

2024 Spring

NFS 3990 Food Product Development and Analysis

Spring 2024

Thursdays 8:30-11:30 am

357/258 Marsh Life

Instructor

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Course Description

NFS 295 Food Product Development and Analysis is designed for seniors and graduate students who are majoring in food science. In this course, lectures and practical laboratory exercises will be offered to formulate food products, determine and analyze the physical properties, quantify the content of functional components using different analytical protocols.

Overview: We will discuss the course plans, topics, and approaches of this class. Course grading, projects, and class assignments will be also discussed. We may have a few possible field trips if time permits.

The following products will be formulated, prepared and analyzed:

Iced tea formulation

- Prepare iced teas made from green or black tea bags
- Measure sugar content and the pH of the iced tea beverages
- Commercial iced teas will be used as comparison

Sports drinks formulation and analysis

- Formulate different flavored sports drinks
- Measure pH, sugar content of the sports drinks
- Vitamin C content calculation
- Convert vitamin C content to Daily Values percentages (% DV)
- Calculate the osmolality of the sports drinks compared with commercial sports drinks

Preparation of symbiotic yogurt products & functional properties analysis

- Incorporate prebiotics and probiotics into dairy yogurts
- Measure pH, viscosity of yogurts
- Titratable acidity measurement

Decarboxylation of Cannabidiol

- Prepare hemp oil
- Set up time and temperature intervals for the heating process

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CBD soy yogurt making

Soy products making

- Soaking soybeans and making soymilk
- Soy yogurt making

Self-design project

Course safety policies

- Masks may be required in the classroom of this course.
- Dress codes: In order to prevent accidents or injuries in the lab, proper clothes and shoes are strongly recommended. Footwear should be always covered your feet. completely, which means sandals, slippers or other open-toed shoes are not allowed in the lab. Similarly, you may not wear shorts and skirts when you work in the lab. For the students who have chin-length or longer hair, please always tie them back. After you enter the lab, please wear lab coat.
- Food and beverage are not allowed in the lab. Please put them outside of the lab.
- Clean the bench and apparatuses after you finish the experiment. Put all the reagents and materials to the original place.
- Always follow the lab rules.

Grading

- Attendance (10%)
- Project (30%)
- Mid-term exam (20%)
- Lab reports (40%)

Schedule

Week 1: January 18	Introduction and discussion
Week 2: January 25	Iced tea formulation
Week 3: February 1	Sports drinks formulation
Week 4: February 8	Measurements of pH and sugar contents of the iced tea and sports drinks, vitamin C content calculations
Week 5: February 15	Decarboxylation of CBD
Week 6: February 22	Brief introduction of cheese making technology

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Week 7: February 29	Field trip to Agrimark
Week 8: March 7	Symbiotic yogurt making
Week 9: March 14	Spring Break
Week 10: March 21	Project design and preparation
Week 11: March 28	Titrate acidity and viscosity analysis of symbiotic yogurt
Week 12: April 4	Soy milk making
Week 13: April 11	CBD soy yogurt making
Week 14: April 18	Self-design project
Week 15: April 25	Self-design project
Week 16: May 2	Project presentation
Week 17: May 9	Final