

# Minnesota State University Moorhead

## BCBT 100: The Science of Cooking

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 1

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

This course will look at cooking from a scientific perspective to understand the food we eat and enjoy. Cooking may be the oldest and most widespread application of science. Students will use principles of biochemistry with some chemistry and biology to analyze food and investigate how cooking works. Students will also do several edible experiments and look at the science behind how it all works. Each week a different food will be explored. Topics include, but are not limited to, what makes a good experiment, death by chocolate, cheese making, the joys of hot sauce and salsa food biochemistry, the science of spice, and what is taste? This course includes a lab component. Students are expected to conduct three food experiments independent of class time. Learn to be a better cook by understanding food at the molecular level. MnTC Goal 3.

**B. COURSE EFFECTIVE DATES:** 08/23/2010 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Biochemistry of food macromolecules
2. Milk, Dairy and Eggs
3. Science of Flavor, Color and Texture
4. Biochemical Heat and Hot sauce and chilies
5. Chemical reactions of cooking
6. Meat, Fish and Shellfish
7. Leavened and unleavened breads, doughs and cakes
8. Fermentation and beverages

### D. LEARNING OUTCOMES (General)

1. Students will learn the molecular basis of food, chemical reactions, biochemical reactions and the impact of science on food and society.
2. Students will learn about chemical oxidation, fermentation, and the role of proteins, fats, sugars and leavening agents in food, among other topics.
3. Students will be able to understand how to use hypothesis and theories when conducting food experiments, recognize problems and test hypothesis while cooking.
4. Students will understand basic scientific theories as they apply to food and cooking and will demonstrate an understanding of how chemistry, biology, and physics apply to cooking and food.

## **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

### Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
3. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

None noted