GROSSMONT COLLEGE

Official Course Outline

NUTRITION 205 – THE SCIENTIFIC PRINCIPLES OF FOOD PREPARATION

 1. Course Number Course Title Semester Units Semester Hours

 NUTR 205 The Scientific 4 **3** hours lecture: 48-54 hours

 Principles of Food **3** lab hours: 48-54 hours

 Preparation 96-108 outside of class hours for lecture

 192-216 total hours

 2. Prerequisites

A “C” grade or higher or Pass in Chemistry 116 or equivalent

 Corequisite

None

 Recommended Preparation

 None

 3. Catalog Description

This course explores the science of food with an emphasis on the chemical compounds, chemical reactions and physical changes that occur during food preparation. The course will examine the function and interaction of ingredients, food safety and sanitation standards, and the effects of preparation methods on the nutrient composition and palatability of foods. The course includes hands-on experience in sensory evaluation techniques and standards, as well as a variety of food preparation techniques.

4. Course Objectives

The student will:

a. Examine the scientific properties of food through the selection, preparation and presentation of a variety of products from each major category of food;

b. Describe the basic physical, chemical, nutritional, and functional properties of food;

c. Apply food safety and sanitation procedures during food preparation;

d. Evaluate methods to optimize nutrient content of foods;

e. Demonstrate basic knowledge of food preparation terminology and techniques;

f. Apply basic knowledge of weights, measures, and conversions;

g. Prepare foods using a standardized recipe;

h. Evaluate sensory attributes of food;

i. Demonstrate the appropriate use and maintenance of laboratory equipment and utensils.

5. Instructional Facilities

 a. Standard lecture classroom

 b. Kitchen facility with basic food preparation surfaces, refrigeration, kitchen utensils and basic cooking equipment (oven, microwave, stovetop).

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6. Special Materials Required of Student

1. Datalink forms
2. Basic calculator
3. Electronic storage media

7. Course Content

1. Scientific principles of food selection, food safety, food sensory evaluation and the chemical composition of foods
2. Food safety and basic food preparation techniques such as moist and dry-heat methods, mixing, measurements and conversions, and presentation
3. The composition, purchasing, preparation and storage of various categories of food, including proteins, fruits and vegetables, complex carbohydrates, desserts and beverages
4. Lab safety, sanitation, and the use and handling of equipment and utensils involved in food preparation
5. Optimization of the nutrient content of food through various food preparation techniques
6. The function, nutrient contribution, and final product properties of the ingredients utilized in standardized recipes

8. Method of Instruction

1. Lecture
2. Lab
3. Demonstration
4. Guest speakers
5. Online learning modules
6. Outside reading
7. Group discussions
8. Multimedia
9. Group projects and activities

9. Methods of Evaluating Student Performance

1. Periodic quizzes and examinations on food science topics, including a final examination
2. Oral presentation on food science topic such as the effects of using alternative sweeteners on baked goods
3. Individual and/or group projects. Example: Students will work in small groups to prepare demonstrations on the coagulation of milk using lemon juice, acid, rennet, tomato sauce or salt, and compare the results.
4. Written assignments on food science topics. Example: Students may prepare a written report on the current research about a food additive in common usage (i.e. monosodium glutamate, aspartame)
5. Evaluation of lab activities and performance. Example: Students will complete a healthy recipe modification assignment, preparing two recipes utilizing different ingredients/methods and comparing the sensory qualities and nutrient profiles of each. Through this assignment, students will be evaluated on their use of basic food preparation techniques and adherence to safety and sanitation procedures.

10. Outside Class Assignments

1. Written and online assignments on food science topics. Example: Students will select a recipe using eggs and discuss how cooking time, temperature and method of preparation would change its sensory qualities
2. Assigned text and laboratory books to prepare for class discussions, experiments, and exams.
3. Weekly pre-lab work in preparation for experiments. Example: Students will reflect on the possible outcomes of the addition of different types or amounts of fat to the outcome of a cookie recipe prior to the lab.
4. Weekly post-lab work to evaluate results of experiments. Example: Students will prepare a post-lab report on the sensory qualities of a sample of food products, evaluating the taste, smell, color and texture, and analyzing the data.

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11. Text(s)

1. Required Texts:

Brown, Amy C. *Understanding Food Principles and Preparation*. 6th ed. Stamford, CT: Cengage Learning, 2019.

1. Supplementary texts and workbooks

Brown, Amy C. *Lab Manual for Brown's Understanding Food: Principles and Preparation*, 5th. Cengage Learning, 2019**.**

 Addendum: Student Learning Outcomes

 Upon completion of this course, our students will be able to do the following:

1. Prepare a meal utilizing a standardized recipe
2. Evaluate the sensory qualities and nutrient profile of a prepared meal
3. Modify a standard recipe to alter its nutrient profile
4. Identify the contributions of each ingredient to the chemical, physical, nutritional and functional properties of a recipe

Date approved by the Governing Board: December 13, 2019