PROJECT: INNOVATION WITH PLANT PRODUCTS & PROCESSES

The field of food science is constantly evolving to keep up with the desires and necessities of consumers and the global marketplace. Innovation is key to staying both relevant and sustainable.

Throughout the lab section of this course, you will notice the large amount of waste that is generated during food processing. Many efforts have been taken in recent years to reduce or repurpose this waste in order to increase sustainability of processing procedures and to add value to products that would otherwise be thrown away.

The **objective** of this assignment is to identify a waste stream in plant food processing that can be diverted into new processes as either an ingredient or a processing aid for a new food product.

YOU WILL WRITE AND PRESENT A PROPOSAL FOR A NEW, ORIGINAL FOOD PRODUCT OF YOUR OWN DESIGN THAT WILL…

- Outline the process from which your waste product is derived
- Characterize the chemical, physical and microbiological profile of your waste product
- Describe the product which you intend to design, including:
    - Purpose (why did you choose this product?)
    - Production strategies (how will it be made?)
    - Quality parameters (what are the intended physical, chemical and biological characteristics?)
- Discuss the impact of the product on sustainability, cost effectiveness and/or human health

This proposal will be prepared in groups of three, and will make up 15% of your total grade. You will have designated time throughout the semester to meet with me about your ideas and the progress of your project. **Note that this project does not require you to physically develop and test a product!**

Keep in mind that when you are writing a proposal, you are focusing on ideas that have not been carried out before. Your ideas should be new and innovative- *based on* products and ideas that already exist, but not direct copies of them. Use current literature to help support your thoughts.

WRITTEN PROPOSAL REQUIREMENTS (10% OF TOTAL GRADE)

1. Title Page
2. Table of Contents
3. Literature Review and Product Research
    a. Introduction
    b. Identification of waste stream of interest and rationale
    c. Process outline of original process that waste stream is derived from
    d. Characterization of waste ingredient
    e. Identification of final product
4. Product Design and Quality
    a. Characterization of final product
        i. Description of physical, chemical, microbiological qualities

        ii. Intended use/purpose
    b. Overall product composition
        i. Estimated composition of ingredients (table)
        ii. Description of ingredient functionality
    c. Product processing outline
        i. Flowchart
        ii. Identification of critical control points with explanation
    d. Potential Pitfalls
        i. Identification of potential obstacles in production or product stability
        ii. Strategies to overcome obstacles
5. Impact
    a. Estimates for improvement of sustainability, cost or human health
    b. Future directions for product and waste stream management

This report should be about 25 pages double-spaced (size 11 font, 1" margins, including figures), but you'll be graded on content- not page number.

Your final report must be submitted electronically and as a hard copy. All written reports must be submitted through TurnItIn (http://tlt.its.psu.edu/turnitin); reports not submitted through that source will not be accepted. Cite your sources in numerical order within the text, using superscript for the numbers. References do not contribute to the page count of the proposal.

Plagiarism will not be tolerated in this class. If you are not sure what constitutes plagiarism, please refer to the syllabus, which features links to resources discussing academic integrity and the policies that this course complies to per University standards, or see me in person to discuss. **Any evidence of plagiarism will result in a zero (0) for the entire group project (15% of your final grade in the class), and the matter will be referred to the College of Agricultural Science's Academic Standards Committee for review and potential disciplinary action.**

The final report will be due on **12/01** at **9:05 AM**, the first day of oral presentations.

ORAL PRESENTATION REQUIREMENTS

Your oral presentation will be your chance to share your ideas with your classmates in the form of a 10-minute technical sales pitch. Focus on highlighting how your product is **innovative** and **impactful**. You should design a Powerpoint for visual assistance during this presentation.

An electronic copy of your Powerpoint must be submitted to the Project dropbox on Canvas on 12/01. Three (3) hard copies of the presentation (2 slides per page) must be provided for the instructor and TAs on the day of the presentation.

ORAL PRESENTATION REQUIREMENTS (5% OF TOTAL GRADE)

1. Title with Product Name
2. Introduction
3. Brief Background on Waste Stream
4. Product Idea and Characteristics
5. Product Process Flow and Quality Parameters
6. Potential Pitfalls
7. Impact

Organization, quality and timing will all be considered in addition to technical content for this presentation. It is recommended that you practice your presentation prior to class!

PROJECT SCHEDULE AND DEADLINES

Choose one team member to be main contact person between the team and instructor. This member will be responsible for the submission of all materials to Canvas or to the instructor via email.

Item	Deadline	Submission Style
Choose teams (groups of 3)	8/26, 11:59pm	Email list of team members to Charlene (cbv109@psu.edu) with all group members copied to email
Waste stream(s) of interest chosen with top 3 ideas for products	9/02, 11:59pm	Email Charlene with all group members copied to email
Waste stream/product ideas will be approved/assigned by 9/06 so there will not be overlap between groups		
Literature Review and Product Research (Draft)	10/07, 5:00pm	Canvas Group Project Dropbox
Written feedback provided by 10/10		
Progress Meeting (Optional)	Week of 10/10 – 10/14	Time scheduled via DoodlePoll
Product Design and Quality (Draft)	11/04, 5:00pm	Canvas Group Project Dropbox
Written feedback provided by 11/07		
Progress Meeting (Optional)	Week of 11/07 – 11/11	Time scheduled via DoodlePoll
Final Written Report and Powerpoint	12/01, 9:05am	Canvas Group Project Dropbox
Final Presentations	12/01, 12/06, 12/08	In-class presentation

Be sure to check the Canvas page regularly for updates!

Examples of written portions and rubrics will be provided.