Course Description: This course examines the bidirectional relationship between food consumption and human behavior. The first direction of influence is what nutrients support optimal brain functioning, which is the center of human behavior. To gain knowledge of the brain we will study neural structures and neurophysiology. This will include reading psychological research to understand how brain function and behavior is measured. The second direction of influence is how human behavior drives food choices and consumption. This is second direction is important because people don’t necessarily consume a healthy, well-rounded diet, which may negatively impact cognitive or other behavioral functioning. Alternatively, some people may focus, correctly or incorrectly, on particular nutrients or supplements that they believe will optimize their health and abilities.

Course Goals (see weekly course objectives under week breakdown below):
Students will gain an understanding of:
1. Psychological research methods
2. Psychological concepts, for example, cognition, emotion, motivation and perception and social psychology
3. Brain and behavioral processes affected by nutrition
4. Brain and behavioral processes affecting food choice and consumption

Texts and Materials:
The required textbook is Psychology, by Schacter, Gilbert and Wegner. It is the second edition, printed in 2011 by Worth Publishers, and is available used by online booksellers for relatively inexpensively. Look for a white cover with two figures in checkerboard bodysuits. In addition, other required readings and materials will be available online via Trunk. The journal articles are listed in the latter part of the syllabus. These articles are subject to modification at the instructor’s discretion.

Academic Conduct:
Each student is responsible for upholding the highest standards of academic integrity, as specified in the Friedman School’s Policies and Procedures manual (http://nutrition.tufts.edu/student/documents) and Tufts University policies (http://uss.tufts.edu/studentaffairs/judicialaffairs/AcademicIntegrity.pdf). It is the responsibility of each student to understand and comply with these standards, as violations will be sanctioned by penalties ranging from failure on an assignment and the course to dismissal from the school.
Assignments and Grading:
For some students, this may be the first course in psychology, and for others it will be the first one in a long time. A combination of information sources will be used, including research published in peer-reviewed professional journals and a standard psychology textbook. Publicly available, online videos will be included as appropriate to the course material. The journal articles and book chapters should be read prior to the lectures and discussions. The textbook will also serve a resource for better understanding psychology concepts and theories. The weekly Discussion Forums are online class communications to understand, analyze and evaluate the assigned readings and material presented in the recorded lectures. Homework assignments are individual efforts designed to have students apply the information learned. Assignments are described in the Topics section of the syllabus. The quiz is designed to demonstrate understanding of essential terminology and concepts. The Final Project is an opportunity for students to further learn about an area of interest, and will serve to apply information within a key area pertinent to this course.

Grading of Homework Assignments will be based on Essentials (timeliness, spelling & grammar 0.5 points), Concise with Thoroughness (1.5 points) Accuracy (2 points) and Insight/Creativity (Creativity where applicable, 1 point).

Discussion Forum Rubric

<table>
<thead>
<tr>
<th>Category</th>
<th>Unacceptable</th>
<th>Below Average</th>
<th>Acceptable</th>
<th>Excels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiative and Promptness</td>
<td>Does not respond to most postings; rarely participates freely</td>
<td>Responds to most postings several days after initial discussion; limited initiative</td>
<td>Responds to most postings within a 24 hour period; requires occasional prompting to post</td>
<td>Consistently responds to postings in less than 24 hours; demonstrates good self-initiative</td>
</tr>
<tr>
<td>Initiative</td>
<td>0 points</td>
<td>.50 point</td>
<td>.75 point</td>
<td>1 point</td>
</tr>
<tr>
<td>Promptness</td>
<td>A) Utilizes poor spelling and grammar in most posts; posts appear &quot;hasty&quot;</td>
<td>B) Posts are brief and random*</td>
<td>A) Few grammatical or spelling errors are noted in posts</td>
<td>A) Consistently uses grammatically correct posts with rare misspellings</td>
</tr>
<tr>
<td>Quality</td>
<td>B) Posts are brief and random*</td>
<td></td>
<td>B) Posts frequently of sufficient length to reflect thoughtfulness or insight</td>
<td>B) Post are consistently of sufficient length to reflect thoughtfulness or insight</td>
</tr>
<tr>
<td>Quantity</td>
<td>Posts topics which do not relate to the discussion content; makes short or irrelevant remarks</td>
<td>Occasionally posts off topic; most posts are short in length and offer no further insight into the topic</td>
<td>Frequently posts topics that are related to discussion content; prompts further discussion of topic</td>
<td>Consistently posts topics related to discussion topic; cites additional references related to topic</td>
</tr>
<tr>
<td>Quality</td>
<td>0 points</td>
<td>.50 point</td>
<td>.75 point</td>
<td>1 point</td>
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</tbody>
</table>

Relevance of Post 1 point
Expression Within the Post

<table>
<thead>
<tr>
<th>Category</th>
<th>Unacceptable</th>
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<th>Acceptable</th>
<th>Excels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expression Within the Post 1 point 1 point</td>
<td>Does not express opinions or ideas clearly; no connection to topic</td>
<td>Unclear connection to topic evidenced in minimal expression of opinions or ideas</td>
<td>Opinions and ideas are stated clearly with occasional lack of connection to topic</td>
<td>Expresses opinions and ideas in a clear and concise manner with obvious connection to topic</td>
</tr>
<tr>
<td>Contribution to the Learning Community 1 point 1 point</td>
<td>Does not make effort to participate in learning community as it develops; seems indifferent</td>
<td>Occasionally makes meaningful reflection on group’s efforts; marginal effort to become involved with group</td>
<td>Frequently attempts to direct the discussion and to present relevant viewpoints for consideration by group; interacts freely</td>
<td>Aware of needs of community; frequently attempts to motivate the group discussion; presents creative approaches to topic</td>
</tr>
</tbody>
</table>

* Students are expected to meet the sufficient number of posts, *meaning one main post and comments on the posts of two others* (italicized=new information). It is fine to make additional brief comments that would not be counted under this category item. For example, a post not qualifying for points would be a 1-2 sentence post agreeing with comments made by another student or thanks another student for clarification.

**Due dates**

Discussion Forums postings are generally due within the second week of the assigned 2-week course period. In the first half of the course a Discussion Forum posting may be due earlier to engage students before the rest of the course material will be presented. *New information: In the second half of the semester, Discussion Forums will open during the last week of 2-week period.* Discourse is encouraged, as it will facilitate all participants’ learning. With the exception of the first homework, the homework assignments are due by midnight of the last day of the two-week period. Homework assignments and final project received after their deadline will not be accepted or graded unless extension is approved in advance. Students who are unable to complete an assignment exam on time for any reason should notify the instructor by email, text message or phone call prior to the deadline, with a brief explanation for why the extension is needed.

**Grading Summary**

<table>
<thead>
<tr>
<th>Grading Summary</th>
<th>Grading Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seven discussion forums (5 pts ea, “Introducing Yourself” carries no points)</td>
<td>35%</td>
</tr>
<tr>
<td>Five homework assignments (5pts ea)</td>
<td>25%</td>
</tr>
<tr>
<td>Quiz</td>
<td>10%</td>
</tr>
<tr>
<td>Final project</td>
<td>30%</td>
</tr>
</tbody>
</table>
**Accommodation of Disabilities:** Students with documented disabilities are entitled to academic accommodation appropriate to their needs. If you require accommodations for this course, please contact me confidentially prior to the residency period.

**Course Schedule at a Glance (Updated 9/2)**

Keep in mind that for the first three topics not all due dates are on the last day of the unit. See the summary page for each topic for specifics.

<table>
<thead>
<tr>
<th>Topic # and Name</th>
<th>Dates</th>
<th>Graded Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction to Behavior &amp; Behavioral Science</td>
<td>Sept 2-20</td>
<td>Discussion Forum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Homework #1</td>
</tr>
<tr>
<td>2. Cognition &amp; Emotion</td>
<td>Sept 21-Oct 3</td>
<td>Homework # 1</td>
</tr>
<tr>
<td>Includes first day of Residency</td>
<td></td>
<td>Quiz</td>
</tr>
<tr>
<td>Includes second day of Residency</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Homework #2</td>
</tr>
<tr>
<td>5. Food additives: Helpful or Hurtful?</td>
<td>Oct 26-Nov 8</td>
<td>Discussion Forum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Homework #3</td>
</tr>
<tr>
<td>6. Addiction - Caffeine, Chocolate &amp; Food</td>
<td>Nov 9-Nov 22</td>
<td>Discussion Forum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Homework #4</td>
</tr>
<tr>
<td>7. Eating Disorders</td>
<td>Nov 23-Dec 6</td>
<td>Discussion Forum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Homework #5</td>
</tr>
<tr>
<td>8. Final Project</td>
<td>Dec 7-Dec 18</td>
<td>Final Project/“Chapter”</td>
</tr>
</tbody>
</table>
Course Topics, Learning Objectives and Assignments

Topic 1: Introduction to Behavior and Behavioral Science

Learning objectives:
Upon completion of this week, students will be able to:
- Understand foundation of Psychology and prominent psychologists
- Summarize and evaluate two peer review journal articles for content and usefulness

Preparation for class:

Recorded Lecture
Introduction to Psychology

Readings
Schacter, Gilbert & Wagner, Ch 1 Psychology: the Evolution of a Science

Assignments
- Questionnaire (Not graded but required.)
- Introduce yourself! Post on the general class discussion forum. Let us know about your interests (professional, academic and personal) as well as you interest in this course. (Not graded but required.)
- Discussion Forum – Jumping off points:
  - What is behavior?
  - What psychologists or scientists sparked your curiosity? Why? If the person is part of the historical background, is their work still current today?
- Homework – Part 1, Research Article Grid completed for Pliner & Mann (2004). Grid template available on Trunk

Due Dates:
Questionnaire due directly to Dr. Goldsmith by 9/9
Recorded Lecture and Readings completed by 9/16
Discussion Forums a) Introduce Yourself due by 9/16 and b) Psychology Concepts due by 9/20
Homework, Part 1, Research Article Grid-may complete now and submit, but due in hard copy for 10/3
Topic 2: Cognition and Emotion (Pre-Residency and Residency Day 1)

Learning objectives:
Upon completion of this week, students will be able to:
• Describe measurement tools that test memory, learning and mood
• Explain theories of cognition, emotion and emotion processing
• Describe and critique experimental methods and outcomes that investigate nutrients that affect memory and emotion

Preparation for class:

Recorded Lecture
Memory

Readings
Schacter, Gilbert & Wagner, Ch 6 Memory and Ch 8 Emotion and Motivation

Journal articles


Assignments
• Quiz. Covers assigned book chapters and recorded lectures.

Due dates
Recorded Lecture and Book Chapter by 9/27
Journal articles read by 10/3
Homework, Part 2 due online by the start of Residency on 10/3. Hand in hard copies of both Grids at Residency.
Quiz-Online. Open 9/21-9/27
Topic 3: Central Nervous System – Structure and Function (Residency Day 2 and Post Residency)

Learning objectives:
Upon completion of this week, students will be able to:
- Understand brain structures involved in the sensory processing of food stimuli
- Understand communication within the nervous system
- Summarize brain structures involved in eating behavior, but not limited to those involved in regulation of food intake.
- Describe ERP measurement of electrical activity of the brain
- Explain the application of ERP measurement as it applies to food choices

Preparation for class:

Recorded lecture
Dietary Restraint Modulates Food Image Processing: An ERP Study by W. Zhang

Readings
Schacter, Gilbert & Wagner, Ch 3 Neuroscience
Zhuang Research Methods document

Assignments
- Discussion Forum – Thoughts and Insights from Residency.

Due dates
Book Chapter-SKIM prior to residency Day 2, Read afterwards by 10/3-10/11
Watch Zhaung’s recorded lecture and read about her work by 10/4-10/11
Discussion Forum comments due by 10/11.
Learning objectives:
Upon completion of this week, students will be able to:
• Understand individual differences in taste perception
• Identify the development of cuisines
• Explain the effects of family on food preferences
• Understand how culture shapes food preferences

Preparation for class:
Introduction to Taste and Culture
Taste, Food Preferences and Culture

Recorded Lectures

Readings
Schacter, Gilbert & Wagner, Ch 4 Sensation and Perception and Ch 7 Learning

Journal articles
TBD

Assignments
• Discussion Forum – Jumping off points: How does geography affect food preferences today? How much do you think the ability to taste bitter affects what people eat?
• Homework assignment #2 has two parts. 1.) Compare and contrast the diet of another culture with that of the United States. Incorporate ideas from the other culture’s food recommendations for healthy eating. You may use your own culture and compare/contrast with the general American guidelines. 2.) Create a script for a hypothetical talk you would give that describes positive and negative family values and structure that affect children’s eating. You may chose a target audience of either professionals working with parents or a parent group.

Due dates
Recorded lectures and Readings recommended to be completed prior to Discussion Forum and Homework Assignment.
Homework Assignment #2 is due by 10/25
Discussion Forum is open 10/19 - 10/25
Topic 5: Food Additives: Helpful or Hurtful?
Time Period 10/26-11/8

Learning objectives:
Upon completion of this week, students will be able to:
- Explain the rationale for food additive regulations
- Evaluate food additives for healthfulness
- Explain the effects of sugar and sugar substitutes on behavior

Preparation for class:

Recorded Lectures
- Introduction to Additives
- Additives
- Sweeteners and Colorings

Readings
- Journal articles only
- TBD

Assignments
- Discussion Forum has two parts 1. Prior to reading the articles, post your beliefs and thoughts about food additives, sugar and sugar substitutes that you consume and/or avoid. 2. Scientific posting – working with another student, one person describes an assigned article and the other person will propose the next step research study that ought to be done. Depending on the number of students in the class, we may do this in small groups instead of pairs.
- Homework Assignment #3 – Design a product. Make up your own formula and provide enough details so the reader understands what is in the product. Provide the script for either a television advertisement or YouTube video for your marketing campaign. Include evidence as to why the public should buy the product.

Due dates
- Recorded lectures and Readings recommended to be completed prior to Discussion Forum and Homework Assignment.
- Homework Assignment #3 is due by 11/8
- Discussion Forum for part 1 is open 10/26-11/1 and for part 2 is open 11/2-11/8
Topic 6: Addiction-Caffeine, Chocolate and Food  
Time Period 11/9-11/22

Learning objectives:
Upon completion of this week, students will be able to:
- Explain the brain’s reward system
- Understand the effects of caffeine on the brain
- Evaluate the evidence for chocolate craving and addiction
- Debate the presence (or not) of food addiction

Preparation for class:

Recorded Lectures
- Food Addiction
- Caffeine and Cognition

Readings
- Schacter, Gilbert & Wagner, Ch 5 Consciousness, pp. 203-206.

Journal articles
- TBD

Assignments
- Discussion Forum – Jumping off points: Use your views from your homework assignment for the post. Don’t just copy and paste, give us a synopsis.
- Homework Assignment #4 – debate. Do you believe food addiction exists or not? You may take a narrow or broad point of view in regards to food addiction. Use the Recorded lectures and Journal articles for evidence supporting your view. You may find other articles also, but don’t feel obligated to complete a huge bibliography.

Due dates
- Recorded lectures and Readings recommended to be completed prior to Discussion Forum and Homework Assignment.
- Homework Assignment #4 is due by 11/22, however it needs to be at least drafted in order to post your position on the Discussion Forum.
- Discussion Forum is open 11/16-11/22
Topic 7: Eating Disorders
Time Period 11/23-12/6

Learning objectives:
Upon completion of this week, students will be able to:
- Describe the Anorexia Nervosa, Bulimia Nervosa, and Binge Eating Disorder
- Explain the types of treatment that maybe used and the anticipated effects
- Understand behavioral changes that are seen in persons with these disorders and explain how such behaviors impact everyday life

Preparation for class:

Recorded Lectures
Eating Disorders
Online videos, urls to be posted

Readings
For reference information about eating disorders, you can go to the National Eating Disorders website. The url is: http://www.nationaleatingdisorders.org/general-information. See Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder and Eating Disorders Not Otherwise Specified. You might also want to learn about Diabulima and Orthorexia.

Journal articles
TBD

Assignments
- Discussion Forum – Jumping off points: what pains you about the information presented in regards to Eating Disorders? Put yourself in the shoes of someone with the disorder. What does the world look and feel like? Include information from our readings.
- Homework Assignment – Write an essay educating a target group about eating disorders. Include such information as risk factors, diagnosis and treatment. Essay content and tone will vary depending on whether you are trying to reach parents, young women, male athletes, etc.

Due dates
Recorded lectures and Readings recommended to be completed prior to Discussion Forum and Homework Assignment.
Homework Assignment #5 is due by 12/6.
Discussion Forum is open 11/30-12/6
Looking ahead – topic for Final Project is due 11/30.
**Week 8: Final Project**  
**Time Period 12/7-12/18**

**Learning objectives:**
1. Develop your knowledge base on a Nutrition, Brain and Behavior topic of interest to you. This includes understanding the concepts and critiquing the research about this topic.
2. Apply the information to either a scientific audience or an alternative target audience. For example, patient, advocacy or public policy groups.
3. Demonstrate your expertise on this topic through a written essay that will be compiled into book format for the whole class to have.

Chose a behavior (preapproved by Instructor) and develop a 4 to 8 page essay education others about the interaction of nutrition and your chosen behavior.

For some students the chosen behavior will come to mind quickly and could be discussed during the residency period. For others students, the idea for the project may come to light as we cover topics in the course. Your topic area should be approved by **November 30th**. This means you will have had exposure to almost every topic the class covers, including addiction. No tow students can have the same topic. However, with approval there might be a way to divide the topic into two different perspectives.

A few ideas for behavior may include sports performance, school performance, dementia, Alzheimer’s Disease and successful weight loss. These ideas are purposely limited. Be thoughtful and creative. Consider a disease process only if you can narrow in on a behavioral aspect to focus on. As an example, cardiovascular disease too broad and easily can be based too heavily on nutrition. Can you think of a behavior as a basis? Perhaps there is a behavioral aspect of diabetes that would be effective to meet the above learning objectives.

**Types of questions to answer includes:**
- How do you define the behavior of interest?
- How does the behavior impact on daily life?
- How does nutrition help or hurt performance of the behavior?
- Are there diet choices that improve an individual’s function? What are those diet choices? How doe the nutrients work?

**Due dates**
- Topic submitted for approval by 11/30.
- Project will be submitted into Trunk and also online in Google for compiling purposes.
- A final product will be created of all the projects and sent out by January 9, 2016.