

**RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY  
SCHOOL OF ENVIRONMENTAL and BIOLOGICAL SCIENCES**

**Department of Food Science**

<b>COURSE TITLE</b>	<b>Food Product Development</b>
<b>COURSE NUMBER</b>	11:400:412
<b>CREDITS</b>	3
<b>SEMESTER(S) OFFERED</b>	Spring
<b>CLASS DETAILS</b>	
Days/ Time(s) Location	Tue/Thu 3:55-5:15 pm; FS 109 Tue/Thu 5:35-6:55 pm; FS 017
<b>PREREQUISITE(S)</b>	Pre-reqs: Food Processing Technologies 11:400:301 & Current Issues in Food Science & Food Laws 11:400:314 & Food Chemistry 11:400:411 & Sensory Evaluation of Foods 11:400:405 Co-reqs: Food Microbiology 11:400:423
<b>INSTRUCTOR INFORMATION</b>	
Name	Dr. Paul Takhistov
Phone	848 932 5478
Email	<a href="mailto:Paul.takhistov@rutgers.edu">Paul.takhistov@rutgers.edu</a>
Office Hours [Day(s) & Time(s)]	By appointment
Office Address	Food Science Room #415 Rutgers University 65 Dudley Road, New Brunswick, NJ 08901
<b>COURSE DESCRIPTION</b>	
The capstone course, Food Product development requires students to assimilate and integrate the knowledge they have gained to work in teams with cooperating entrepreneurs and companies to develop	

products of interest. The course forces the student to engage at multiple levels, scientifically, interpersonally, and managerially.

### **COURSE OBJECTIVES**

By participating in the course and working on the teams and individual assignments the students are expected to achieve or improve the following skills and competencies:

- Integrate the knowledge acquired from previous academic courses and apply it to the real life project of developing a new food product.
- Improve the skills of searching diversified sources including books, review publications, scientific journals, and Internet to select relevant and reliable information for the project.
- Gain necessary in professional life basic knowledge at the level expected of Food Science major of outside of the curriculum subjects including business planning, marketing, project management, and cost evaluation.
- Develop a real new food product prototype and prepare a scientifically comprehensive description of this prototype.
- Demonstrate in practice constructive participation in team projects
- Prepare a team proposal for a company for scale-up processing, and market launching of a selected new product category.

### **PROGRAM LEARNING GOAL (S) SATISFIED BY THIS COURSE:**

**LG # 6: Graduates will demonstrate effective professional and leadership skills.**

### **Student Learning Goals and Outcome**

**6.1:** Demonstrate the ability to work independently as well as to work cooperatively in cross-disciplinary teams.

**6.2:** Understand the importance of and is committed to professional integrity and ethical values within the workplace.

**6.3:** Demonstrate ability to work and/or interact with individuals from diverse cultures.

### **FURTHER INFORMATION ON THE COURSE:**

#### Course Format:

The structure of this course is different from most of the other courses you have taken. Rather than a lecture course, it is a capstone course that is set up as a guided independent project in which you are expected to demonstrate the ability to integrate and apply the knowledge that you have acquired from previously taken academic courses. Initially you will be divided into teams, which will provide a framework in which you will do your independent product development project. The teams will determine general criteria, with which you will develop your product, allow the division of some general

tasks, provide forum for developing ideas and testing them. The teams will introduce their activities to the class in a series of presentations and written reports.

Within the team framework, you will do a guided independent product development project. To assure a systematic effort, a structured schedule of reports will be required to provide information on the progress. An individual oral presentation and a written report on the prototype as well as substantial contribution to team's reports are expected. Each team will be required to prepare a term paper (with slides) on an assigned topic related to the new trends in food industry.

#### Guidance:

Group and individual guidance are a very important part of this course. It will be provided mainly in the form of class distribution and interpretation of detailed instructions. Various aspects of food product development stages will be discussed in class in a setting similar to industrial management meeting. Continuous interaction between students, the instructor, and the teaching assistant are also a significant part of the course. Students are expected to participate in class discussions and individual conferences. Questions that are general in the nature will be addressed in class. Specific inquiries related to the projects will be subject to student/instructor and/or teaching assistant meetings.

#### Class Meetings:

Meetings will cover scientific principles of food product development with emphasis on interdisciplinary character of this field. The integration of physical, chemical, and biological sciences including engineering and technology, as well as management, marketing, and social sciences will be discussed. Attendance is required.

#### Team and Individual Activities:

Teams meetings will include discussions on assigned projects and related matters. Detailed plans will be developed by the teams. Work on individual assignments related to a selected product will include information search and consultations. Detailed plans will be developed by individual students.

For the preparation of prototypes, students and/or teams are responsible for making contacts with cooperating companies. Students and/or teams are responsible for making contacts to acquire necessary ingredients, and to request the equipment and work space needed to produce the prototype for presentation to the class. These arrangements must be done well in advance and coordinated by TA.

#### **ASSIGNMENTS, RESPONSIBILITIES & ASSESSMENT**

- Active participation in and contribution to the team's marketing plan development, presentation, and report 25%
- Individual prototype development, presentation, and report 25%
- Active participation in and contribution to the team's scale-up plan development, presentations, and report 25%
- Term paper 25%

- Passing grades must be achieved in all four parts listed above to pass the course. Logs with a record of tasks performed by the teams are required
- Logs with a record of tasks performed by the individual students are required

Students will be responsible for adhering to the academic integrity policies found at <http://academicintegrity.rutgers.edu>.

It is important that students have the tools to succeed in this course. Please see the instructor \*as soon as possible\* with any difficulties or questions regarding the course materials. In addition, the Office of Student Affairs is available at <http://studentaffairs.rutgers.edu> for any other needs or concerns.

### COURSE SCHEDULE:

	Lecture	NY IFT meeting (Professional event on product development)
	Lecture	Class intro. Project management.
	Lecture	Product development. Marketing research.
	Lecture	Food product development process
	Lecture	Product Concept. Design criteria.
Feb. 5	Team presentation	Product description/Marketing research
	Lecture	Food printing technology. Engineering requirements for printable foods.
	Pilot plant. Lab.	Project team work on product. Identification og attributes.
Feb. 19	Team presentation	Product Profile. Identification of product morphology and attributes.
	Pilot plant. Lab.	Project team work on product. Design concepts..
	Lecture	Formulation development. Gate process.
	Pilot plant. Lab.	Project team work on the product. Product formulation development.
	Lecture/ Pilot plant. Lab.	Professional ethics. Project team work on the product. Product formulation development.
	Pilot plant. Lab.	Project team work on the product. Product formulation development.
March 12	Team presentation	Formulation/ Composition description
	Lecture	Manufacturing aspects of the FPD. Process scale-up.
	Spring break	
	Spring break	
	Pilot plant. Lab.	Project team work on the product. Process flow diagram and operation regimes.

April, 2	Team presentation	Process development/Scale-up/ Manufacturing
	Pilot plant. Lab.	Project team work on the product. HACCP plan development.
	Pilot plant. Lab.	Project team work on the product. Sanitation protocol development.
April, 11	Team presentation	Food Safety/HACCP/Labeling/Package
	Lecture	Guest lecture
	Pilot plant. Lab.	Project team work on the product. Sensory test protocol development.
	Pilot plant. Lab.	Project team work on the product. Samples production. Internal panel test.
	Pilot plant. Lab.	Project team work on the product. Sensory panel evaluation.
April, 25	Team presentation	Sensory evaluation of the product attributes.
	Pilot plant. Lab.	Project team work on the product. Finalizing product. Sample production for the final presentation.
May, 2	Team presentation	Final presentation/poster & Samples

## STUDENT WELLNESS SERVICES

### **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/](http://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/](http://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.

**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>.

**Scarlet Listeners**

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

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