

APCA 102: CULINARY MATH, MEASUREMENTS & CALCULATIONS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2022
Units:	2.5
Hours:	32 lecture, 8 laboratory per quarter (40 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Culinary Apprenticeship Program.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Description

One of the most important courses in culinary arts, this course instills methods to measure ingredients (volume, weight, time and temperature), convert from U.S. to Metric systems of measurement, calculate portion cost and recipe cost. Also covers pricing strategies and instills an understanding of order guides and invoices. Students will work with ratios and fractions with key ratios applied to achieve an edible result without a recipe. Students will learn to detect flaws in a recipe if the ratio is not correct. Students will produce a portfolio of their own recipe calculations.

Course Objectives

The student will be able to:

1. Identify whole numbers, decimals, fractions, and ratios used in food service calculations.
2. Demonstrate basic whole number, fraction, and decimal calculations (add, subtract, multiply, and divide).
3. Describe various methods used to measure ingredients (volume, weight, count, length, time, and temperature) and their units of measure.
4. Identify common tools used to measure in a kitchen.
5. Identify abbreviations for common units of measure.
6. Demonstrate the conversion of common units of measure within the U.S. and Metric measurement systems.
7. Demonstrate accurate measurements using the following methods: volume, weight, count, length, time, and temperature.
8. Identify various expenses in operating a food service establishment (food, labor, etc.).
9. Describe menu item food cost and how it is determined.
10. Explain how a menu item's selling price is determined.

11. Describe how portion control, proper measurement of recipe ingredients, and product waste and loss affects an operation.
12. Demonstrate the ability to assist with the receiving of a food order and check the invoice for receipt of all items listed.
13. Understand and calculate Cost Volume Profit analysis and break even points.
14. Read a Profit and Loss (PNL) statement.
15. Understand and apply concepts in budget making.

Course Content

1. Math basics and basic word problems (Lec and Lab)
2. Units of measure in weight, volume, and temperature, and their abbreviations in culinary arts (Lec and Lab)
3. Metric system of measurements and conversions to equivalents in the U.S. Standard system (Lec and Lab)
4. Units of measure and conversions using the bridge method (Lec)
5. Conversion of mixed measurements (Lec)
6. Advanced conversions between weight and volume (Lec and Lab)
7. Yield percentages (Lec)
8. As Purchased vs. Edible Portion, and applying yield percentages (Lec and Lab)
9. Cost per unit and total cost formulas (Lec)
10. Edible Portion cost (Lec and Lab)
11. Recipe costing (Lec)
12. Labor cost (Lec)
13. Menu engineering and revenue management (Lec)
14. The importance of beverage costing and cost control (Lec)
15. Recipe size conversion (Lec)
16. Ratios and their importance ((Lec and Lab)
17. The Profit and Loss (income) statement (Lec)

Lab Content

Students will observe and participate in exercises in an operating commercial kitchen to prepare and test recipes. For example: edible portion, where in order to make 10 pounds of chopped fresh pineapple, students will be taught that they need to order 18-20 lbs (two cases) of pineapple to get that yield. In addition, students will observe shrinkage in meat after cooking (fat melts) and be taught that loss needs to be accounted for when planning.

Special Facilities and/or Equipment

1. Commercial kitchen for observation, demonstration and practice
2. Laptop computer and projector or TV screen
3. Whiteboard with erasable markers

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

- Midterm and final exams
- Quizzes
- Homework
- Submission of recipe costing portfolio project
- Routine checks for understanding

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lecture

Demonstration: students will see yield percentages in action

Integrated discussion on application

Portfolio: students will cost out their own recipes as part of a project

Case study: restaurant cost control, and Profit and Loss statement impact

Representative Text(s) and Other Materials

Hill, Julia, and Linda Blocker. Culinary Math, 3rd ed. (ISBN: 978-0-470-06821-2). 2012.

Although this text may be older than the suggested "5 years or newer" standard, it remains a seminal text in this area of study.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Students will research their own recipes and calculate the total recipe cost and cost per portion. This is critical in developing a pricing strategy for menus.
2. Homework will focus on calculations and will be intense; will also include a real case study of a confidential company, a Profit and Loss statement, and cost control.

Discipline(s)

Culinary Arts/Food Technology