Course Information

Division: Business  
Course Number: HRM 130  
Title: Culinary Math  
Credits: 3  
Developed by: Webb Evans & Stephen Cullen, Ph.D.  
Lecture/Lab Ratio: 3 Lecture/0 Lab  
Transfer Status:  
<table>
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<tr>
<th>ASU</th>
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<td>Non Transferable</td>
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Activity Course: No  
CIP Code: 52.0901  
Assessment Mode: Pre/Post Test (25 Questions/25 Points)  
Semester Taught: Upon Request  
GE Category: None  
Separate Lab: No  
Awareness Course: No  
Intensive Writing Course: No

Prerequisites
None

Educational Value
This course allows for students to develop mathematical skills as applied to the field of food service.

Description
This course is an opportunity to develop mathematical skills needed in the field of food service. Skills developed in this course are critical to controlling food costs and effective management.

Supplies
Notebook  
Pen/Pencil  
Calculator
**Competencies and Performance Standards**

1. **Review basic math, including whole numbers, fractions, and decimals.**
   
   **Learning objectives**
   
   *What you will learn as you master the competency:*
   
   a. Identify the place value of a whole number.
   b. Convert a whole number to a fraction.
   c. Identify the types of fractions.
   d. Convert fractions to decimals and decimals to fractions.
   e. Convert a percent to a decimal or fraction and decimals or fraction to a percent.
   f. Round numbers based on culinary scenario.

   **Performance Standards**
   
   *Competence will be demonstrated:*
   
   o by identifying the place value of a whole number.
   o by converting a whole number to a fraction.
   o by identifying the types of fractions.
   o by converting fractions to decimals and decimals to fractions.
   o by converting a percent to a decimal or fraction and decimals or fraction to a percent.
   o by round numbers based on culinary scenario.

   **Criteria - Performance will be satisfactory when:**
   
   o learner can solve twenty five fractions problems with 100% accuracy.
   o learner can convert twenty five problems calculating fractions to decimals and decimals to fractions with 100% accuracy.
   o learner can solve twenty five problems using equation with fractions and decimals.
   o learner can twenty five problems calculating percent to decimal or fraction and decimal or fraction to present with 100% accuracy.
   o learner can solve twenty word problems calculating part, whole, or part.
   o learner can round five numbers based on culinary scenario.

2. **Calculate advanced conversions with units of measure between weight and volume.**

   **Learning objectives**

   *What you will learn as you master the competency:*

   a. Demonstrate understanding of the bridge method to convert units of measure with weight.
   b. Demonstrate understanding of the bridge method to convert units of measure with volume.
   c. Convert mixed units of measure to a single unit.
   d. Convert a single unit of measure to mixed units of measure.
   e. Identify when to use approximate volume to weight chart with error.
   f. Convert unit measures from weight to volume and volume to weight.
   g. Calculate the yield percent of non-fabricated fruit or vegetable applying the steps to a yield test.
   h. Apply the terms as-purchased quantity (AAPQ), edible portion quantity (EPQ), and trim correctly.
   i. Calculate the yield percent when given and weights of the as-purchased quantity and edible portion quantity of a fruit or vegetable.
j. Identify the factors that might affect yield percent.

k. Distinguish the times when it is appropriate to use the Approximate Yield or Fruits and Vegetable Chart.

l. Calculate the As-Purchased Quantity when the edible portion quantity is given.

m. Calculate the Edible Portion Quantity when the as-purchased quantity is given.

**Performance Standards**

*Competence will be demonstrated:*

- by demonstrating understanding of the bridge method to convert units of measure with weight.
- by demonstrating understanding of the bridge method to convert units of measure with volume.
- by converting mixed units of measure to a single unit.
- by converting a single unit of measure to mixed units of measure.
- by identifying when to use approximate volume to weight chart with error.
- by converting unit measures from weight to volume and volume to weight.
- by calculating the yield percent of non-fabricated fruit or vegetable applying the steps to a yield test.
- by applying the terms as-purchased quantity (AAPQ), edible portion quantity (EPQ), and trim correctly.
- by Calculating the yield percent when given and weights of the as-purchased quantity and edible portion quantity of a fruit or vegetable.
- by identifying the factors that might affect yield percent.
- by distinguishing the times when it is appropriate to use the Approximate Yield or Fruits and Vegetable Chart.
- by calculating the As-Purchased Quantity when the edible portion quantity is given.
- by calculating the Edible Portion Quantity when the as-purchased quantity is given.

*Criteria - Performance will be satisfactory when:*

- learner can complete with 100% accuracy twenty five word problems associated with culinary arts using the bridge methods to convert units of measure with weight.
- learner can complete with 100% accuracy twenty five word problems associated with culinary arts using the bridge methods to convert units of measure with volume.
- learner can complete with 100% accuracy twenty five word problems using the bridge methods to convert units of measure to volume.
- learner can complete with 100% accuracy ten word problems outlining measurement of mixed units to a single unit.
- learner can complete with 100% accuracy ten word problems outlining single unit of measure to mixed units of measure.
- learner can recite when to use approximate volume to weight chart without error.
- learner can complete with 100% accuracy ten word problems outlining converting unit measures from weight to volume and volume to weight.
- learner can complete with 100% accuracy ten word problems outlining yield percent of non-fabricated fruit or vegetable applying the steps to a yield test.
- learner can define in writing as-purchased (AAPQ), edible portion quantity (EPQ), and trim.
- learner can in writing list factors that might affect yield percent.
- learner can compare and contrast the times when it is appropriate to use the Approximate...
Yield or Fruits and Vegetables Chart.

- learner can with 100% accuracy complete 10 word problems calculating As-Purchased when the Edible Portion Quantity in given.
- learner can with 100% accuracy complete 10 word problems calculating Edible Portion Quantity when the As-Purchased quantity is given.

3. **Calculate food cost and beverage costs.**

   **Learning objectives**
   
   *What you will learn as you master the competency:*
   
   a. Apply the cost-per-unit formula.
   b. Calculate total cost.
   c. Define cost as used by the food-service industry.
   d. Define edible portion cost and the as-purchased.
   e. Calculate the edible portion cost when the as-purchased cost in given for an ingredient.
   f. Explain when edible portion cost will always be equal to or greater than as-purchased cost.
   g. Define food cost form.
   h. Cost out a recipe by completing a food cost form correctly.
   i. Calculate the cost to produce a given recipe and the cost per portion.
   j. Calculate the estimated selling price given an estimated food cost percent.
   k. Identify the circumstances when the yield percent does not need to be taken into account when calculating the as purchased quantity.
   l. Identify the circumstances when the yield percent does not need to be taken into account when calculating the edible portion cost.
   m. Calculate the number of U.S. standards-measure serving of wine or spirits that can be poured from a quantity given in metric measure.
   n. Calculate beverage cost percent given the cost per beverage and the selling price.
   o. Calculate the selling price for a beverage given the beverage cost percent per beverage.

   **Performance Standards**
   
   *Competence will be demonstrated:*
   
   - by applying the cost-per-unit formula.
   - by calculating total cost.
   - by defining cost as used by the food-service industry.
   - by defining edible portion cost and the as-purchased.
   - by calculating the edible portion cost when the as-purchased cost in given for an ingredient.
   - by explaining when edible portion cost will always be equal to or greater than as-purchased cost.
   - by defining food cost form.
   - by costing out a recipe by completing a food cost form correctly.
   - by calculating the cost to produce a given recipe and the cost per portion.
   - by calculating the estimated selling price given an estimated food cost percent.
   - by identifying the circumstances when the yield percent does not need to be taken into account when calculating the as purchased quantity.
   - by calculating the number of U.S. standards-measure serving of wine or spirits that can be
poured from a quantity given in metric measure.

- by calculating beverage cost percent given the cost per beverage and the selling price.
- by calculating the selling price for a beverage given the beverage cost percent per beverage.
- by identifying the circumstances when the yield percent does not need to be taken into account when calculating the edible portion cost.

**Criteria - Performance will be satisfactory when:**

- learner can with 100% accuracy apply the cost-per-units formula outlined in the ten word problems.
- learner can with 100% accuracy apply the total cost outlined in ten word problems.
- learner can in writing define “cost” as used in the food-service industry.
- learner can in writing define edible portion cost and as-purchased cost.
- learner can with 100% accuracy calculate edible portion cost when the as-purchased cost is given for an ingredient as outlined in ten word problems.
- learner can in writing outline when edible portion cost will always be equal to or greater than as-purchased cost.
- learner can in writing define “food cost form”.
- learner can with 100% accuracy costs recipe by completing a food cost form using five word problems.
- learner can with 100% accuracy calculate the cost to produce a given recipe and cost per portion outlined in five word problems.
- learner can with 100% accuracy calculates the estimated selling price given an estimated food cost percent outlined in five word problems.
- learner can outline in writing the circumstances when the yield percent does not need to take into account when calculating the edible portion cost.
- learner can outline in writing the circumstances when the yield percent does not need to be taken into account when calculating the as-purchased quantity.
- learner can with 100% accuracy calculate the number of U.S. standard-measure serving of wine or spirits that can be poured from a quantity given metric measure as outlined in ten word problems.
- learner can with 100% accuracy calculate the beverage cost percent given the cost per beverage and the selling price as outlined in 10 word problems.
- learner can with 100% accuracy calculate the selling price for a beverage given the beverage cost percent and cost per beverage.

4. **Calculate recipe size conversions and kitchen ratios.**

   **Learning objectives**

   What you will learn as you master the competency:

   a. Calculate a recipe conversion factor to make a desired quantity of a given recipe.
   b. Compute the new ingredient quantities using the recipe conversion factor.
   c. Calculate ingredient quantities for given ratio when the total to be made is known.
   d. Convert difficult-to-measure quantities into easier-to-measure quantities.
   e. Calculate the quantities for the remaining ingredients in a given ratio when the quantity of one of the ingredients is known.
**Performance Standards**

*Competence will be demonstrated:*
- by calculating a recipe conversion factor to make a desired quantity of a given recipe.
- by computing the new ingredient quantities using the recipe conversion factor.
- by calculating ingredient quantities for given ratio when the total to be made is known.
- by converting difficult-to-measure quantities into easier-to-measure quantities.
- by calculating the quantities for the remaining ingredients in a given ratio when the quantity of one of the ingredients is known.

*Criteria - Performance will be satisfactory when:*
- learner can with 100% accuracy calculate a recipe conversion factor to make a desired quantity of given recipe outlined in five word problems.
- learner can with 100% accuracy compute the new five ingredient quantities using the recipe conversion factor outlined in five word problems.
- learner can with 100% accuracy convert the difficult-to-measure quantities into easier-to-measure quantities as outlined in five word problems.
- learner can with 100% accuracy calculates ingredient quantities for given ratio when the total to be made is known as outlined in five word problems.
- learner can with 100% accuracy calculate for the remaining ingredients in a given ratio when the quantity of one if the ingredients in is known as outlined in five word problems.

**Types of Instruction**

Classroom lecture

**Grading Information**

**Grading Rationale**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Assignments</td>
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<tr>
<td>Tests</td>
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**Grading Scale**

- **A** 100-90%
- **B** 89-80%
- **C** 79-70%
- **D** 69-60%
- **F** 59-0%