Chem 005 Weekly Lab Equipment and Ingredient List

The cooking equipment and food needed for each lab is listed below. Students from previous semesters have suggested that for tax-filing purpose, you should keep receipts for any equipment or ingredients you buy specifically for this course.

Please note that sometimes the recipes I recommend will have ingredients that are not easily obtainable in your region, or that you (your family member) are allergic to. If this happens, please email me in advance so we can work out an alternative lab activity (or make another recipe) that illustrates the scientific theme.

Lab 1: Accuracy of home measures

- All purpose flour
- Brown sugar
- Water
- Sifter
- Measuring spoons
- Measuring cups
- Spatula
- Digital kitchen scale

Lab 2: buttermilk pancake

- All-purpose flour
- Baking powder
- Baking soda
- Salt
- Granulated white sugar
- Large egg
- Buttermilk
- Unsalted butter
- Fresh or unthawed frozen blueberries (preferably wild blueberries)
- Whole-wheat flour
- Almond milk or soy milk

Lab 3: Vanquelin

- Standard mixer or electric hand mixer
- Part I: 2 egg whites (it's best to bring them to room temperature), 1/8 teaspoon of cream of tartar
Part II: at least 300 mL of your favorite syrup (Smucker's blueberry syrup works quite well), water
- Skewer
- Measuring spoons and cups
- Ruler
- Microwave

**Lab 4: Cooking pasta**

- 400 g of pasta (your favorite brand and type)
- 2 pots with lid (preferably identical, big enough to contain 2 L of water)
- Water
- Measuring cups
- Digital kitchen scale
- Instant read thermometer
- Salt (optional)

**Lab 5: Phase transition of water**

- 1 saucepan
- Sugar, salt, and cornmeal (3 tablespoons each)
- Instant read thermometer
- Ziploc bags (quart size and gallon size). Bags must be able to seal completely.
- 1 oven mitt or towel
- 1 plastic or paper cup, 12 to 15 ounces (~400 mL)
- Measuring cups and spoons
- Digital kitchen scale
- Spoons (for tasting)
- Milk
- Table sugar
- Vanilla extract
- Cocoa powder (optional)
- Ice
- Salt

**Lab 6: What affects the color and texture of cooked vegetables**

- Fresh broccoli (2 lb). Feel free to use green beans, green peas, beets, red cabbage, white or purple cauliflour, or any other vegetables you like.
- Small (1-qt) saucepan with lid (to cook broccoli)
- Slotted spoon or large spatula (to remove broccoli from boiling water)
- Wok or small frying pan with lid
• Steamer (you can skip this variation if you do not have a steamer)
• Saucers (ideally white) (on which to display samples for testing)
• Table salt
• Table sugar
• Diluted vinegar
• Baking soda

Lab 7: Mac and Cheese

• 1/2 pound elbow macaroni
• 3 tablespoons unsalted butter
• 3 tablespoons flour
• 3 cups milk
• 1 large egg
• 12 ounces sharp cheddar, shredded
• 1/2 cup yellow onion, finely diced
• 1 tablespoon powdered mustard
• 1 bay leaf
• 1/2 teaspoon paprika
• 1 teaspoon kosher salt
• Fresh black pepper
• 3 tablespoon of butter (optional)
• 1 cup panko bread crumbs (optional)

Lab 8: Chocolate and Structure

• 4 squares of milk chocolate
• 4 squares of dark chocolate bar (bittersweet or semisweet are also ok)
• 4 small bowls or teacups (same size)
• 1 saucepan (big enough to hold a small bowl)
• Water
• Instant read thermometer
• Timer

Lab 9: Coffee and Cream

• 3 coffee cups (same size, shape, and type)
• Freshly brewed coffee or tea
• Cream (or milk)
• Measuring cups or tablespoons
• Instant read thermometer
• Time

Lab 10: Flat as a pancake

• Regular baking powder (if available)
• Double-acting baking powder
• Baking soda
• Cream of tartar
• 3 or 4 heatproof or microwave oven safe containers
• Marking pen and ruler
• Measuring cups and spoons
• Spoons for stirring
• Aluminum foil
• Pot holder
• Cooling rack
• Biscuit dough (store bought refrigerated dough, or homemade dough from a baking mix or your favorite recipe. Do not use buttermilk or flavored dough).