

FOOD CHEMISTRY**11:400:411****COURSE SYLLABUS****COURSE TITLE****Food Chemistry****COURSE NUMBER**

11:400:411

CREDITS

3

Class Schedule: <https://sis.rutgers.edu/soc/#home>**PREREQUISITES**

Principles of Food Science 11:400:201
Must have previously taken Biochemistry
(11:115:301 or 403) or be registered this semester

INSTRUCTOR INFORMATION

Name	Dr. George M. Carman
Phone	office: 848-932-0267
Email	gcarman@rutgers.edu
Web page	http://foodsci.rutgers.edu/carman/index.html
Office/teleconference hours	By appointment
Office Address	IFNH building, room 012 61 Dudley Road New Brunswick, NJ 08901

COURSE WEBSITE, RESOURCES AND MATERIALS**Course Materials/ Resources**

Reference book and readings: Fennema's Food Chemistry, fourth edition, edited by S. Damodaran, K.L. Parkin, and O. R. Fennema, 2007, published by CRC Press may be used as a reference, but not required.

Learning Management System for the course

All necessary course and additional reading materials will be posted in course site in **Canvas**. Students are responsible for reading articles that may be found online as directed on the Canvas web site for the course.

COURSE DESCRIPTION

The course applies basic scientific principles to food systems and practical applications. Chemical/biochemical reactions of carbohydrates, lipids, proteins, and other constituents in fresh and processed foods are discussed with respect to food quality. Reaction conditions and processes that affect color, flavor, texture, nutrition, and safety of food are emphasized. Students are given a role in the learning experience through research by student groups and class presentations and discussions related to real world problems associated with both the private and public sectors of the world. Students take an active role in development and learning of course content.

PROGRAM LEARNING GOALS:

LG # 2: Graduates will demonstrate and apply knowledge of the core competencies in Food Chemistry and analysis.

Student Learning Goals and Outcome

2.1: Understand the chemistry involved in the properties and reactions of various foods and its components.

2.2: Understand and effectively applies the principles behind analytical techniques associated with food.

2.3: Understand and effectively applies food chemistry and analysis methods

COURSE OBJECTIVES:

At the end of the course, students will:

- be able to control the major chemical/biochemical (enzymatic) reactions that influence food quality with emphasis on home and food industry applications.
- demonstrate the properties of different food components and interactions among these components modulate the specific quality attributes of food systems
- understand the principles that underlies the biochemical/enzymatic techniques used in food analysis.

ASSIGNMENTS/RESPONSIBILITIES, GRADING & ASSESSMENT:

Attendance Policy:

Students are expected to attend all classes; if you expect to miss one or two classes, please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to me.

Grading:

3 exams; 30% each	90%	Emphasis in exams is placed on problem solving related to real life situations and food industry applications; exams are not multiple-choice	Grading Grid: “A” = 90 and above “B+” = 85-89 “B” = 80 - 84 “C+” = 75-79 “C” = 70 - 74 “D”: 60-69 “F” = below 60%
Class participation	10%	Small group discussions will be planned, and students will be notified during the semester	
Total	100%		

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

Disability Services: (848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Absence Policy

Rutgers Dean of Students <http://deanofstudents.rutgers.edu/>

The University does recognize that temporary conditions and injuries can be problematic and may adversely affect a student's ability to fully participate in class.

Absences or making up work: <https://temporaryconditions.rutgers.edu/>

The Dean of Students Office at Rutgers University-New Brunswick provides solutions, services, and support to help students navigate Rutgers University. By focusing on students' educational, social, and personal development, staff in the Office promote academic success and student retention. The Office serves as a student support network by providing advocacy, problem resolution, and critical incident intervention for those times when additional assistance is needed.

- **Self-Reporting Absences:** For absences in class or labs less than a week that are not confidential in nature, students need to inform faculty directly by using the Absence Reporting System (ARS) (<https://sims.rutgers.edu/ssra/>).
- **Longer Periods of Absence:** If you anticipate missing more than one week of classes for serious illness, confidential, or sensitive personal reasons, you should also consult with a New Brunswick Dean of Students who will help to verify your extended absences from classes.
- **Absences due to illnesses:** If your absence is due to illness, visit New Brunswick Health Services for information about campus health services, including information about: how to make an appointment, self-care advice for colds/flu, mental health and counseling options.

Schedule of Topics

Week	Lec	Topic(s)
1	1	Cellular basis of foods (animal, plant, and microbial sources)
2	2	Enzymes: basic principles and roles in food production, processing, and quality attributes
3	3	Postharvest physiology of fruits (ripening) and vegetables
4	4	Water activity and water migration; basis for controlling biochemical reactions
5	5	Exam- 1

6	6	Proteins and meat, Carbohydrates, Lipids and emulsions: chemical and biochemical influences on controlling structure, color, flavor, and texture
7	7	
8	8	
9	9	
10	10	Exam- 2
11	11	Proteins and meats, Carbohydrates, Lipids and emulsions: Industrial applications
12	12	Browning reactions: chemical and biochemical influences on color, flavor, and texture
13	13	Color: chemical and biochemical influences on development and loss of pigments
14	14	Flavor: chemical and biochemical influences on desirable and undesirable flavors in fresh and processed foods.
Final Exam per Rutgers Exam schedule: http://finalexams.rutgers.edu/		

ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated, and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

Cheating and Plagiarism

(From Spring 2010 Andy Egan 01:730:252 Eating Right): “Cheating on tests or plagiarizing materials in your papers deprives you of the educational benefits of preparing these materials appropriately. It is personally dishonest to cheat on a test or to hand in a paper based on unacknowledged words or ideas that someone else originated. It is also unfair, since it gives you an undeserved advantage over your fellow students who are graded on the basis of their own work. In this class we will take cheating very seriously”.

Turnitin will be used to assess students’ submissions and all suspected cases of cheating and plagiarism will be automatically referred to the Rutgers Academic Integrity office.

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ www.rhscaps.rutgers.edu/
CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students’ efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932- 1181.

Scarlet Listeners

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.