

CUL145 Culinary Math

Course Project

By:

Fall 2020

Menu

Italian Chopped Salad

Romaine lettuce, radicchio, red onions, cherry tomatoes, cucumbers, garbanzo beans, pepperoncini, kalamata olives, served with oregano vinaigrette and garnished with grated parmesan cheese and dried oregano

Greek Pasta Bake

Casserole baked using penne pasta, chicken breast, tomato sauce, diced tomatoes, spinach, olives, green bell pepper, dried oregano, dried basil, and topped with shredded mozzarella cheese and crumbled feta cheese

Tiramisu Cream

Lady fingers, soaked in a mixture of espresso roast and rum, layered with mascarpone mixture containing eggs, granulated sugar, heavy cream, mascarpone cheese and dusted with cocoa powder

Recipe Scaling Form

Recipe Name	Italian Chopped Salad				
Original Yield	8 servings	New Yield	100	Scaling Factor	12.5
Portion Size	4-6 oz per person				
Cooking Temperature	N/A				
Cooking Time	20 minutes				

Ingredients				
Item Description	Original Amount		New Amount	
	Quantity	UOM	Quantity	UOM
Red onions	5	oz	62.5	oz
Romaine lettuce	12	oz	150	oz
Radicchio	10	oz	125	oz
Cherry tomatoes	7	oz	87.5	oz
cucumber	10	oz	125	oz
Canned garbanzo beans	14	oz	175	oz
Grated parmesan cheese	1.5	oz	18.75	oz
Pepperoncini	3	oz	37.5	oz
Kalamata olives	4	oz	50	oz
Lemon juice	2	fl. oz	25	fl. oz
Dried oregano	2.5	oz	31.25	oz
Oregano vinaigrette	4	fl. oz	50	fl. oz

Procedure
<ol style="list-style-type: none"> 1.) Slice the layers of onions lengthwise 1/16 inch thick. Place the onion slices in a small bowl of ice water and set aside. 2.) Drain the onion and pat dry with paper towels before adding them to the salad. 3.) Thinly slice the lettuce and radicchio. 4.) In a large bowl, combine the lettuce, radicchio, tomatoes, cucumber, garbanzo beans, cheese, pepperoncini, and onion slices. 5.) Toss to thoroughly combine the ingredients. 6.) Drizzle ½ cup of the vinaigrette and the juice of the lemon over the salad, then toss gently to coat the salad with the dressing. 7.) Taste for seasoning and add more lemon juice or vinaigrette, if desired. 8.) Sprinkle with extra oregano and serve.

Recipe Scaling Form

Recipe Name	Italian Chopped Salad Dressing				
Original Yield	½ cup / 4 oz	New Yield	100	Scaling Factor	12.5
Portion Size	2 fl. oz				
Cooking Temperature	N/A				
Cooking Time	5 minutes				

Ingredients				
Item Description	Original Amount		New Amount	
	Quantity	UOM	Quantity	UOM
Red wine vinaigrette	2 1/2	tbsp	31.25	tbsp
Dried oregano	1 1/2	tbsp	18.75	tbsp
Dried basil	1	tsp	12.5	tsp
Lemon juice	1	tbsp	12.5	tbsp
Garlic cloves	1	oz	12.5	oz
Kalamata olives	3	oz	37.5	oz
Parmesan cheese	3	oz	37.5	oz
Extra virgin olive oil	1 1/2	cup	18.75	cups
Black pepper	1/4	tsp	3.13	tsp

Procedure
<ol style="list-style-type: none"> 1.) Combine the vinegar, oregano, lemon juice, garlic, kalamata olives, parmesan cheese, and pepper in a medium bowl and whisk to combine the ingredients. 2.) Set aside for 5 minutes to marinate the oregano and basil. 3.) Add the olive oil in a slow thin stream, whisking constantly to combine. You can also add all the ingredients to a glass jar with a lid and shake to combine.

Recipe Scaling Form

Recipe Name	Greek Pasta Bake				
Original Yield	8 servings	New Yield	100	Scaling Factor	12.5
Portion Size	12 oz per person				
Cooking Temperature	165 degrees Fahrenheit				
Cooking Time	Preparation Time: 20 minutes/ Bake Time 25 minutes = 45 minutes				

Ingredients				
Item Description	Original Amount		New Amount	
	Quantity	UOM	Quantity	UOM
Uncooked whole grain spiral or penne pasta	3 1/3	cups	41.62	cups
Cooked chicken breasted, cubed	4	cups	50	cups
Tomato sauce	1 can (29 oz)	oz	13 cans (362.5 oz)	oz
Canned diced tomatoes, drained	1 can (14.5 oz)	oz	13 cans (181.25 oz)	oz
Frozen chopped spinach, thawed and squeezed dry	1 pack (10 oz)	oz	12 packs (125 oz)	oz
Sliced ripe olives, drained	1/4	cup	3.13	cups
Chopped green bell pepper	1/4	cup	3.13	cups
Dried basil	1	tsp	12 1/2	tsp
Dried oregano	1	tsp	12 1/2	tsp
Shredded mozzarella cheese	1	cup	12 1/2	cups
Crumbled feta cheese	1/2	cup	6 1/4	cups

Procedure
<ol style="list-style-type: none"> 1.) Preheat the oven to 400 degrees for at least 5 to 8 minutes. 2.) Cook pasta in salted boiling water for 8-10 minutes, drain afterwards. 3.) In a large bowl, combine pasta, chicken, tomato sauce, diced tomatoes, spinach, olives, onion, green bell pepper, basil and oregano. 4.) Transfer to a 13 by 9 inch baking dish coated with olive oil. Sprinkle mozzarella cheese and feta cheese over the top and bake uncovered at 400 degrees for 25-30 minutes or until heated through and cheese is melted and nicely browned.

Recipe Scaling Form

Recipe Name	Tiramisu Lady Fingers				
Original Yield	24 pieces	New Yield	300	Scaling Factor	12.5
Portion Size	8 oz				
Cooking Temperature	350 degrees Fahrenheit				
Cooking Time	15-18 minutes				

Ingredients				
Item Description	Original Amount		New Amount	
	Quantity	UOM	Quantity	UOM
Butter	2	tbsp	25	tbsp
Eggs (4 egg yolks and 4 whites)	8	each	100	each
Flour	3/4	cup	9.37	cups
Granulated sugar	1/2	cup	6 ¼	cups
Salt	1	pinch	2	oz
Vanilla extract	1	tsp	12.5	tsp
Powdered sugar (for dusting)	As needed			

Procedure
<ol style="list-style-type: none"> 1.) Preheat the oven to 350 degrees Fahrenheit. 2.) Grease baking sheets with butter and sift with flour. 3.) Mark parallel lines with the flour across the width of the tray about 4 inches apart. 4.) Place the eggs and sugar in a large mixing bowl, and with an electric mixer fitted with a wire whisk, beat on medium-high speed for 8 minutes or until the mixture is pale yellow, thick, and has tripled in volume. 5.) Add the egg whites, remaining flour, salt, and vanilla extract. Fold the mixture thoroughly until smooth. 6.) Fill a large pastry bag with the mixture using a ¾ inch plain tube. 7.) Pipe the lady fingers about 4 ½ inches in length onto the baking sheet, using the lines as a guide. 8.) Bake for 15-18 minutes or until firm on the outside and soft in the center. 9.) Dust the lady fingers with powdered sugar, and serve.

Recipe Scaling Form

Recipe Name	Tiramisu Cream				
Original Yield	8 servings	New Yield	100	Scaling Factor	12.5
Portion Size	8 oz				
Cooking Temperature	N/A				
Cooking Time	Prep: 25 minutes Chilling: 4 hours (or 1 day)				

Ingredients				
Item Description	Original Amount		New Amount	
	Quantity	UOM	Quantity	UOM
Eggs	4	each	50	each
Granulated sugar (divided)	1/2	cup	6 ¼	cups
Heavy cream	3/4	cup	9.37	cups
Espresso roast	1 3/4	cups	21.87	cups
Rum	2	tbsp	25	tbsp
Cocoa powder	2	tbsp	25	tbsp
Mascarpone cheese	1	cup	12.5	cups
Lady fingers	24	pieces	300	pieces

Procedure
<ol style="list-style-type: none"> 1.) In a medium bowl, whip the egg yolks and sugar together with an electric mixer until a very pale yellow color and tripled in volume. A slight ribbon stage should result from the whisk attachment when lifted from the bowl. Transfer the mixture to a larger bowl and set aside. 2.) In a medium bowl, whip heavy cream and remaining sugar until it creates soft, medium peaks. Add the mascarpone cheese and continue to whip until it creates a soft, spreadable mixture with medium peaks. Gently fold the mascarpone mixture into the sweetened egg yolks until fully combined. 3.) Combine the espresso and rum in a shallow bowl and set aside. 4.) Using a sifter, dust the bottom of a 2-quart baking dish with cocoa powder. 5.) Quickly dip the lady fingers one by one into the espresso mixture, and then place them round side up onto the baking dish. Spread the mascarpone mixture onto the lady

fingers, and continue to repeat the steps until you create one even layer onto the baking dish.

6.) Dust the top layer with cocoa powder before covering the baking dish with plastic.

7.) Chill in the refrigerator for at least 4 hours (or one whole day for better results) before slicing and serving.

Market As-Purchased Price Form

Ingredient Description	As-Purchased Total Cost		As-Purchased Unit Cost	
	Total Cost	UOM	Unit Cost	UOM
Produce				
Green Bell Pepper	\$1.49	lb	\$0.09	oz
Red Onions	\$1.29	lb	\$0.08	oz
Romaine Lettuce	\$1.69	lb	\$0.11	oz
Radicchio	\$3.99	lb	\$0.25	oz
Cherry Tomatoes	\$4.49	14 oz	\$0.32	oz
Cucumber	\$1.59	lb	\$0.10	oz
Garlic Cloves	\$1.39	lb	\$0.09	oz
Chilled/Frozen Products				
Frozen Spinach	\$1.59	10 oz	\$0.16	oz
Butter, Unsalted	\$4.49	1 lb	\$0.28	oz
Mozzarella Cheese	\$5.45	1 lb	\$0.34	oz
Athenos Feta Cheese, crumbled	\$5.29	6 oz	\$0.88	oz
Parmesan Cheese	\$11.99	22 oz	\$0.55	oz
Heavy Cream	\$5.39	1 qt	\$0.34	fl. oz
BelGioioso Mascarpone Cheese	\$3.17	8 oz	\$0.40	oz
Eggs	\$2.99	1 dozen	\$0.25	piece
Bella Pepperoncini Salad Peppers	\$37.40	6 pack, 32 oz each	\$0.19	oz
Grocery Items				
Red Wine Vinaigrette	\$6.36	3 pk, 16 fl. oz	\$0.23	1 fl. oz

Lemon Juice	\$8.49	2pk, 48 fl. oz	\$0.09	fl. oz
Whole Grain Spiral or Penne Pasta	\$3.29	1 lb	\$0.21	oz
Essential Everyday Tomato Sauce (canned)	\$2.89	29 oz	\$0.10	oz
Essential Everyday Diced Tomatoes (canned)	\$2.99	28 oz	\$0.11	oz
Ripe Olives	\$2.59	6 oz	\$0.43	oz
Kalamata Olives	\$3.39	16 oz	\$0.21	oz
McCormick Dried Basil	\$7.64	5 oz	\$1.53	oz
McCormick Dried Oregano	\$10.61	5 oz	\$2.12	oz
McCormick Black Pepper	\$5.59	3 oz	\$1.86	oz
Extra Virgin Olive Oil	\$14.99	68 fl. oz	\$0.22	fl. oz
Garbanzo Beans (canned)	\$2.39	12 oz	\$0.20	oz
Morton Salt	\$1.25	26 oz	\$0.05	oz
All-Purpose Flour	\$4.39	5 lbs	\$0.88/lb or \$0.05/oz	lb, oz
Granulated Sugar	\$4.29	2 lbs	\$2.15/lb or \$0.13/oz	lb, oz
Vanilla Extract	\$11.69	2 fl. oz	\$5.85	oz
Powdered Sugar	\$2.29	1 lb	\$0.14	oz
Starbucks Espresso Roast, grounded	\$16.99	40 oz	\$0.42	oz
Rum	\$9.89	36 fl. oz	\$0.27	fl. oz
Hershey's Cocoa Powder	\$4.99	8 oz	\$0.62	oz
Poultry/Meat				
Chicken Breast	\$21.99	5 lbs	\$4.39/lb or \$0.27/oz	lb, oz

Menu Item Name	Italian Chopped Salad		
Number of Portions	100		
AS Cost per Portion	\$4.37		
Target Food Cost %	30%	Menu Price	\$14.99
Target Price	\$14.55	Menu-Item Food Cost%	29.1%

[illegible]

Recipe Costing For Tiramisu Cream (Dessert)

Menu Item Name	Tiramisu Cream		
Number of Portions	100		
AS Cost per Portion	\$2.45		
Target Food Cost %	30%	Menu Price	\$8.99
Target Price	\$8.17	Menu-Item Food Cost%	27.2%

Ingredient Name	EP Quantity	EP UOM	AP Unit Cost (w/ UOM)	Yield % Percentage	EP Unit Cost (w/ UOM)	Total Ingredient Cost
Eggs	50	piece	\$0.25/pc	95%	\$0.26/pc	\$13
Granulated sugar	50	oz	\$0.13/oz	100%	\$0.13/oz	\$6.50
Heavy cream	74.96	oz	\$0.34/fl oz	100%	\$0.34/fl oz	\$25.49
Espresso roast	174.96	oz	\$0.42/oz	100%	\$0.42/oz	\$73.48
Rum	12.5	fl. oz	\$0.27/fl oz	100%	\$0.27/fl oz	\$3.38
Cocoa powder	12.5	oz	\$0.62/oz	100%	\$0.62/oz	\$7.75
Mascarpone cheese	100	oz	\$0.40/oz	100%	\$0.40/oz	\$40
Lady fingers	300	pcs	\$0.25/pc	100%	\$0.25/pc	\$75
Total Cost:\$244.60						

Contribution Margin: \$2

AS Cost Per Portion

Italian Chopped Salad: \$4.37

Greek Pasta Bake: \$3.92

Tiramisu Cream: \$2.45

(Three Recipes) = \$10.74

$\$10.74/\text{person} \times 100 \text{ people} = \$1,074$

$\$10.74/\text{person} + \$2 \text{ Contribution Margin}$

$\$12.74/\text{person}$

Profit and Loss Statement Detailed	
Total Revenue	
Total Food Revenue	\$3,579
Total Beverage Revenue	\$0
Tip (20%)	\$715.80
	\$4,294.80
Cost of Goods Sold	
Total Food Costs	\$1,074
Total Beverage Costs	\$0
	\$1,074
Gross Profit	\$3,220.80
Operating Expenses	
Payroll Expenses	\$781.65
Miscellaneous	\$100
	\$881.65
Net Profit	\$2,339.15

Reflection of Learning

1. What knowledge and skills did I acquire from doing this project?

- First of all, we students first learned the very basics in order to complete the entire project. We started from doing simple math calculations, then went ahead to using standardized measurements and the most common measurements being used in the kitchen today. From there, we started converting recipes by applying the customary and metric measurements. Next, we studied calculating costs and menu prices that were applied to the project, as well as learning how to calculate revenue and expenses. And lastly, we applied analyzing profit and loss statements which was the very last part of the project. After learning about this beneficial information, we applied it to the project which made a whole lot more sense after completing the final product. The knowledge and skills that I've acquired for putting all together for this project is converting measurements, scaling recipes, calculating costs and menu prices, calculating revenue and expenses and analyzing profit and loss statements.

2. Why are these important in my job and/or future career?

- Learning all this valuable information from this class will not only help me for my future career but will prepare me ahead of time. All of this will also be applied to real-life situations in a kitchen. Whether I plan to open a restaurant, or work in a small business, hotel or fine-dining restaurant, it will help me analyze profit and loss statements, calculating revenue and expenses and so much more. If I had not taken this class and working at an establishment, I would've been struggling the whole time without knowing all the personal effects that play a big role in the industry. Fun fact, I'm pretty sure I shared this in the beginning of semester when I mentioned about running a small business restaurant. All this information that I've learned kind of reminded me of how my dad taught me the basics of how to do portion control, analyzing revenue and labor, food costing, and so much more. When I first started in the business, I started as a dishwasher and right when I got into the kitchen handling food, I wasn't sure about measurements, or

sure about the food costing and wasn't aware if we were making money for the business. Once we got into the second year of the business, I started taking things into consideration and took it seriously. Asking my dad questions on how all this stuff works and it makes sense now that I've taken the class and everything that was taught to me is giving me a flashback to the business. And true story, my dad gave me the opportunity to run the business while he works at a hotel. So handling the business alone was a struggle but I still got the help with my dad and I am very thankful that he stood by my side whenever I struggled with whatever I needed assistance with. I have learned a lot from the three years of having the business with us and it was fun and gave a lot of my time to the business. Unfortunately, the business was sold to another owner last year late 2019. I wish them good luck and hope for the very best.