

Instructors: This course will be team taught by Liwei Gu (course coordinator), Susan S. Percival, Wade Y. Yang, Wendy J. Dahl, & Marty R. Marshall  
 Phone: (352) 392-1991 extension 210 (Liwei Gu)  
 Email: [LGU@ufl.edu](mailto:LGU@ufl.edu) (Liwei Gu)  
 Time: Period 4 (10:40-11:30 Am), Monday, Wednesday, Friday  
 Classroom: MCCA 2186  
 Office hours: Dr. Gu has an open door policy; please drop by any time

**Course Description and Objectives**

This course focuses on analyses, chemistry, processing, bioavailability, and health benefits of bioactive food components. Content will include both basic knowledge and the latest research trend. All readings materials will be provided or can be obtained from e-book or e-journals from UF library. The specific objectives of this course are:

1. To understand fundamental concepts and knowledge related to functional food
2. To critically read, analyze, and discuss scientific literature
3. To examine and assess the latest development in nutraceutical research
4. To apply the learned knowledge and develop functional foods for market

**Course content and format:**

There is no required textbook for this course. Reading materials are from peer-reviewed journals or e-books from UF library.

Chapter	Content	Instructor
1	Introduction	Gu
2	US regulations on nutraceutical and functional food	Gu
3	Market and international issues	Gu
4	Anti-oxidant and oxidative stress	Gu
5	Absorption, disposition, metabolism, and elimination of nutraceuticals	Gu
6	Phytochemical-based nutraceuticals	Gu
7	Health benefits, cellular and molecular mechanisms (Feb 3, 5, 7)	Percival
8	Nutraceutical extraction and isolation	Gu
9	Nutraceutical analysis	Gu
10	Pre-biotic and carbohydrate-based nutraceuticals (Feb 17, 19, 21)	Dahl
11	Functional food and metabolic syndrome	Gu
12	Nanotechnology and functional food	Gu
13	Protein and peptide-based nutraceuticals (March 17, 19)	Marshall
14	Food processing for nutraceuticals and functional food (March 31, April 2, 4)	Yang
15	Lipid-based nutraceuticals	Gu
16	Nutraceuticals of other sources	Gu

**Course Grading (300 total points)**

- Quiz in class (4-5 for 20 points)
- Assignments
  - Question and short answer assignment (2 for 20 points)
  - Critical reading and summary of assigned papers (8 for 80 points)
- Group project – develop a functional food product and marketing plan (50 points)
- Term paper and presentation - 4-6 page short review paper (80 point)
- Final exam (50 points)

Course will be graded according to the latest UF grade policy  
<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Letter grade	Grade point	Percent value
A	4.0	95-100%
A-	3.67	92-94.9%
B+	3.33	89-91.9%
B	3.0	86-88.9%
B-	2.67	83-85.9%
C+	2.33	80-82.9%
C	2.0	76-79.9%
C-	1.67	73-75.9%
D+	1.33	70-72.9%
D	1.0	66-69.9%
D-	0.67	60-65.9%
E (Fail)	0	0-59.9%

Homework and term paper turned in late will be penalized with 10% of the maximum grade per week of delay. Similarly, a credit of 10% of the maximum grade will be given per week if homework and reports are not graded by the instructor within a week.

### ***Attendance***

Students must attend all lectures and discussion according to university policy  
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. The non-justified absences and absences in excess of three will be penalized each with 5% off the maximum final grade. Special circumstances need to be addressed with the instructor and will be assessed on a case-by-case basis.

### ***Critical reading and summaries of assigned papers (80 pts total)***

After critical reading an assigned paper, write a summary use any format you wish. This written summary should include the following elements:

1. Summarize the main purpose of the paper
2. Summarize 2-3 findings of the work
3. Summarize the limitations and drawbacks in research methods, interpretation of results, and other aspects of the work
4. Relate the results of this paper to a subject not included in the paper (e.g. translate to a new application)

### ***Product Development Group Project (50 points total)***

Groups of 2-3 students will develop a brand new functional food product for the market place. A guideline will be provided to help you through the development process.

1. Groups will create a marketing plan with the goal of developing and selling a product that would have real world applicability. This should be a product that you could realistically commercialize in order to help a specific demographic.
2. In your report, your group's product should include; a product name, basic composition, functions, label according to FDA regulation, targeted consumers, price range, production method, marketing strategies, etc.

3. Groups will utilize scientific literature along with classroom material to creatively develop a marketing plan to fit the needs of an assigned demographic.
4. Students will also present their new food product and marketing plan to the class in a brief **15 minute** presentation.
5. This will be a Persuasive Presentation as if you were a R&D Scientist presenting to Marketing. Business Casual Attire is **REQUIRED**. This is your opportunity to be creative and convince your peers why your product will be successful in the market place.
6. Students will be graded on the following criteria:

Objective	Point Total
Completed Marketing Plan	10 Pts
Application of Literature and Materials	10 Pts
Real World Applicability/Scientific Merit	15 Pts
Presentation	10 Pts
Creativity	5 Pts

7. Timeline

Date	Activities
2/28	R&D Lectures and Handout Assignment
3/26, 28	Oral presentations and Marketing Plans Due

**Term paper and presentation (80 points)**

1. Format: 4-6 page short review paper, 12 pt Calibri, single space, not including reference  
*Abstract (250 words, 5 points)*  
*Introduction (half a page, 5 points)*  
*Research 5 years old or older (2-5 references, 1-1.5 page, 10 points)*  
*Current Research (10-20 references 2007 to 2014, 2-4 pages, 20 points)*  
*Future Trends (0.5-1.0, 10 points)*  
*References-choose your own reference style and be consistent throughout the paper*
2. Paper oral presentation (20 min): Oral presentations have to be done in MS PowerPoint. They need to contain all the aspects of the written paper.  
*Verbal clarity and fluency (10 points)*  
*Clarity of slides (5 points)*  
*Ability to convey complex concepts (10 points)*  
*Timing and Enthusiasm (5 points)*
3. Timeline

Date	Activities
02/28	Send topic / preliminary title to Dr. Gu for approval
04/16, 18, 21	Oral presentation of term paper

**Academic Honesty**

In 1995 the UF student body enacted an honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

***The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity***

On all work submitted for credit by students at the university, the following pledge is either required or implied: "***On my honor, I have neither given nor received unauthorized aid in doing this assignment.***"

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student Honor Council, or Student Conduct and Conflict Resolution in the Dean of Students Office.

*(Source: 2012-2013 Undergraduate Catalogs)*

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor.

This policy will be vigorously upheld at all times in this course.

**Software Use:**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

**Campus Helping Resources**

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Training Programs
  - Community Provider Database
- Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)

**Services for Students with Disabilities**

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)