

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 cauliflower, 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).
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