

FOOD SCIENCE 7550 – Advanced Concepts in Sensory Science

Prerequisite or concurrent: Measurement of Food Perception and Liking (FDSCTE 5500) and advanced statistics course.

SEMESTER: Spring 2020 (7 week course)
TIME: 4:10-6:00 PM Monday & 5:10-7:00 PM Wednesday
CREDITS: 2 credit hours

LOCATION: 311 Parker Food Science Building

INSTRUCTOR: Christopher T. Simons
OFFICE: 315 Parker Food Science Building
PHONE: 688-1489
EMAIL: simons.103@osu.edu
OFFICE HOURS: By Appointment

TEXTBOOKS: None. Course materials will be comprised of articles and primary research obtained from the published scientific literature.

Course Description: This course explores advanced concepts in Sensory Science including flavor perception, food intake and sophisticated methodological and data analysis procedures. The structure of this course will involve open discussion of important concepts obtained from seminal readings. It is imperative that student's come to class having already read the weekly material and be prepared to discuss the concepts in detail. Articles will be provided in advance through Carmen. During each class meeting, one article (as decided upon by the Instructor) will be discussed in detail. For that article, all students are expected to read the article and complete the required content of the Journal Critique Template. This information will be used to facilitate discussion and the instructor (or person leading the discussion) may call on students to provide relevant insights from their critique. At the end of the class, each student will turn in his/her template. In general, designated lectures will not be given. On occasion, a lecture may be presented prior to a reading to provide background and help clarify topics related to the article. Every student will be expected to lead one class discussion. Dates and articles will be agreed upon by the instructor and student. Additional articles are available to provide further background or relevant insights. There will be one assignment in which students will write a review paper on an agreed upon topic that will be due at the end of the course.

Goals of this course: Upon completion of this course, students should

- 1) be familiar with advanced concepts in sensory neuroscience, human psychophysics, food reward, factors contributing to food intake and sensory evaluation techniques and analyses.

- 2) have knowledge and appreciation of seminal works related to food perception, reward, and intake.
- 3) be able to critically evaluate scientific literature
- 4) write a comprehensive and coherent review on a topic related to sensory science.

Prerequisite (or concurrent): FDSCTE 5500 Measurement of Food Perception and Liking. Due to the advanced nature of the methodological and data analysis procedures reviewed in this course, a 5000 level or above statistics course is required. Advanced Concepts in Sensory Science is a graduate level course open to all graduate students majoring in Food Science and related fields with the permission of the instructor.

Requirements:

- Attendance: Class attendance is mandatory. Acceptable reasons for missing class are sickness, family emergencies, or job interviews. If it is necessary for you to miss a class, you must contact the instructor in advance. You will still be responsible to submit the Journal Critique Template of that meeting's article (preferably in advance). *Late critiques are not accepted and will result in a zero participation score for that day (see below).*
- Participation in class discussions: Subject mastery critically depends on the active debate and discussion of underpinning concepts. Your committed participation in discussions related to the topics is required to maximize your understanding and acquisition of new knowledge. Useful proficient discussions can only take place if participants are well prepared. Please read the articles well in advance of the scheduled class time. As you are reading, write down questions and seek other materials to help inform and clarify salient points. Read and prepare your response to the Article Critique (see below) before coming to class. In general, there are no right or wrong answers to the discussion questions. I am interested in your opinions, interpretations and critiques. Articles and the Journal Critique Template will be provided in advance through Carmen. Class participation will be monitored and graded.
- Homework: For each article discussed in class, students will provide a written critique using the Journal Critique Template. This critique will be turned in at the end of the class on the day which the article was discussed. *Late critiques are not accepted and will result in a zero for that assignment.*
- Discussion Leading: Every student will be expected to lead one class discussion. Dates and articles will be agreed upon by the instructor and student. Discussion leader should prepare a deck of slides to work through the paper. Discussion leader should prepare a list of discussion questions and feel free to call on any/and all students to participate.
- Final Paper: A review paper on an agreed upon topic will be due at the assigned time and day of the Final Exam (**Monday February 26, 6 pm**). Expectations and requirements for the review paper will be handed out in class.
- Exams: There will be NO midterm or final exams.

Grading

Point Breakdown:

- Attendance and participation: **15%**
- Lead Discussion Group: **15%**
- Journal Critique Templates: **45% (15 articles at 3%)**
- Final paper: **25% (Due at the time of the Final Exam)**

The following scores are guaranteed.

90%	No less than a A-
80%	No less than a B-
70%	No less than a C-
60%	No less than a D-

Academic Misconduct

Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to, cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized prior possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. For more information, see the following websites http://studentaffairs.osu.edu/info_for_students/csc.asp & <http://www.acs.ohio-state.edu/offices/oaa/procedures/1.0.html>. Suspected academic misconduct will be referred automatically to the Committee on Academic Misconduct as required by Faculty Rules.

Disability

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Office for Disability Services at 614-292-3307 in room 150 Pomerene Hall to coordinate reasonable accommodations for students with documented disabilities.

Lecture Schedule

Week	Date	Topic	Readings
1	1/8	Perception: Chemosensation Physiology	Week 1
		Readings: Slack JP, Brockhoff A, Batram C, et al. (2010) Modulation of Bitter Taste Perception by a Small Molecule hTAS2R Antagonist. <i>Current Biology</i> . 20:1104-1109.	

2	1/13	Perception: Chemosensation Perception	Week 2a
		Readings: Simons CT, Dessirier JM, Carstens MI, O'Mahony M, Carstens E. (1999) Neurobiological and psychophysical mechanisms underlying the oral sensation produced by carbonated water. <i>Journal of Neuroscience</i> . 19(18):8134-44.	
2	1/15	Perception: Special Populations (Young, Elderly, Clinical, Supertasters)	Week 2b
		Readings: Mennella JA, Finkbeiner S, Reed DR. (2012) The proof is in the pudding: children prefer lower fat but higher sugar than do mothers. <i>Int J Obes (Lond)</i> . 36(10):1285-91. de Graaf. C., Polet P, van Staveren WA. (1994). Sensory Perception and Pleasantness of Food Flavors in Ederly Subjects. <i>J Gerontol</i> . 49(3):93-99.	Reading 1 Reading 2
3	1/22	Perception: Special Populations (Young, Elderly, Clinical, Supertasters) continued	Week 3
		Readings: Hayes JE, Bartoshuk LM, Kidd JR, Duffy VB. (2008) Supertasting and PROP bitterness Depends on more than the TAS2R38 Gene. <i>Chem Senses</i> . 33:255-265. Murphy C., Gilmore MM, Seery CS, Salmon DP, Lasker BR. (1990). Olfactory thresholds are associated with degree of dementia in Alzheimer's disease. <i>Neurobiology of Aging</i> . 11:465-469.	Reading 1 Reading 2
4	1/27- 1/29	Food Intake: Motivation & Reward, Taste Aversions	Week 4
	1/27 1/29	Readings: Finlayson G, King N, Blundell (2008) The role of implicit wanting in relation to explicit liking and wanting for food: implications for appetite control. <i>Appetite</i> . 50(1):120-127. Bernstein IL and Webster MM. (1980) Learned Taste Aversions in Humans. <i>Physiol & Behav</i> . 25:363-366.	Reading 1 Reading 2

5	2/3-2/5	Food Intake: External & Internal (Emotion) Influences	Week 5
	2/3	Readings: Lee L, Amir O and Ariely D. (2009) In Search of Homo Economicus: Cognitive Noise and the Role of Emotion in Preference. <i>Journal of Consumer Research</i> . 36(2):173-187	Reading 1
	2/3	King, SC and Meiselman, HL (2010) Development of a method to measure consumer emotions associated with foods. <i>Food Quality and Preference</i> . 21(2): 168-177.	Reading 2
	2/5	Wansink B, Painter JE, North J. (2005). Bottomless Bowls: Why Visual Cues of Portion Size May Influence Intake. <i>Obesity Research</i> . 13(1): 93-100.	Reading 3
6	2/10-2/12	Advanced Sensory Methods & Analyses: Signal Detection Theory and R-Index	Week 6
	2/10	Readings: Wichchukit S & O'Mahony M. (2010) A Transfer of Technology from Engineering: Use of ROC Curves from Signal Detection Theory to Investigate Information Processing in the Brain during Sensory Difference Testing. <i>J. Food Science</i> . 75:183-193.	Reading 1
	2/12	O'Mahony M, Garske S & Klapman K. (1980) Rating and ranking procedures for shortcut signal detection multiple difference tests. <i>J. Food Science</i> . 45:392-392.	Reading 2
7	2/17-2/19	Advanced Sensory Methods & Analyses: Preference Mapping and Product Optimization	Week 7
	2/17	Yackinous C, Wee C & Guinard JX. (1999) Internal preference mapping of hedonic ratings for ranch salad dressings varying in fat and garlic flavor. <i>Food Quality & Preference</i> . 10:401-409.	Reading 1
	2/19	Hubbard EM, Jervis SM, and Drake MA. (2015) The effect of extrinsic attributes on liking of cottage cheese. <i>Journal of Dairy Science</i> 99:183–193.	Reading 2