

# FSC 5600 - Food Chemistry

**Office Hours:** You may make an appointment or just drop in.

**Class Time:** M, W 9:10 – 10:05 am; Lab: Tu 10:15 – 12:35 am or Tu 1:50 – 4:10 pm.

## Course Description

- Describe the sources and compositions of food components
- Develop a relationship between the composition of the individual food components and their chemical and physical properties
- Understanding the chemistry of food components during processing and storage

## Course Objective

- ✓ To understand the principles underlining the modification of foods
- ✓ Develop and understanding of how individual food components contributes to the overall quality of foods.
- ✓ Recognize reactions and mechanisms important in food chemistry.
- ✓ Be capable of designing and conducting experiments and interpreting data to understand important food chemistry principles.
- ✓ To know the important characteristics of safe and high quality foods

**Instructor** Dr. Farnaz Maleky  
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**Co-Instructor** Dr. Lynn Knipe  
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## TAs:

- Clifford Park.....([park.1747@buckeyemail.osu.edu](mailto:park.1747@buckeyemail.osu.edu))
- Shoshana Ginsburg... ..([ginsburg.40@buckeyemail.osu.edu](mailto:ginsburg.40@buckeyemail.osu.edu))
- Xue Wang.....([wang.7853@buckeyemail.osu.edu](mailto:wang.7853@buckeyemail.osu.edu))
- Ariel Garsow .....([Garsow.1@buckeyemail.osu.edu](mailto:Garsow.1@buckeyemail.osu.edu))
- Erica Kosmerl .....([kosmerl.3@buckeyemail.osu.edu](mailto:kosmerl.3@buckeyemail.osu.edu))

## Required Textbook:

- Food Chemistry, 4th edition", Srinivasan Damodaran, Kirk L. Parkin, Owen R. Fennema (Editors), CRC Press/Taylor & Francis, 2008.

## Reference Texts

- Introductory Food Chemistry, John W. Brady, Cornell University Press, 2013
- Principles of Food Chemistry, 3rd Edition (J.M. deMan), Springer Science, NY. 1999
- Crystallization and solidification properties of lipids, Neil Widlak; Richard W Hartel; Suresh Narine : AOCS Press,2001.
- Principles of Food Chemistry, Second Edition (J.M. deMan), Van Nostrand

Reinhold, NY. 1990

- Food Chemistry – A Laboratory Manual, Dennis D. Miller. 1998. John Wiley & Sons, 1998

### Grading Policy

Quizzes (4)	45%
Lab reports	40%
Comprehensive final exam	15%
Participation (Bonus)	5%

A	$\geq 93\%$	C+	$\geq 77\%$ <80%
A-	$\geq 90\%$ <93%	C	$\geq 73\%$ <77%
B+	$\geq 87\%$ <90%	C-	$\geq 70\%$ <73%
B	$\geq 83\%$ <87%	D+	$\geq 67\%$ <70%
B-	$\geq 80\%$ <83%	D	$\geq 63\%$ <67%
		E	Below 63%

- Examinations will only be re-graded if originally written in permanent ink
- Permanently bound lab notebooks will be used to record all data during labs and must be available for review by the TAs or Instructors at any time during a laboratory session
- All lab reports and homework assignments must be prepared using an appropriate word processor and spreadsheet program
- **Eye protection must be worn at all times during lab exercises**, a penalty of 5 points will be deducted from any student found without appropriate eye protection
- absence from a laboratory session will be an automatic zero for that lab report unless a valid documentable/written excuse is provided. **If you are more than 10 minutes late for a lab session, or a lab data discussion sessions, this will also constitute an absence.**

### **Basic Lab Requirements:**

- Wear close-toed shoes
- Wear a lab coat (can also be old button up shirt)
- Keep a lab notebook
- Be courteous to others in the lab
- Follow the directions of the instructors and teaching assistants
- Wear eye protection at all times
- NEVER wear contact lenses in lab
- No eating, drinking, chewing gum or pipetting by mouth in the lab
- Use appropriate waste containers
- Wear gloves when handling chemicals and samples

### **Pre-Laboratory Exercises**

The teaching assistants will check your lab notebooks for completed pre-laboratory

exercises at the beginning of each lab.

Pre-lab exercises include creating a flow chart of the procedure for the lab or writing the procedure for the lab, bullet points encouraged. Additionally, include a space for data collection, labeling what data should be collected during the lab exercise.

### **Lab Report Grade Deductions:**

Deductions will be made to lab reports as follows:

- **10 points** will be deducted per day late, including weekends. Labs are due at 11:59 pm on the specified due date, no exceptions.
- **5 points** will be deducted from your laboratory report if you do not complete the pre-laboratory assignment.
- **5 points** will be deducted from the lab reports of the entire lab section if the lab is not clean following an exercise. This includes cleaning glassware, countertops, and ensuring all waste is disposed of properly.

### **Make-up Exam, Laboratory Exercises and Assignment Policy**

Students are expected to take exams, perform laboratory exercises and turn in assignments at the regularly scheduled time. If a student cannot complete the specified coursework because of illness, that student must notify the professor *prior* to the exam, lab exercise or assignment due date. Appropriate documentation, will be required in order to be considered an excused absence. For an unexcused absence, an automatic grade of 0 pts will be assigned for the missed exam or laboratory exercise/report.

Exams and assignments will not be re-graded at the end of the semester. A late penalty (detailed above) will be deducted from each assignment turned in late, including weekend days. No late assignments will be accepted after the final exam. Students are expected to attend every lab session and the data discussion sessions.

### **Academic Misconduct:**

Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic misconduct is defined in the Code of the Student Conduct (3335-23-04, [http://studentaffairs.osu.edu/resource\\_csc.asp](http://studentaffairs.osu.edu/resource_csc.asp)) and the Rules of the University Faculty (3335-31-02, <http://www.acs.ohio-state.edu/offices/oaa/procedures/1.0.html>). 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. At the beginning of each course it is the responsibility of the instructor to provide a statement clarifying the application of academic integrity to that course. Any suspected violation of the Code of Student Conduct will be forwarded to the Committee on Academic Misconduct.

## LABORATORY POLICY AND GENERAL INFORMATION

### 1. Lab Sessions

- Read lab material before coming to lab, prepare data tables and calculations as needed
- record all data and observations in bound lab notebook
- clean your bench area and the area around any lab equipment used ESPECIALLY balances after use

### 2. Safety

- wear eye protection at all times
- NEVER wear contact lenses in lab
- No eating, drinking, chewing gum or pipetting by mouth in the lab
- Label all tubes, beakers and flasks used with:  
    Name of Substance / Solvent  
    concentration / your initials
- Use appropriate waste containers
- Wear gloves when handling chemicals and samples

### 3. Cleanup

- clean all glassware used in lab, rinse with DI water and leave in lab cart to dry
- wipe down your bench area with sponge
- clean around balances and spectrophotometers if used

### 4. Lab Notebooks

- notebook must be permanently bound: spiral notebooks, essay books, or standard lab notebooks are acceptable
- notebooks must be available for inspection by TA or professor at any point during class
- record all necessary data and observations made during lab in your lab notebook; it is always better to record too much rather than too little. Remember, this is your main reference for preparing your laboratory reports

### 5. Lab Reports

- must be word processed or typed
- all graphs and plots must be prepared using a Spreadsheet program such as Excel
- format and grading scale are given on the following page.

## **Instructions for writing an extended abstract - Content of the extended abstract should not exceed 4 pages including Figures and Tables.**

### **ABSTRACT**

The abstract should give a clear indication of the **objectives, scope, results and conclusion of your work. Maximum 250 words. References should not be cited.**

### **INTRODUCTION**

The introduction should include the scope of the problem, review the pertinent literature and state the objectives of the work presented. Limit to 500 word not including the objective sentence.

### **MATERIALS AND METHODS**

The materials and methods should be explained briefly. Do not repeat what is already written in the lab manual or peer-reviewed article (cite as a reference), but make a clear a note of any changes to material or methods/procedures that YOU and YOUR group might have made.

### **RESULTS AND DISCUSSION**

The results and discussion section should occupy the main portion of the extended abstract. Present and discuss results concisely, using figures and tables as needed (but not the same information in both figures and tables). Compare results to those previously reported in peer-reviewed journals or books, and indicate what new information is contributed herein. Make sure each table, graph or plot has a clear title, is numbered, all axes or columns and rows should be clearly labelled and all units clearly designated. Use the metric system exclusively.

### **CONCLUSION**

Briefly describe the major findings of the work. This section should include major inferences from the results, agreements or disagreements with previously published work, and practical implications of the work.

### **REFERENCE**

All publications cited in the text should be presented in alphabetical order on author's names, and chronologically per author, in a list of references following the text of the manuscript. The manuscript should be carefully checked to ensure that the spelling of author's names and dates are exactly the same in the text as in the list. Use paragraph format 'reference' which has a hanging indent and font size 9pt.

Work accepted for publication but not yet published should be referred to as "in press". References concerning unpublished data and "personal communications" should not be cited in the reference list but may be mentioned in the text.

### **References**

- Dufossé L., Mabon P., Binet A. (2001) Assessment of the coloring strength of *Brevibacterium linens* strains : spectrophotometry versus total carotenoid extraction / quantification. *Journal of Dairy Science* 84(2), 354-360.
- Mac Dougall D.B. (2002) *Colour in food, improving quality*. Woodhead Publ., Cambridge, England, 378 pp.
- Van Impe J.F., Bernaerts K., Geeraerd A.H., Poschet F. and Versyck K.J. (2001) Modelling and prediction in an uncertain environment. In: L.M.M. Tijskens, M.L.A.T.M. Hertog and B.M. Nicolai (Eds.), *Food Process Modelling*, Chapter 8, 156-179, Woodhead Publishing Limited, Cambridge, UK, 496 pp.

## Lay-out and style

### *Page set-up*

Use A4 paper with top and bottom margins of 1 inch and left and right margins of 0.8-1 inches. Include page numbers.

### *Font*

Times New Roman or Arial.

### *Title*

The title is typed in bold, 14pt (use paragraph format 'Title'). Do not capitalise words in the title except the first word of the title or proper nouns. Between title and authors list there is a blank line.

### *Authors*

The authors are listed in one paragraph in 12pt (use paragraph format 'authors'). Put initials first (see example above). Use superscripted numbering if authors have different affiliation.

### *Affiliation*

Affiliation and e-mail address are in 9pt (use paragraph format 'address').

## Example:

J.E. Smith<sup>1</sup>, P. Flank<sup>1</sup>, A.H. Gerswin<sup>1</sup>, and B.M. Nicot<sup>1\*</sup>

<sup>1</sup> Laboratory member ([smith.1000@osu.edu](mailto:smith.1000@osu.edu)). Food Science and Technology Dpt. The Ohio State University, Columbus, OH 43210

\* corresponding author

### Body text

In the remaining sections of the extended abstract, headings are formatted according to their ranking with paragraph formats 'Heading1' and 'Heading2' (see Table 1). Text paragraphs are justified at both left and right margins and in 11pt (use paragraph format 'Body text').

Table 1: Formatting used in heading paragraph formats.

Format name	Font size	Font style	Blanc space	
			before	after
Heading 1	12 pt	Bold	12 pt	3 pt
Heading 2	12 pt	<u>Italic</u>	<u>6 pt</u>	<u>3 pt</u>

### *Tables*

Tables should be numbered independently of figures and have a table heading above. Only horizontal lines should be used for the tables. The text should include references to all tables.

### *Figures*

Illustrations and figures should be incorporated in the document at the appropriate place. Illustrations and figures should be in color, numbered and have a figure caption under the figure. Make sure the size of lettering within the figure is big enough. The text should include references to all figures.