, etc.)
  c) a paragraph about each source (e.g., target audience of site, who the authors are, etc.), and
  d) a personal statement about what makes YOU trust the information or not — in other words, what makes a given article trustworthy (or not)?

Weeks 4 through 6

During these weeks we begin investigating our first topic: saturated fat and specifically its role in heart health. We begin with a high-level overview of how nutrition science is conducted, how scientists accrue evidence in a given field, and how they rank different kinds of evidence. We then move into an exploration of evidence and arguments for/against the role of saturated fat in human heart health, including a brief review of basic lipid-related physiology.

Week 4: June 10-16

Class Topic(s): Saturated Fat, Part 1

Learning Objectives:
- Explain the basics of the scientific method/approach.
- Distinguish the major types of research studies and describe the hierarchy of scientific evidence.
- Describe how nutrition scientists tend to view research and accruing evidence.
- List the different types of dietary fat and their dietary sources.
- Broadly summarize the current view of the physiological role of dietary fats in human heart health.

Required Lectures/Materials:
Watch 3 lectures:
• How Does “Science” Work?
• Getting the Gist of Nutrition Research When You’re Not a Nutrition Scientist
• The Physiology of Saturated Fat and Heart Health, in Brief

Read:

Assignments Due:
3-2-1 Reflection. Please briefly respond to the following prompts in a way that shows you've read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty.

Week 5: June 17-23

Class Topic(s): Saturated Fat, Part 2

Learning Objectives:
• Summarize readings from nutrition science literature.
• Outline the history of dietary fat recommendations in the US, including the general timeline of evidence and the current state of the evidence on saturated fat.

Required Lectures/Materials:
Watch 2 lectures:
• Dietary Fat: A Brief History of Guidelines and Recommendations
• Saturated Fat: A Closer Look at the Timeline of Evidence, Part 1

Read:
Assignments Due:

3-2-1 Reflection. Please briefly respond to the following prompts in a way that shows you've read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty.

Week 6: June 24-June 30

Class Topic(s): Saturated Fat, Part 3 (Conclusion)

Learning Objectives:
• Examine methods used in the nutrition science literature.
• Outline meta-analytic methods, their uses and their limitations.
• Identify the central arguments for/against current guidelines on saturated fat in human health.

Required Lectures/Materials:
Watch 2 lectures:
• Saturated Fat: A Closer Look at the Timeline of Evidence, Part 2
• Saturated Fat: Whence the Confusion

Read:

Assignments Due:
A3. What Topics Do You Think Are Controversial? Provide a list of four items that you think are hot topics/nutrition controversies that are NOT explicitly a part of the current course. Provide the following for each topic:
   a) the topic and the central controversy/sides of the topic,
   b) a one-to-two sentence explanation for why you think this topic is hot/controversial (e.g., public health? personal health? experts vs. public opinion? etc.),
   c) what you think would be required to for the topic/controversy to reach a conclusion (e.g., more studies? If so, what kind? More expert opinion? If so, whose?), and
   d) your current opinions/beliefs about each topic.

3-2-1 Reflection. Please briefly respond to the following prompts in a way that shows you've read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and
insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty.

Discussion #1 on WebEx: tentatively 6/29, 10am ET, log-in details to be provided.

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**Weeks 7 through 8**

Our second topic is the healthfulness of grains, with the related topics of celiac disease and gluten sensitivity. As students are undoubtedly aware, most healthy diet recommendations include avoiding refined grains (white flour, pastries, white bread, etc.). But there are several popular dietary movements that go further and shun grains altogether, whether wheat, oats, rye, etc. The arguments underlying the grain-free approach vary but primarily focus on the evolution of humans and their diets. We explore this literature and some of the popular diets to assess the evidence about the healthfulness of grains.

**Week 7: July 1-July 7**

**Class Topic(s):** Grains, Gluten, and Celiac, Part 1

**Learning Objectives:**
- Distinguish grains from non-grains (i.e., other seeds), including their refining processes, and list what makes a grain a whole grain
- Describe celiac disease and contrast it with “gluten sensitivity” and related gastrointestinal conditions

**Required Lectures/Materials:**

Watch 1 lecture:
- Grains, Gluten, Celiac: Understanding the Basics

Read:

**Assignments Due:**

3-2-1 Reflection. Please briefly respond to the following prompts in a way that shows you've read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty.

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**Week 8: July 8-July 14**

**Class Topic(s):** Grains, Gluten, and Celiac, Part 2 (Conclusion)
**Learning Objectives:**
- Discuss evidence regarding the healthfulness and potential unhealthfulness of grains
- Assess the validity of some of the arguments for/against including grains in the diet

**Required Lectures/Materials:**
Watch 1 lecture:
- Gluten: Hypotheses vs. Hysteria?

Read:

**Assignments Due:**

**3-2-1 Reflection.** Please briefly respond to the following prompts in a way that shows you've read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty.

**Discussion #2** on WebEx: tentatively 7/13, 10am ET, log-in details to be provided.

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**Weeks 9 through 10**

We will spend these two weeks learning about the health and related effects of organic versus conventional foods, with a slight tangent into the GMO debate. You may be surprised about what the science has to say about differences so far, and this may be one area where personal beliefs and socioeconomic status play bigger roles in food choices than does science.

**Week 9: July 15-July 21**

**Class Topic(s):** Organic vs. Conventional Foods, Part 1

**Learning Objectives:**
- Define the “organic” label.
- Identify characteristics of “organic” foods and food production.
- Summarize the current state of the evidence of organically vs. conventionally farmed foods with respect to the domain of nutritional quality/content.

**Required Lectures/Materials:**
Watch 3 lectures:
- What Does “Organic” Mean?
- Understanding GMOs and “Frankenfoods”
- Evidence on Organic vs. Conventional Foods: Food Quality
Assignments Due:

3-2-1 Reflection. Please briefly respond to the following prompts in a way that shows you’ve read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty.

Week 10: July 22-July 28

Class Topic(s): Organic vs. Conventional Foods, Part 2

Learning Objectives:
- Summarize the current state of the evidence of organically vs. conventionally farmed foods with respect to the domains of environmental impact and human health.
- Appraise GMO foods and labels and debate the merit of the arguments for/against the use of GMO and respective labeling.

Required Lectures/Materials:
Watch 2 lectures:
- Evidence on Organic vs. Conventional Foods: Environmental Impact
- Evidence on Organic vs. Conventional Foods: Human Health

Read:


**Assignments Due:**

**A4. Identify a Final Project Topic.** Provide a list of 4-5 controversial topics near and dear to your heart that you would consider for your final assignment. For each topic, tentatively outline 2-3 legitimate arguments both pro and con.

**3-2-1 Reflection.** Please briefly respond to the following prompts in a way that shows you've read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty.

**Discussion #3** on WebEx: tentatively 7/27, 10am ET, log-in details to be provided.

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**Weeks 11 through 12**

In these two weeks our attention turns to multivitamins in an attempt to answer the seemingly simple question: should I take one? Perhaps unsurprisingly, the evidence isn’t clear cut, particularly when it comes to potentially elevated risk of certain cancers due to select dietary supplements. On the other hand, in certain populations that are at risk of being undernourished, multivitamins are likely beneficial... But can they optimize health or promote longevity in generally healthy people? That’s a multibillion-dollar question the supplement industry wants to answer in the affirmative.

**Week 11: July 29-August 4**

**Class Topic(s):** Dietary Supplements, Part 1

**Learning Objectives:**

- Describe the supplement market, its major players, and other vested interests.
- Use labels and key online resources to identify quality supplements.
- Identify instances when supplements may be helpful in health and disease.

**Required Lectures/Materials:**

Watch 2 lectures:

- A Glimpse of What Is at Stake in Supplements
- Understanding the Evidence around the Supplement Debate: Foods vs. Supplements

Read:

Assignments Due:

A5. Supplement Claims. Find a questionable nutrition supplement product either online or in stores. Evaluate the label/online claims for the product and its ingredients using reliable internet sites, including Medline herb/supplement indices, NIH Office of Dietary Supplements, etc.

3-2-1 Reflection. Please briefly respond to the following prompts in a way that shows you've read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty

Continue working on your Final Project (Outline is due next week).

Week 12: August 5-August 11

Class Topic(s): Dietary Supplements, Part 2

Learning Objectives:

• Debate for and against taking multivitamin/mineral and/or other dietary supplements.
• Critique nutrition quackery regarding supplements.

Required Lectures/Materials:

Watch 2 lectures:

• Understanding the Evidence around the Supplement Debate: Supplements as Health vs. Disease-Promoters
• Identifying Quality Supplements and Combating Supplement Quackery

Read:

• Raymond, Joan. “Is it OK to take vitamin supplements every day?” TODAY. March 24, 2017. Accessible at https://www.today.com/health/it-ok-take-vitamin-supplements-every-day-t1376

Assignments Due:
A6. Outline of Final Project. Your final project is to debate, in essay format, using valid, reputable, ideally science-based arguments and reasoning, the controversy of your choosing. You must present both sides of the controversy with equal evidence (to the extent possible), and moreover, gravitas. At this point, you are to turn in an outline of the essay, including the major arguments on both (or more) sides of the controversy, and including at least 10 references supporting the various sides of the controversy. Be sure to also consider the various stakeholder relationships to the controversy.

3-2-1 Reflection. Please briefly respond to the following prompts in a way that shows you've read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty.

Discussion #4 on WebEx: tentatively 8/10, 10am ET, log-in details to be provided.

Weeks 13 through 14

In this closing part of the course, we focus on hydration. This is an area of research that is actively being pursued as it potentially relates to a number of different health outcomes, from weight loss to cognition. This is less about controversy, per se, than about the gaps in our knowledge. That’s not to say that advice about hydration in the popular media isn’t all over the map: it is!

Week 13: August 12-August 18

Class Topic(s): Hydration, Part 1

Learning Objectives:
• Describe the health consequences of hydration status.
• Relay the history of the “8 glasses of 8 ounces of water per day” recommendation and its scientific merit.

Required Lectures/Materials:
Watch 2 lectures:
• Hydration Health, in Brief
• Origins of Hydration Recommendations and the State of the Current Evidence

Read:


**Assignments Due:**

A7. **Video Presentation of Final Project and Response.** Generate a 5-8 minute video describing your final project for your classmates. Respond to another classmate’s video with 2-3 questions of your own on their topic.

3-2-1 **Reflection.** Please briefly respond to the following prompts in a way that shows you’ve read and integrated the different reading materials: 3 things you learned (ideas, issues, insights); 2 examples of how these ideas, issues, and insights could or do apply in your life; 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty.

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**Week 14: August 19-August 25**

**Class Topic(s):** Hydration, Part 2

**Learning Objectives:**

• Outline the current consensus on hydration as well as the gaps in our knowledge.

• Explain the confusion in popular media, and why hydration myths persist.

**Required Lectures/Materials:**

Watch 1 lecture:

• Why Do Hydration Myths Persist?

Read:


**Assignments Due:**

A8. **Final Project due.**

Discussion #5 on Canvas about Final Project, comment and feedback to classmates.

Please complete the Course Evaluation.