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
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
2024 Spring

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  Titratable 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