

## FOOD SCIENCE 5500 – Measurement of Food Perception and Liking

SEMESTER: Fall 2020  
TIME: Lecture: Monday and Wednesday 1:50-2:45  
Lab: Wednesday 3:00-4:50  
LOCATION: Lecture: 370 Kottman Hall  
Lab: 116 Howlett Hall

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

TAs:	Maria Cotter	Kym Man	Brittany Miles
OFFICE:	048 Howlett	048 Howlett	048 Howlett
EMAIL:	cotter.97	man.44	miles.243
OFFICE HOURS:	By Appt	By Appt	By Appt.

REQUIREMENTS Completed a Data Analysis course (Comldr 3537, AEDE 2005, AnSci 2260, HCS 2260, ENR 2000, Stat 1450; see FST degree requirements for more information). Proficiency in basic statistics and Excel (including data analysis and graphics) is highly recommended.

TEXTBOOKS: Lawless & Heymann. Sensory Evaluation of Food: Principles and Practices. Springer, 2010 (2<sup>ND</sup> Ed)  
ISBN 978-1-4419-6487-8  
e-Copy available through OSU library at  
<http://ebooks.ohiolink.edu/xtf-ebc/view?docId=tei/sv/9781441964885/9781441964885.xml&query=&brand=default>

Recommended: O'Mahony, M. Sensory Evaluation of Foods: Statistical Methods and Procedures. Marcel Dekker, Inc., 1986.  
ISBN: 0-8247-7337-3

**Course Description:** This course explores the principles and procedures for accurately assessing the sensory and hedonic properties of foods and consumer products. Appropriate test design, statistical analyses and data interpretation will be discussed and the physiological and psychological principles impacting sensory judgments will be explored. Weekly laboratory classes focus on test design and execution, sample presentation, data recording, data analysis, interpretation of results, and report writing. Lecture 2 hours, laboratory 3 hours per week.

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

- 1) familiar with the methods used in the discrimination, descriptive analysis and consumer hedonic testing of food and consumer products.
- 2) able to formulate test objectives and recommend appropriate test methodology to address those objectives.
- 3) aware of and able to apply appropriate statistical analyses to sensory data.
- 4) able to draw conclusions and make recommendations about product characteristics.
- 5) cognizant of the physiological and psychological principles underlying sensory testing.
- 6) able to communicate findings effectively in both scientific and industrial settings.

**Requirements:** There are three tests (two midterms and a final) and twelve labs (9 are graded). You are required to turn in nine graded lab reports (described below). Lab write-ups are due the following week at the beginning of the next lab period. Late lab reports will be docked 10% per day from the total possible score and will not be accepted if more than 1 week late. Please do not send work by email or email attachments.

### **Labs**

Attendance in the lab is mandatory as much of the learning for this course occurs through application of key concepts. The laboratory exercises will require that you bring an internet-enabled device (preferably a laptop) to class on that day. If you do not have one, please let the instructor or one of the TA's know so that we can provide one for you to complete the exercise. If it is necessary for you to miss a lab, you have to contact me before that lab period. You will still be responsible for a lab report. If you fail to contact me prior to the lab, you will receive a zero on that report. There will be short writeups for most labs due as indicated in the schedule. Some consist of a formal scientific format (as if you were submitting to a journal), while others consist of an industrial report format (an example will be provided). Some just involve graphs, calculations and discussion questions. Specific handouts for each lab detailing the requirements for the write-up will be provided. *Please note—these laboratories require the evaluation and consumption of foods and beverages. If you have any food allergies, ethical issues or religious conflicts with eating certain foods, please let us know immediately and accommodations can be made. It will also be a good idea to remind us prior to each laboratory!*

### **Group Project**

In October, a group project of the group's choice will begin. You will be responsible for scheduling lab time to conduct your sensory tests (including ballot development, training, data acquisition, and analysis). A group report will be turned in at the end of the course and a group presentation will be given the

last week of class. It is expected that each student will participate in the team's experiments as needed.

### **Grading**

In this class you earn up to 265 points via the following cumulative grading system:

Midterm Exam 1	35	(ca. 13% of final grade)
Midterm Exam 2	35	(ca. 13% of final grade)
Final exam	35	(ca. 13% of final grade)
Lab Reports	90	(ca. 34% of final grade)
Group Project progress Reports	10	(ca. 4% of final grade)
Group project presentation	30	(ca. 11% of final grade)
Group project written report	30	(ca. 11% of final grade)

Grading will be based on a curve, but 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 misconduct is defined in the Code of the Student Conduct and the Rules of the University Faculty. For more information, see the following websites [http://studentaffairs.osu.edu/info\\_for\\_students/csc.asp](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.

### **University Diversity Statement**

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environment Sciences. These principles are located on the Carmen site for this course, and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://studentlife.osu.edu/bias/report-a-bias-incident.aspx>.

### **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.

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

### **COVID19**

**REQUIRED** Safety and health requirements: All teaching staff and students are required to comply with and stay up to date on all University safety and health guidance, which includes wearing a facemask in any indoor space and maintaining a safe physical distance at all times. Non-compliance will be warned first and disciplinary actions will be taken for repeated offenses.

The uncertainties associated with COVID19 dictate that we be flexible in our instructional and learning practices. If, for any reason, you feel at risk being in class, please let me know. Lectures and laboratories can be accessed during scheduled class times via Zoom. In the event that in-class instruction is cancelled, we will pivot to a virtual model. Lectures and labs will be accessible "live" via Zoom during scheduled class times. In addition, to accommodate varying schedules, recorded lectures and laboratories will be posted to Carmen and available on demand. During the "live" Zoom class meetings, I expect that students will join by activating their video. Teaching is much more effective if the instructor can see each student's face and gauge their level of understanding. In addition, when joining the Zoom lecture, each student should have a neutral color and non-distracting background. Any student whose background violates this policy will be excused from the lecture.

### **Lecture Schedule**

<b>Week</b>	<b>Date</b>	<b>Topic</b>	<b>Lectures</b>
1	8/26	History of Sensory Evaluation, Use in Product Development; Sensory vs. Psychophysics; IRB-Human Rights	<b>0 &amp; 1</b>
2	8/31	Sensory Evaluation Best Practices	<b>2</b>

	9/2	Statistics refresher	<b>3</b>
3	9/7	<b>Labor Day</b>	
	9/9	Food Perception—Taste & Smell	<b>5</b>
4	9/14	Food Perception—Somatosensation (touch, temperature & chemesthesis) and Vision & Audition	<b>6 &amp; 4</b>
	9/16	Difference Testing—Directional & Non-directional	<b>7</b>
5	9/21	Ranking, Difference Testing vs Equivalence Testing	<b>8</b>
	9/23	Signal Detection	<b>9</b>
6	9/28	Threshold	<b>10</b>
	9/30	<b>Midterm 1</b>	
7	10/5	Scales & Ratings	<b>11</b>
	10/7	Context Effects	<b>12</b>
8	10/12	Time Intensity and TDS	<b>13</b>
	10/14	Descriptive Analysis: Uses, Key Steps, Consensus Panels	<b>14</b>
9	10/19	Descriptive Analysis: Spectrum Method & QDA	<b>15</b>
	10/21	Rapid Methods: Flash Profiling & Sorting	<b>16</b>
		Group Project Preparation	<b>19</b>
10	10/26	Preference & Acceptance Testing	<b>17</b>
	10/28	JAR testing; Potential Pitfalls of Current Methods	<b>18</b>
11	11/2	Sensory Evaluation in Quality Control and Shelf Life Testing	<b>20</b>
	11/4	Project Work	
12	11/9	<b>Midterm 2</b>	
	11/11	<b>Veterans Day No School</b>	
13	11/16	Project Statistics Overview and Project Work	<b>21</b>
	11/18	Project Work	
14	11/23	Project Work	
	11/25	<b>Thanksgiving (optional day for project work)</b>	
15	11/30	Product Optimization: Drivers of Liking or Sensory Testing for Non-Food Products	<b>22 or 23</b>

	12/2	<b>Project Presentations</b>	
16	12/10 (Thurs)	<b>Final: 2:00pm-3:45pm</b>	

### Lab Schedule

Unit	Date	Lab Title	Report Due Date
Lab 1	9/2	Statistics Lab	9/9 (All)
Lab 2	9/9	Screening Tests and Sensory Acuity (I)	9/16 (Brittany)
Lab 3	9/16	Comparison of Discrimination Tests (S)	9/23 (Kym)
Lab 4	9/23	Signal Detection (W)	9/30 (Kym)
Lab 5	9/30	Threshold Determination (I)	10/7 (Maria)
Lab 6	10/7	Comparison of Scales (S)	10/14 (Brittany)
Lab 7	10/14	Time Intensity (I)	10/21(Brittany)
Lab 8	10/21	Lab 8: Consensus Profiling (I); <i>Final Project: Product Category Choice</i> In Lab Deliverable: send your TA selected product category and 5 representative products & potential references	10/28 (Maria)
Lab 9	10/28	Lab 9: Preference, Acceptance & JAR (I) <i>Final Project: Protocol Development</i> In Lab Deliverable: list of attributes with definitions and reference sheet	11/4 (Maria)
	11/4	Final Project: Concept Alignment and Data Collection In Lab Deliverable: final list of descriptors and references	11/4
	<b>11/11</b>	<b>Veterans Day (No Lab)</b>	

	11/18	Final Project: Data Collection	11/18
	11/25	<b>Thanksgiving Break (optional day for project work)</b>	
	12/2	<b>Project presentation and final reports due December 2</b>	12/2