

## **FSHN 701 – Topics in Food Science**

### **COURSE SYLLABUS, Spring**

**Instructor:** Wayne Iwaoka and Soojin Jun                      Office: AgScience 302A  
Phone: 956-6456    Email address: [iwaoka@hawaii.edu](mailto:iwaoka@hawaii.edu),  
soojin@hawaii.edu  
Office Hours: by appointment

**Course Description:** Advanced topics in food science and technology, from basic to applied research, including current issues in food science and technology and critical analysis of current literature. Repeatable one time.

**Course Format:** This course will consist of faculty or student-led discussions on recently published articles or research papers in food science, or in nutrition and health as related to food science. Students will select articles of interest to them, evaluate them according to a standard criteria, and reflect on learning by writing follow up responses. For the required readings, we will use Thomas Jackson's "tool kit" to critically analyze articles.

#### **Course objectives:**

1. To read, understand, and participate in discussions critically analyzing articles related to recent advances in food science or nutrition and health.
2. To lead a discussion critically evaluating an article or research paper.
3. To provide students the opportunities for thinking, writing, and learning cooperatively.
4. To practice listening, participating, and reflecting on discussions and comments on issues from reading materials.
5. To become comfortable with ambiguity and uncertainty about critical issues.

#### **Course Format:**

##### **A. Discussion Section**

1. Each student will be required to read an article(s) of interest as selected by the class members and, using a specific template, critically analyze the article (Pre-discussion assignment).
2. Each student will participate in the discussion of the article using the format outlined in "The Art and Craft of 'Gently Socratic' Inquiry" by Thomas Jackson.
3. Each student will write a \_\_\_\_\_ on the learning that occurred during the discussion.

##### **B. Course Expectations**

1. Each student is expected to complete the readings and the assignments related to each reading.
2. Each student is expected to come to class prepared to discuss the topic of the day.

##### **C. Course Grading**

1. Students will be graded on the degree of participation in class discussions, on the completeness of information written in the pre- and post-class assignments, and on the compilation and evaluation of the diagnostic learning logs (at the end of the semester). A student should have participated sufficiently to be able to have enough information to complete part II of the written assignment. A complete response means that you have responded to all the requirements without leaving the reader saying, "This explanation is not clear" or there was insufficient explanation for me to understand what the writer meant."

2. At the end of the semester, compile your pre-, post- and assessment of learning responses in a folder, write an introduction and an evaluation of it's worth to you.
3. **Grading criteria**

Pre-discussion write-ups	40%
Post-discussion write-ups	40%
Introduction and Evaluation of Write-ups	10%
Attendance/participation	10%

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**Description of criteria for evaluating weekly reading material**  
**and follow-up requirements**

**Diagnostic Learning Logs**

*DESCRIPTION.* Diagnostic Learning Logs are essentially limited, tightly focused versions of the academic journals for which some of you are familiar. In these logs, students keep records of each class or assignment. When responding to class readings, students write one list of the main points covered that they understood and a second list of points that were unclear. For post-class assignments, students record problems encountered or errors made, as well as of excellent and successful responses. This technique allows students to recognize, document, diagnose, and suggest remedies for their own learning difficulties in specific situations.

**Sample of diagnostic learning log entries for assigned readings.**

**A. Pre-discussion assignment.** This assignment must be completed before the discussion of the article(s).

Article: \_\_\_\_\_ Date: \_\_\_\_\_

1. List three (4) or more of the most important pieces of information you learned from the reading(s). Why do you feel this information is important (briefly)? Give specific examples.
2. List three (3) or more points from this reading that are unclear to you. Where possible, give specific reasons why they are unclear (I don't have the background, I don't understand statistics that well, etc.).

3. If you don't understand certain aspects of the paper, write three questions that you need answers to before you can understand the points listed in 2 (I need to learn more about thermal processing, mechanism of antioxidant action, etc.).
4. Where might you find the answers to questions in # 3 above?
5. Are the conclusions based on the results or on the evidence presented? Explain briefly.
6. If you were to repeat the study or re-write the paper, what changes would you make to this paper? (You do not have to know all the technical knowledge to be able to make comments on re-writing. A one paragraph reason and explanation would be adequate).
7. On this sheet, make comments to yourself, the "aha's" that came to you during the discussion, your thoughts on someone's response to a question, etc.

**B. Post-discussion assignment.** This assignment, together with the pre-discussion assignment, must be handed in within **two days** after the discussion of the topic has been completed (via e-mail attachment).

1. Very briefly summarize the essence of the class discussion.
2. Give examples of your most successful responses. Try to explain what things you did or thought about such that it made them successful responses.
3. Give one or two examples, if relevant, of less successful responses. What did you not consider or fail to do in each case when you thought your response was not as appropriate (accurate, comprehensive, etc.) as you wanted it to be or could have been?
4. The next time you confront a similar situation, what, if anything, could you do differently to provide a more appropriate/desirable response? In other words, generate possible remedies for these situations.

**C. Your assessment of learning.** This assignment should be done immediately after completing the post-discussion assignment. Please turn in this assignment after the 3<sup>rd</sup>, 6<sup>th</sup>, 9<sup>th</sup>, and 12<sup>th</sup> week of classes, and on the last day of class.

1. On a separate sheet of paper, keep a record of the observations you make about the nature of your learning, your way of thinking, or the kind of responses you are giving (from notes and comments to yourself).

2. First, focus on your strengths/successful responses. What kind of responses did you provide? Were they answers to technical knowledge questions? Were they creative? Were they questions that looked at the material in a completely different way? Were you right on target?
3. For the not so successful responses. See if you can categorize the types of not-so-successful responses. Did you feel you missed the point? Did you misunderstand the question/comment of others? If you misunderstood what the other person said, were you concentrating on that person's answer, not listening, or thinking about what response you would make?

I will attempt to assist you in your learning by providing comments on the following:

1. Doesn't identify successful or unsuccessful responses.
2. Identifies but doesn't diagnose causes of successful or unsuccessful responses.
3. Identifies and diagnoses, but doesn't offer solutions.
4. Identifies, diagnoses, and offers solutions

You are welcome to disagree or refute comments or response I provide. At different times in the semester, I will ask if there are questions you should be answering (that I am not asking), if we should be eliminating questions, or modifying questions so that more learning occurs.

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### **MORE THOUGHTS ON READING A SCIENTIFIC ARTICLE**

1. Skim over the entire article, studying the format and the major headings.

2. Read the article for content. Make notes in the margin for yourself with such questions as "Why did they do this" or "Why did they make this statement?" If you do not understand the structure of a compound or what they are saying, look it up.

3. Decide what the important concepts are in this article.

a. Important concepts usually have somewhat important subconcepts and you should be aware of these.

b. When an important statement is made and it is not clear to you, check out the references which have been cited.

4. Determine if the authors mention the significance of their work. If not, what do you think is the significance of their work.

5. Outline the key concepts of the article and understand them.

6. Look closely at the Results and Discussion

a. Are the results presented clearly so that you can understand them? Could the authors present the results in another manner to make it more understandable? Did they present the results of all the work that they did?

b. Are there any discrepancies in their discussion? Is the discussion logical and believable?

c. Are you satisfied with the explanation provided by the authors? If not, why not? What do you know that says otherwise.

d. Are there any key pieces of information missing from the research work/article that the authors should have had so that it would be easy to understand?

7. How do you rate the paper and the research work?