Welcome to NUTC 0285!

Welcome to Current Controversies in Nutrition Science! We’re going to have a great time this semester exploring controversial topics in nutrition science and how to approach sources of nutrition information with a critical eye. My name is Dr. Nicole Schultz Ninteau and I’ll be your professor. You can call me Nicole. I’ve been teaching this course for 3 years. I always enjoy teaching Current Controversies in Nutrition Science because students leave the course empowered to answer common nutrition questions from family and friends.

It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students’ learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you.

As a student, you may experience a range of challenges that can interfere with learning, such as strained relationships, increased anxiety, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. There are confidential resources available at Tufts that can assist you in managing these challenges.

Important Information:

**Class Meetings:** Online, via Canvas

**Instructor(s):** Dr. Nicole Schultz Ninteau, PhD, MPH (she/her/hers)

Email: nicole.schultz@tufts.edu

Pre-recorded lectures are presented by Dr. Adela Hruby and Dr. Nicole Ninteau

**Semester Hour Units:** 3

**Prerequisites:** None

Course Communications:

I appreciate hearing questions from students. If you are unable to meet with me during office hours, you are welcome to email questions to me or email to set up an alternative time to speak.

**Office Hours:**

**Instructor:** Wednesdays, 2-4pm Eastern Time, Zoom: https://tufts.zoom.us/my/n.schultz
Weekly office hours are a dedicated time that I am available to answer your questions, discuss course content, and generally be of support. Please email me to if you’d like to attend. If you would like help in the course but have a scheduling conflict that prevents you from attending my regular office hours, please email me to schedule an appointment at an alternative time. Talking with students is a highlight of my job — I look forward to speaking with you!

Course Summary:

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 Goals:

By the end of the course, you will:

1. Critically appraise your own biases in approaching current hot topics and controversies, in approaching sources of information about these topics, and where such biases originated
2. 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
3. Summarize the state of scientific evidence and the gaps in knowledge of a given topic
4. Ascertain the scientific, cultural, media, and/or political origins of nutrition controversies.

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, available on Amazon or from your favorite bookseller:


How to be Successful in this Course:

Assignments and Grading:

Your grade in this course will be determined by reflections, discussions, and a variety of assignments. Points will be awarded for each, and an overall course score will be calculated from the weights given below:

<table>
<thead>
<tr>
<th>Assignment Type</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Reflections (10 total, 2.5 points each)</td>
<td>25%</td>
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<tr>
<td>Discussions (6 total, 5 points each)</td>
<td>30%</td>
</tr>
<tr>
<td>Assignments (9 total, 5 points each)</td>
<td>45%</td>
</tr>
</tbody>
</table>
**Reflections:** Weekly 3-2-1 reflections ask you to share 3 things you learned, 2 examples of how these ideas, issues and insights could or do apply in your personal life, and 1 unresolved “something,” which you can express as a question, name as an area of confusion, or point to as a difficulty in your understanding. A rubric will be used and made available to you for you to see ahead of time.

**Discussions:** You will complete an online discussion after each controversy. You are required to submit an original post as well as reply to two students. Discussions allow you to engage with other students and learn from their insights and experiences.

**Assignments:** The assignments in 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. Your Final Project will allow you to explore a controversy that is of interest to you. Rubrics will be used and made available to you for you to see ahead of time.

**Grading Range:**

A passing grade in the course is B- or better. Course grades will be based on the below (subject to revision during the course):

<table>
<thead>
<tr>
<th>Grade Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90–100</td>
<td>A range (90–&lt;93 = A-, 93+ = A, A+ given for superlative work)</td>
</tr>
<tr>
<td>80–89</td>
<td>B range (80–&lt;83 = B-, 83–&lt;87 = B, 87–&lt;90 = B+)</td>
</tr>
<tr>
<td>70–79</td>
<td>C range (70–&lt;73 = C-, 73–&lt;77 = C, 77–&lt;80 = C+)</td>
</tr>
<tr>
<td>60–69</td>
<td>D range (60–&lt;63 = D-, 63–&lt;67 = D, 67–&lt;70 = D+)</td>
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<td>&lt;60</td>
<td>F</td>
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**Instructions for Submission of Assignments and Exams:**

Written assignments, except for discussion transcripts/videos, should be submitted in Word, 1-inch margins, 11-point font, single-spaced, on the Canvas site. All assignments, reflections, and discussion postings 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. Please let your instructor 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. That said, if you have extenuating circumstances, please notify the instructor.

**Academic Conduct:**

You are responsible for upholding the highest standards of academic integrity, as specified in the Friedman School’s Policies and Procedures Handbook located at this web page: [https://nutrition.tufts.edu/about/policies-and-procedures](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](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:**

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.
Course Overview:

The course begins on May 24th and continues through “Final Exam Week” (August 21–27). This 14-week course is primarily organized around a handful of current hot topics and 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.

You will find the course’s Canvas site is organized by weekly modules, with all lectures, readings and assignments for the week released two weeks in advance to accommodate summer schedules.

<table>
<thead>
<tr>
<th>WEEK OF CLASS &amp; DATE</th>
<th>COURSE TOPIC</th>
<th>ASSIGNMENTS DUE BY END OF WEEK (11:59PM ET SUNDAY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 (May 24-28)</td>
<td>Course Introduction</td>
<td>Getting to Know You Survey Discussion: Class Introductions</td>
</tr>
<tr>
<td>Week 2 (May 29-June 4)</td>
<td>Personal Biases and Reading Nutrition News</td>
<td>A1. My World View (CO 01)</td>
</tr>
<tr>
<td>Week 3 (June 5-11)</td>
<td>Casting a Critical Eye on Nutrition Information</td>
<td>A2. Is This Legit? (CO 02)</td>
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<tr>
<td>Week 4 (June 12-18)</td>
<td>Topic 1: Saturated Fat, Part 1</td>
<td>3-2-1 Reflection 1 (COs 01, 03, 04)</td>
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<tr>
<td>Week 5 (June 19-25)</td>
<td>Topic 1: Saturated Fat, Part 2</td>
<td>3-2-1 Reflection 2 (COs 01, 03, 04)</td>
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<td>Week 6 (June 26-July 2)</td>
<td>Topic 1: Saturated Fat, Part 3</td>
<td>3-2-1 Reflection 3 (COs 01, 03, 04) A3. What Topics Do You Think Are Controversial? (COs 01-04) Canvas Discussion #1 (COs 03, 04)</td>
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<tr>
<td>Week 7 (July 3-9)</td>
<td>Topic 2: Grains, Gluten, and Celiac, Part 1</td>
<td>3-2-1 Reflection 4 (COs 01, 03, 04)</td>
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<tr>
<td>Week 8 (July 10-16)</td>
<td>Topic 2: Grains, Gluten, and Celiac, Part 2</td>
<td>3-2-1 Reflection 5 (COs 01, 03, 04) A4. How Has Your Thinking Evolved? (CO 02) Canvas Discussion #2 (COs 03, 04)</td>
</tr>
<tr>
<td>Week 9 (July 17-23)</td>
<td>Topic 3: Carb-phobia and Associated Diets, Part 1</td>
<td>3-2-1 Reflection 6 (COs 01, 03, 04)</td>
</tr>
<tr>
<td>Week 10 (July 24-30)</td>
<td>Topic 3: Carb-phobia and Associated Diets, Part 2</td>
<td>3-2-1 Reflection 7 (COs 01, 03, 04) A5. Identify a Final Project Topic Canvas Discussion #3 (COs 03, 04)</td>
</tr>
<tr>
<td>Week 11</td>
<td>Topic 4: Dietary Supplements, Part 1</td>
<td>3-2-1 Reflection 8 (COs 01, 03, 04)</td>
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<tr>
<td>(July 31-Aug 6)</td>
<td><strong>A6. Supplement Claims</strong> (COs 03, 04)</td>
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</table>
| Week 12 (Aug 7-13) | Topic 4: Dietary Supplements, Part 2  
A7. Outline of Final Project Topic  
Canvas Discussion #4 (COs 03, 04) |
3-2-1 Reflection 10 (COs 01, 03, 04)  
A8. Video Presentation of Final Project |
A9. Final Project due (COs 01-04)  
Canvas Discussion #5 (COs 03, 04)  
Please complete the Course Evaluation |

This schedule is subject to modification at the instructor’s discretion.
Topics, Assignments, and 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 24-28)**

**Course Topic:** 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.
Participate in the Class Introductions Discussion.

**Week 2 (May 29-June 4)**

**Course Topic:** 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 (CO 01)

**Week 3 (June 5-11)**
Course Topic: 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? (CO 02)

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 health, including a brief review of basic lipid-related physiology.

Week 4 (June 12-18)

Course Topic: 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 (COs 01, 03, 04)

Week 5 (June 19-25)

Course Topic: Saturated Fat, Part 2

Learning Objectives:
• Summarize the readings from the 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 (COs 01, 03, 04)

Week 6 (June 26-July 2)

Course Topic: 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 1 lecture:
• Saturated Fat: A Closer Look at the Timeline of Evidence, Part 2
Read:


**Assignments Due:**

**A3. What Topics Do You Think Are Controversial?** (COs 01-04)

**3-2-1 Reflection** (COs 01, 03, 04)

**Canvas Discussion #1** (COs 03, 04)

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**Weeks 7 and 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 3-9)**

**Course Topic:** 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 (COs 01, 03, 04)

Week 8 (July 10-16)

Course Topic: 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:
A4. How Has Your Thinking Evolved?
3-2-1 Reflection (COs 01, 03, 04)
Canvas Discussion #2 (COs 03, 04)

Weeks 9 and 10

Now that you have a deep understanding of the controversies surrounding saturated fat and grains, we will explore carbohydrates as a whole, beyond just grains. While clinical applications of the ketogenic diet have been around since the 1920s, the low-carbohydrate craze emerged in the 1980s, with Dr. Robert Atkins’ Diet Revolution books. Given his success, many quickly followed suit, such as the Zone Diet, South Beach Diet and nowadays, the Paleo and Whole30 Diets. We will begin this section by reviewing carbohydrate sources, function, physiology and health implications. Then we will explore “carb-phobia,” from past to present, analyze the state of the evidence, and determine whether or not low carbohydrate diets are the panacea for good health and longevity.

Week 9 (July 17-23)
Course Topic: Carb-phobia and Associated Diets, Part 1

Learning Objectives:
• List the different types of carbohydrates and their sources.
• Describe the key functions of carbohydrates.
• Broadly summarize the digestion, absorption and metabolism of carbohydrates.
• Explain the relationship between carbohydrates and human health.

Required Lectures/Materials:
Watch 3 lectures:
• What are Carbohydrates?
• Carbohydrate Metabolism
• Carbohydrates and Health

Read:

Assignments Due:
3-2-1 Reflection (COs 01, 03, 04)

Week 10 (July 24-30)

Course Topic: Carb-phobia and Associated Diets, Part 2

Learning Objectives:
• Describe the origin of the low carbohydrate diet and how it has evolved.
• Compare and contrast trending low carbohydrate diets.
• Discuss the challenges of evaluating the efficacy of low carbohydrate diets with scientific rigor.
• Assess the validity of the arguments for/against low carbohydrate diets, including consideration of the population of interest.
• Interpret the evidence and develop an informed recommendation about whether or not one should follow a low carbohydrate diet.

Required Lectures/Materials:
Watch 2 lectures:
• Carb-phobia and Low Carbohydrate Diets: Past to Present
• Weight Loss versus Health Promotion: A Review of the Evidence

Read:
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 31-Aug 6)**

**Course Topic**: 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
  - Identifying Quality Supplements and Combating Supplement Quackery

**Read**: 
Assignments Due:
A6. Supplement Claims (COs 03, 04)
3-2-1 Reflection (COs 01, 03, 04)
Continue working on your Final Project (Outline is due next week).

Week 12 (Aug 7-13)

Course Topic: 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: Foods vs. Supplements
• Understanding the Evidence around the Supplement Debate: Supplements as Health vs. Disease-Promoters

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-to-take-vitamin-supplements-every-day-t1376

Assignments Due:
A7. Outline of Final Project
3-2-1 Reflection (COs 01, 03, 04)
Canvas Discussion #4 (COs 03, 04)

Weeks 13 and 14

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 13 (Aug 14-20)

Course Topic: 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

Read:

**Assignments Due:**

A8. Video Presentation of Final Project
3-2-1 Reflection (COs 01, 03, 04)

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**Week 14 (Aug 21-27)**

**Course Topic:** 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:**

A9. Final Project Essay (COs 01-04)

Canvas Discussion #5 (COs 03, 04)

Please complete the Course Evaluation.