

Experimental Foods 11:709:489  
Department of Nutritional Sciences, Rutgers University

Lectures:

Tuesday 10:55 AM-12:15 PM (Online)

Friday: 10:55 AM-12:15 PM (Online)

Instructor: Salome P. Rao, Ph.D., RDN, [sprao@sebs.rutgers.edu](mailto:sprao@sebs.rutgers.edu), (210 Davison Hall/220 IFNH)

Laboratory (In person @ Davison Hall, Rm 219A):

- Section 4: Monday 12:35 am-3:35 pm
- Section 6: Wednesday 9:15am -12:15 pm
- Section 2: Wednesday 2:15 pm-5:15pm
- Section 7: Thursday 9:15 am-12:15 pm
- Section 8: Friday 2:15pm-5:15pm

Teaching Assistants:

(Sections 4 & 7) Bhavya Blaze: [bb653@sebs.rutgers.edu](mailto:bb653@sebs.rutgers.edu)

(Section 6 & Distance) Alek Dinesen: [ard180@sebs.rutgers.edu](mailto:ard180@sebs.rutgers.edu)

(Sections 2 & 8) Emily Hanselman: [ech58@scarletmail.rutgers.edu](mailto:ech58@scarletmail.rutgers.edu)

Lab Coordinator: Sandy Low: [Cassandra.low@rutgers.edu](mailto:Cassandra.low@rutgers.edu)

Office Hours: By online appointments

*The best way to reach us is by email. If you do not receive a response from us within 24hrs please contact us again.*

**Text Book:**

McWilliams, M. *Foods: Experimental perspectives* (8<sup>th</sup> ed). Upper Saddle River, NJ: Prentice Hall.

*Additional readings will be posted on Sakai.*

**Lab Manual:**

McWilliams, M. *Experimental Foods Laboratory Manual* (9<sup>th</sup> ed). Upper Saddle River, NJ: Prentice Hall.

**Pre-requisites:**

11:709:202 LABORATORY FOR CULINARY NUTRITION and 01:960:401 BASIC STATISTICS FOR RESEARCH and 01:160:209 ELEMENT ORGANIC CHEM and 01:160:209 ELEMENT ORGANIC CHEM

OR

11:709:202 LABORATORY FOR CULINARY NUTRITION and 01:960:401 BASIC STATISTICS FOR RESEARCH and 01:160:308 ORGANIC CHEMISTRY and 01:160:308 ORGANIC CHEMISTRY

### **Course Objectives:**

- Gain knowledge of the composition of foods and the relation of chemical and physical structure on components to their functional properties.
- Gain a more complete knowledge of the scientific principles upon which food preparation and processing are based.
- Become familiar with various methods to study foods, such as chemical, enzymatic, sensory and instrumental measurements.
- To integrate food science principles into real-world food science and nutritional issues.
- Learn how to design and carry out a controlled, scientific experiment.
- Analyze and report research data using statistical testing.
- Learn how to write a formal research paper and make use of graphics programs.
- To enhance students' ability to research and present evidence based research information.

### **2017 Core Knowledge for the RDN (KRDN) – Standards for the Didactic Programs in Dietetics:**

Rutgers University Department of Nutritional Sciences undergraduate Didactic Program in Dietetics is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND). The following ACEND Core Knowledge aptitudes are included within the curriculum of this course:

KRDN 1.1: Demonstrate how to locate, interpret, evaluate and use professional literature to make ethical, evidence-based practice decisions (i.e., Research Lab Project).

KRDN 1.3: Apply critical thinking skills (i.e., Research Lab Project).

KRDN 2.1 – Demonstrate effective and professional oral and written communication and documentation (i.e., Research Lab Project)

KRDN 3.2: Develop an educational session or program/educational strategy for a target population (i.e., Research Lab Project focused on food product development for a specific clinical population).

KRDN 4.6: Analyze data for assessment and evaluate data to be used in decision-making for continuous quality improvement (i.e., Research Lab Project analysis of data).

### **Course Policies:**

1. Attendance at lectures and labs is mandatory. Attendance and participation during lecture and labs will affect final grades.
2. It is imperative to be prepared for Lab and complete Pre & Post lab assignments, as your own effort will also affect your peers' performance.
3. All assignments must be typed, stapled together and contain appropriate spelling and grammar.

4. *Late assignments*-Assignments are expected to be on time. Any assignment received after the due date will be considered late. **Five percent (5%)** will be deducted for each day the assignment is late (*time due 11:59 PM*). If you are unable to attend class due to medical or personal emergencies the day an assignment is due, the assignment can be emailed as an attachment *before* the end of the class period. Doctor's note is required to excuse any medical absences.
5. Be prepared for lab. Read the lab manual ahead and bring your lab coat, closed toe shoes.
6. No makeup exams or labs will be scheduled without *prior* approval of instructor and written documentation of excuse. Lack of *prior* approval for an absence to a missed lab or exam will result in a **zero**.
7. Plagiarism of any kind is not tolerated at Rutgers and will result in course failure. Be careful not to copy phrases, sentences, and paragraphs from books, journals, electronic sources or previously submitted assignments.

**Grading:**

| Assignment                                | Points       |
|---|--------------|
| Attendance                                | 100          |
| Participation (Evaluations etc)           | 100          |
| Exams (3)                                 | 600 (200 ea) |
| Lecture Quizzes                           | 50           |
|   |              |
| Food Product Label                        | 100          |
| Food Trends Presentation                  | 200          |
|   |              |
| Laboratory (See Rubric)                   | 500          |
| Research Project Preparation (See Rubric) | 150          |
| Lab Project PPT presentation              | 100          |
| Research Project Final Paper              | 100          |
| <b>TOTAL</b>                              | <b>2,000</b> |

Grades will be assigned as follows: A, B+, B, C+, C, D, F and cut-off ranges will be strictly followed.

92 - 100% = A  
 86 - 91.99% = B+  
 80 - 85.99% = B  
 75 - 79.99% = C+  
 70 - 74.99% = C  
 60 - 69.99% = D  
 Below 59.99% = F

Tentative Schedule

| WE EK | TOPIC  | Book Chapter | LAB   | What's DUE  |
|-------|--|--------------|---|---|
| 1     | Introduction/Syllabus<br>Today's Food Scene                            | 1            | No LABS   |   |
| 2     | Research Perspectives<br>Objective Measures<br>Lab Project Description | 19<br>21     | Lab Orientation<br>1. Accuracy of Home Measures –Intro Stats                        |   |
| 3     | Foods Trends<br><br>Intro to Food Science-Part 1                       | 2, 3         | 2. Objective Measures<br><br><i>Review Lab Project Plans</i>                        | <i>Lab Project Plan Statement/Recipe</i>              |
| 4     | <i>Sensory Evaluation-</i><br><br>Intro to Food Science-Part 2         | 20<br>2, 3   | 3. Sensory Evaluation<br><br><i>Review Grocery/Equip lists</i>                      | <i>Lab Project Food &amp; Equipment Lists</i>         |
| 5     | <i>Food Labelling –</i><br><br>Intro Proteins                          | 10           | Discuss Objective & Sensory Data Analysis (Online)<br><br><i>Review Flow Charts</i> | <i>Project Procedure/ Flow Charts</i>                 |
| 6     | Dairy<br><br><i>Alexia Ciafella-Mondelez</i>                           | 11           | <b>LAB PROJECT PREPS</b><br><i>Review Sensory Ballots</i>                           | <i>Sensory Ballots</i>                                |
| 7     | <i>Food Product Development</i><br><br>Eggs                            | 13           | <b>LAB PROJECTS</b>   | <i>Updated and 5X copies of Sensory Ballots</i>       |
| 8     | <b>20<sup>th</sup>: Exam 1</b><br><br>Intro CHOs                       | 4, 5         | Virtual Labs/Office Hours   | Chapters on Exam: <b>1, 2, 3, 10, 11, 13</b>          |
| 9     | Starches and Gums  | 6, 7         | 4. Dairy & Eggs: Sols, Gels & Foams   |   |
| 10    | Fats and Oils  | 8, 9         | 5. Starches & Gums  | <b>Product Label Assignment</b>                       |
| 11    | Applications of Baking<br><br><i>Pam Barrios-Pepsi Co</i>              | 14, 15       | 6. Baking Applications (Fats/ Gluten/leavening)                                     |   |
| 12    | <b>17<sup>th</sup>: Exam 2</b><br><br><i>GMOs</i>                      |              | Virtual Labs  | Chapters on Exam: <b>4, 5, 6, 7 (only Gums), 8, 9</b> |

|                       |   |             |                                      |  |
|-----------------------|---|-------------|--------------------------------------|--|
| <b>13</b>             | <b>24<sup>th</sup> and 25<sup>th</sup></b><br><i>(Wednesday = Friday classes)</i><br>Trends Presentations &<br>Applications of Baking | 14, 15      | <i>Thanksgiving-No Labs</i>          |  |
| <b>14</b>             | <i>Food Processing</i><br><br>Fruits & Vegetables   | 17<br><br>7 | <b>Project PPT<br/>Presentations</b> | <b>Lab Project Paper</b>                           |
| <b>15</b>             | Food Additives  | 18          |                                      |  |
| <b>22</b><br>8-<br>11 | <b>Final Exam</b>   |             |                                      | Chapters:<br>7, 14, 15, 17, 18,<br>Labelling, GMOs |