

Cedar Crest College

The Allen Center for Nutrition

Fall, 2009

**COURSE NO:** NTR 220

**COURSE TITLE:** Principles of Food

**COURSE DESCRIPTION/**

**OBJECTIVES:** The selection, preparation, and storage of food. Techniques in food preparation are developed. Food components, the chemistry of food preparation and their specific nature and behavior during preparation are introduced, along with the recognition and evaluation of quality in food products. Basic kitchen utensils and equipment will be covered. Menu planning will be introduced. Open to all students.

**CREDITS:** 3 credit hours

**CLOCK HOURS/WEEK:** 5 hours (2 hours didactic, 3 hours laboratory)

**INSTRUCTOR:** Barbara M. Carlson, MA, RD, CDE

Cedar Crest Phone Number: 610-606-4487 / email: bcarlson@cedarcrest.edu

If you will miss a class, please phone the number above and send an email.

**PREREQUISITE:** BIO 127 or 227

**COURSE OUTCOMES:**

1. The student will have a basic knowledge of culinary techniques.
2. The student will have a basic knowledge of food chemistry and physical properties of common ingredients.
3. The student will have a working knowledge of food safety and sanitation
4. The student will demonstrate the ability to:
  - A. Use current information technologies.
  - B. Work effectively as a team member
  - C. Apply food science knowledge to functions of ingredients in food
  - D. Demonstrate basic food preparation and presentation skills
  - E. Demonstrate safety skills and sanitation knowledge

**TEXTBOOK:** Introductory Foods: Marion Bennion & Barbara Schuele, Prentice Hall, 12<sup>th</sup> ED. / The lab manual and notes are prepared by the instructor and will be posted or handed out in class.

**CLASS ATTENDANCE**

Class Attendance is expected except in case of illness and emergency. Missed labs must be made up, and require an appointment to complete the work. If you miss a lab contact the instructor to schedule additional lab time. Make up labs will be during the regular work hours.

If absent more than twice without a doctor's note, final numerical grade (on a scale of 1 to 100) will be lowered by 3 points. If late more than twice your numerical grade will be lowered by 2 points for each additional late entry to class. Students are not expected to attend class when ill. However, to be fair to all students, a physician's note is required to make up labs, quizzes or exams.

### **Food tasting**

Individuals are expected to taste all food items prepared.

Valid exceptions are given for individuals with physician documented allergies, health conditions or documented religious affiliations. A letter from the physician's office or the church is required.

Individuals who choose a vegetarian lifestyle are asked to taste a very small portion of the animal proteins prepared in this class.

The majority of clients you will encounter are omnivores. Learning to prepare quality animal protein products is essential. Families spend a significant portion of their food dollars on proteins. It is always appropriate to teach sound vegetarian principles, but individuals who choose to eat animal proteins will also need your guidance.

### **GRADES**

Biweekly online quizzes will be used to assess learning. The quizzes are open from noon the day after the appropriate lab until Noon the following Tuesday.

Only in case of a documented emergency or with a physician's note, will a quiz makeup be given. Make ups will be given through the academic services office. Students must schedule the quiz time with academic services. Inform, instructor of date and time. A copy of the quiz will be sent to the academic services office.

Quizzes are to be taken closed book. STUDY for the quizzes using prepared study guides.

Midterm and a final will be given in class, closed book. The topics covered in weekly quizzes, in lab and from study guides will be used as the basis of midterm and final exams.

The final project instructions are attached to the syllabus.

Grades will be awarded as follows:

Quizzes: Six Quizzes – 50 points each (25 questions)	300 points
Midterm	100 points
Final	100 points
Final Project	100 points

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**Total** **600 Points**

600 Points total

Points for percentage > points noted	Percentage	Grade
558 or greater	93	A
540 - 557	90-92	A-
522 - 539	87-89	B+
498 - 521	83-86	B
480 - 497	80-82	B-
462 - 479	77-79	C+
438 - 461	73-76	C
420 - 437	70-72	C-
402 - 419	67-69	D+
378 - 401	63-66	D
360 - 377	60-62	D-
<359	<60%	F

#### TEACHING METHODS:

1. Lecture/teacher-centered discussion
2. Observation and experience (cooking methods)
3. Demonstration (knife skills and food preparation skills)
4. Student presentations (sanitation)
5. Practice/skill rehearsal (food preparation)
6. Written exercises and practice

#### WORK EXPECTED OF THE STUDENT:

1. **Appropriate dress is required. Students coming to lab without proper shoes will not be allowed to participate in lab.**
2. Students are expected to have read the assignment prior to class and to **actively participate in class discussions and lab.**
3. In the lab, students are expected to work as a team with other students to complete lab assignments.
4. Students are responsible for all terms defined in the textbook.

#### CLASSROOM PROTOCOL

Appropriate classroom behavior is implicit in the Cedar Crest Honor Code. Such behavior is defined and guided by complete protection for the rights of all students and faculty to a courteous, respectful classroom environment. That environment is free from distractions such as late arrivals, early departures, inappropriate conversations and any other behaviors that might disrupt instruction and/or compromise students' access to their Cedar Crest College education.

#### **Lap tops are not allowed in class, please do not embarrass me or your classmates by bringing your lap top.**

Why? In past classes where I allowed lap tops, individuals using them were disrespectful to their classmates and the instructor. The overwhelming consensus of students was to ban laptops at the end of the course where they were allowed.

The cedar crest college honor code will prevail at all times. Please verify on each test and assignment that the work done is your own with your SIGNATURE. PLAGIARISM or any other form of academic dishonesty will result in no points on the paper/exam on which you plagiarized or cheated. In addition, such an act may result in failing the entire course. Please refer to you customs book for a complete explanation of the Cedar Crest Honor Code.

Weekly Lab and Lecture Plan

Week One and Two	ASSIGNMENT Text / Lab Manual	LECTURE TOPIC	METHODS AND ACTIVITES
Date: August 27, 2009 Week One Lecture	Chapters 1 through 7  Laboratory handouts	Technology Food consumption Food Safety Standards of Identity Heat Transfer Weights and Measures Recipe: type and use Sensory Evaluation	<ul style="list-style-type: none"> <li>● Review of course</li> <li>● Review of Laboratory Procedures</li> <li>● Review of E-college Procedures</li> <li>● Demonstration:               <ul style="list-style-type: none"> <li>○ Knife safety</li> <li>○ Garbage Disposals</li> <li>○ Scales</li> <li>○ Thermometer Use</li> <li>○ Hedonistic Scale</li> </ul> </li> </ul>
Date: September 3, 2009 Week 2 Lab  Quiz Weeks One and Two: <ul style="list-style-type: none"> <li>● Online</li> <li>● Open – September 4 (noon) through September 8 (noon)</li> </ul>	Signed Safety form due  Lab Observation and Worksheets due prior to leaving lab.	Please read the Laboratory Assignment: Week Two - prior to lab. Read the Lab Safety Handout prior to Lab. Sign and Return the Signature Page at the next Class	Lab Activity: <ul style="list-style-type: none"> <li>● Measurement: weight versus customary measure</li> <li>● Equipment use               <ul style="list-style-type: none"> <li>○ Microwave use: Heating frozen Entree</li> <li>○ Temperature evaluation: calibrating thermometers</li> <li>○ Oven Use: checking temperatures</li> <li>○ Product Assessment – hedonistic Scale</li> </ul> </li> </ul>
Date: September 10, 2009 Week 3: Lecture	Text: Chapter 8, 9,10 13 and 14  Weekly Homework September 25	Seasoning and flavors Food Composition Starches and Grains <ul style="list-style-type: none"> <li>● gluten</li> </ul> Batters <ul style="list-style-type: none"> <li>● Methods: Muffin, sponge, modified, quick, shortened vs. unshortened.</li> </ul>	Lecture: Demonstration <ul style="list-style-type: none"> <li>● Particle size salt</li> <li>● Gluten Production : compounds that interfere</li> <li>● Reading recipes</li> <li>● Rice cookery</li> <li>● Emulsification</li> </ul>
Date: September 17, 2009 Week 4: Lab  Quiz Weeks three and four:  Lab Week 4 continued:			Lab <ul style="list-style-type: none"> <li>● Preparing homemade Pasta               <ul style="list-style-type: none"> <li>○ Comparison of Fresh, commercial dry and gluten free</li> </ul> </li> <li>● Muffin preparation</li> </ul>

Week One and Two	ASSIGNMENT Text / Lab Manual	LECTURE TOPIC	METHODS AND ACTIVITES
<ul style="list-style-type: none"> <li>• Online</li> <li>• Open – September 18 (noon) through September 22 (noon)</li> </ul>			<ul style="list-style-type: none"> <li>○ White flour</li> <li>○ Wheat flour</li> <li>○ Corn</li> <li>○ Gluten free</li> <li>• Cake preparation               <ul style="list-style-type: none"> <li>○ Sponge (modified)</li> </ul> </li> </ul>
Date: September 24, 2009 Week 5: Lecture	CHAPT - 11, 15, 16, 18, 17 and 19	Dough (biscuits) Yeast Bread Pastry Thickening agents (starches continued) Leavening agents	Lecture / Demonstration <ul style="list-style-type: none"> <li>• Thickening agents               <ul style="list-style-type: none"> <li>• Leavening Agents</li> </ul> </li> </ul>
October 1, 2009 Week 6 Lab  Quiz Weeks 5 and 6 <ul style="list-style-type: none"> <li>• Online:</li> <li>• Open: October 2 (noon) through October 6 (noon)</li> </ul>			Lab <ul style="list-style-type: none"> <li>○ White Sauces (pudding)</li> <li>○ French Bread (artisan bread and traditional)</li> <li>○ Gluten Free Bread</li> <li>○ Pate Brisee</li> <li>○ Standard Pastry</li> <li>○ Biscuits</li> </ul>
October 8, 2009 Week 7 Midterm – In Class  Lecture	Chapters 20, 21, 22, 28	Fruits, Vegetables and Gels	Lecture
Week 8 October 15, 2009 Lab  Quiz weeks 7 and 8 <ul style="list-style-type: none"> <li>• Online</li> <li>• Open October 16 (noon) through October 20 (noon)</li> </ul>			Lab <ul style="list-style-type: none"> <li>• Fruit compote               <ul style="list-style-type: none"> <li>○ Osmosis</li> <li>○ Effect of hyper and hypo-osmolar solutions</li> <li>○ Sugar substitute</li> </ul> </li> <li>• Vegetable cookery               <ul style="list-style-type: none"> <li>○ Steaming</li> <li>○ Braising</li> <li>○ Baking</li> <li>○ Blanching</li> </ul> </li> <li>• Gelatin</li> </ul>

Week One and Two	ASSIGNMENT Text / Lab Manual	LECTURE TOPIC	METHODS AND ACTIVITES
October 22, 2009 Week 9 Lecture	Chapters 23 and 24 November 28	Dairy: Milk, Cheese and Eggs	Lecture / Demonstration <ul style="list-style-type: none"> <li>• Egg Foams</li> <li>• Milk Coagulation</li> </ul>
October 29, 2009 Week 10 Lab  Quiz – Weeks 9 & 10 <ul style="list-style-type: none"> <li>• Online:</li> <li>• Open: October 30 (noon) through November 3 (noon)</li> </ul>			<ul style="list-style-type: none"> <li>• Soufflé               <ul style="list-style-type: none"> <li>○ Cheese sauce / white sauce</li> <li>○ Milk skim</li> <li>○ Milk whole</li> <li>○ Cream</li> <li>○ Soy</li> </ul> </li> <li>• Boiled egg</li> <li>• Scrambled Egg</li> <li>• Cholesterol free product comparison</li> <li>• Milk and Milk substitute evaluation – sensory               <ul style="list-style-type: none"> <li>○ Dairy</li> <li>○ Soy</li> <li>○ Rice</li> <li>○ Shelf Stable</li> </ul> </li> </ul>
November 5, 2009 Week 11 Lecture	Chapters 25, 26 and 27	Meat, Poultry and fish	Lecture Demonstration <ul style="list-style-type: none"> <li>• Braise vs. Sauté</li> <li>• Poaching</li> <li>• Taking temperatures</li> </ul>
November 12 Week 12 Lab  Quiz <ul style="list-style-type: none"> <li>• Online:</li> <li>• Open: November 13 (noon) through November (noon) 17</li> </ul>			<ul style="list-style-type: none"> <li>• Poached chicken</li> <li>• Braised chicken</li> <li>• Pan Fried Chicken</li> <li>• Roast Poultry quarters</li>   <li>• Ground Meat – internal temp</li>             Lentils           <ul style="list-style-type: none"> <li>• Small Red</li> <li>• Beans</li> <li>• Splits</li> </ul> </ul>
<b>November 19 - Team Meals</b>			
<b>December 3 - Team meals</b>			
<b>Final – Final's week - See Finals Schedule</b>			

### **Appendix One: Final Project**

Plan and prepare a complete meal.

Four teams of three or four people will work together. The meal must contain the following components.

1. Menu plan – approved by instructor: due one week prior to meal.
  - a. Protein – May be braised, poached, sautéed or baked (must be an animal protein)\*.
    - i. A sauce may accompany the protein. The sauce must use a thickening agent / or an emulsifying agent / or if based on fruit an osmotic agent.
  - b. Vegetable or Vegetable Salad – a cookery method or knife skill should be apparent in the preparation
  - c. Starch – may be made from scratch - pasta, biscuit, bread, pastry or rice
  - d. Dessert – Fruit or Batter Based dessert
  - e. Beverage – Water, Coffee, Iced Tea either plain or flavored may be added to meal. The cost of these items does not need to be considered in your budget, but ingredients should be less than \$10.00 and included in your shopping list.

\* The majority of patients you will encounter are omnivores. Learning to prepare quality animal protein products is essential. This is often the most expensive component of a meal and maintaining appropriate portion control and reducing loss are skills every future nutrition professional requires.

Teams who strongly desire to offer a vegetarian option may choose to include a lentil or vegetable combination in the Vegetable or Starch category. If offered as a vegetarian option: the item must provide a complete protein.

2. Budget – due one week prior to meal
  - a. The meal budget will be \$6.00 per person, or a total of 90.00 for all ingredients
  - b. Menu items should be prepared in amounts adequate to serve 8 people a full portion or 15 people a ½ portion.
  - c. Budgets should be calculated for amount of an item used in meal preparation. As an example: if you need flour, calculate the cost of 2 cups, not the entire bag. Unless you are requesting an unusual or expensive spice, you do not need to calculate the cost of spices. (Should you ask for a vanilla bean – plan to include the \$5.00 to \$10.00 cost in your budget.)
  - d. A shopping list with specific details must be completed and turned in to the professor one week before meal preparation date.
3. Written Report:
  - a. Methods used to prepare each item will be discussed.
  - b. A sensory assessment form for each item will be developed along providing guidance for quality items and appropriate terms.
  - c. This report will be completed by each team member individually.
4. Meal Service
  - a. Teams will have 2 hours to prepare the meal.
  - b. Teams not preparing a food item will come to class at time designated for meal service.
  - c. All individuals will complete the meal evaluation forms.

Grades will be based on the following

1. Menu Plan – 15 points:
  - i. Did the menus use skills practiced in the appropriate lab.
  - ii. Did foods complement each other?

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- iii. Did the menu combinations provide a variety of tastes, textures and appearance qualities considered appropriate to good quality meals?
2. Budget – 15 points:
  - i. Did the menu maintain the allowed budget?
  - ii. Was proposed budget accurate and well researched?
3. Shopping List – 15 points:
  - i. Did the shopping list include all ingredients required?
  - ii. Was it organized in a manner that made shopping for items simple at Allentown Wegmans?
    1. All produce grouped
    2. Staples grouped
    3. Refrigerated and frozen items grouped
    4. Packaged items grouped
4. Time Management – 15 points:
  - i. Was the meal prepared within the two hour time frame?
  - ii. Were foods served at the appropriate temperatures and food safety maintained?
5. Sensory evaluation – 15 points:
  - i. Were foods prepared in a manner that produced items which tasted good, looked good and met criteria for a quality food item?
  - ii. If a food fell short, could the evaluation help with assessment of why the quality was not good?
6. Written discussion – 25 points:
  - i. Were preparation methods and the science of food preparation discussed?  
For example: Was the development of gluten discussed for any food containing wheat flour? Did the method of protein preparation discuss the meat muscle and desirable methods (moist versus dry) of cooking?
  - ii. Did the sensory evaluation form promote simple, clear assessment of the qualities appropriate to each food item?

### **Reading Assignment week One**

**Objectives: Following this lesson you will be able to correctly complete each of the following:**

- Dress appropriately for work in a commercial kitchen or food service operation.
- Maintain a safe and sanitary workplace
- Exercise proper personal hygiene
- Exercise proper kitchen cleanliness and organization
- Develop a good work ethic and code of conduct
- Use and maintain kitchen tools and equipment
- Practice interpretation of food preparation and storage methodologies

**Please read each of the following and sign the attached form indicating that you read and understand each area.**

#### **Uniform Requirements**

- White Lab coat, Chef's coat or full apron (preferably white)
- Head covering: hair net, scarf that fully covers hair, Paper toque or baker's cap, men may wear baseball caps
- Shoes – nonskid, fully covers foot (no sandals, no crocs or shoes with open areas on the front and top of the foot). Clogs with a fully covered toe and upper foot, but open in the back are permissible.

**Safety** – This safety section is large and is as comprehensive as possible. The best safety advice in a kitchen is to pay attention to all sharp and hot items and to contaminated food items.

Food can be potentially dangerous if handled in a manner that promotes growth of pathogens. Learn the danger and safety zones for cold and hot temperatures.

Keep refrigerator and freezer doors closed except when removing food or placing food into them. Never block open the door. Use a cart if you have a large numbers of items and place them into the refrigerator or freezer as quickly as possible.

#### **Safety - Knives**

- Knives – **carried with blade pointed down and away from the body.**
- Always cut with the blade of the knife angled away from you.
- Never try to open a can or bottle with a knife or use a knife as a screwdriver.
- Don't use a knife to cut string, bones, metal, or paper.
- Always use a cutting board and keep it firmly in place by placing a damp towel underneath to keep it from moving around the countertop.
- **Never cut anything that is in your hand.** Use the board and make sure it has ample space for the task.
- Use the right knife for the job: paring knives for paring, a chef's knife for chopping or mincing, a slicing knife for slicing, and so forth.
- Always hold a knife by its handle, never the blade.
- **Be very careful when removing blades from blenders and food processors.**
- Never lay an unused knife on edge of pointing forward on a counter. The point should face to the back of the counter and the blade should touch the counter, not be exposed or at an angle where someone reaching across a counter could be cut.

- Store knives properly-a knife block or knife rack is best. If you are storing knives in a drawer, make sure to keep them in a separate compartment, away from other utensils. Store with the blade DOWN and the handle FORWARD.
- If you should happen to drop a knife, don't try to catch it. Step back alertly and wait until the knife comes to a complete rest before picking it up. Keep your mind focused on the job when using a knife.
- **Hand-wash your knives and dry thoroughly**. Never put knives into the dishwasher.
- **NEVER drop a knife into a sink filled with sudsy water.**

### Safety - Stoves

- Gas stoves have an open flame and require particular care. NEVER lay flammable materials on top of the stove.
- Use care when you have a towel (cloth or paper) near an open flame, be sure it does not come into contact with the flame. If it does catch fire, drop the towel onto the floor or into a sink IF the sink is close. Extinguish with water or by smothering the flame with a metal pot.

### Ignition Systems

There are two types of automatic ignitions: constant burning pilots and, on newer ranges, pilotless ignition. (Pilotless ignition is used in CCC kitchens. The electric ranges are all flat surface ranges.)

### Gas range

- Constant burning pilots are small blue flames burning near the burner or the burner flashtube. These pilots are on at all times (none in CCC kitchens)
- Pilotless or intermittent ignition systems are electronic and "spark" ignition type. You will hear a clicking sound when the top burner or thermostat is turned on. A "glow coil" igniter heats when the oven is turned on and ignites the burner. Pilotless systems operate only when the range is in use.
- When the burner does not light, turn the control OFF. If left in the ignite position, gas can escape and create a hazard.
- **If the oven burner does not light when the oven control knob is turned on, first turn it OFF. Then refer to the range "user's manual" for lighting instructions.**
  - **If you smell the odor of gas, check to be sure all range controls are turned OFF.**
  - **Call Security if gas odor persists, evacuate the classroom and leave the building.**
  - **IF you can SAFELY do so, notify individuals in offices and classrooms close to the kitchen that there is gas in the building and tell them to evacuate.**

### Electric Ranges

- It is sometimes difficult to determine which burners are hot, on flat surface ranges.
- The Jenn-Aire ranges **DO NOT** have a warning light for hot surfaces. When using these ranges be very careful not to touch the burner surfaces, or lay any flammable objects on the burners. **After using the range, place a pot with one inch of cold water on the hot burner, this will help to disperse the heat and warn others that the burner is hot.**

- The Frigidaire ranges have a **warning light section (near the center front of the stove)** which provides a visible key to hot burners. Even though they have a visible warning you should still be very careful not to touch the burner surfaces, or lay any flammable objects on the burners. **After using the range, place a pot with one inch of cold water on the hot burner, this will help to disperse the heat and warn others that the burner is hot.**

## All Ranges

- Use the correct temperature/flame setting
  - HIGH FLAME. Used to bring large quantities to a boil quickly...often used for a short time under big pans in order to start food cooking rapidly.
  - MEDIUM FLAME. Used for browning meats evenly without burning and with little spattering...may also be used to keep large quantities of food boiling.
  - LOW FLAME. Used for melting and warming foods, to cook small quantities of food or to keep cooked foods warm until serving time.
- **Do not use the top of any range as a storage area.** Flammable items may catch fire and plastic items may ignite or melt.
- Keep electrical cords away from the range top.
- Keep flammable items away from the cooking area & appliances in your kitchen.
- Don't store towels, pot holders, pizza boxes, or paper bags on the stove or near hot appliances.
- Be very careful with towels and potholders when working around open flames. Keep pot holders next to the stove where they can be easily accessed, but assure they are not in contact with flames or burners.

## Pan Selection and Care

- Pan selection is important. Avoid pans that are too heavy to move easily when they are filled with food. Discard pans that are easily tipped or those with loose handles.
- Select the right size pan, big enough to contain the food and to avoid boil-overs or spillovers. This will save energy and cleaning time and prevent dangerous accumulation of food on the range top. (Heavy spattering or spillovers left on a range can ignite.)
- **Always turn pan handles to the side or back of the range...**not out into the room where they can be easily hit, possibly knocking the pan off the range.
- **Never turn a handle over another burner,** it can become hot and cause burns.

## FIRE

We can replace equipment, we can't replace YOU! Safety first!

- **THE FIRE EXTINGUISHER IN THE CCC KITCHEN IS LOCATED BESIDE THE PANTRY.** Always take a minute to locate the extinguisher when working in a kitchen. Be fully aware of its location.
- **Pull the fire alarm and LEAVE THE BUILDING for any fire that is not IMMEDIATELY controlled!**

- In the event of a small grease fire, **do not try to move the pan!**
  - Turn off the burner if possible.
  - Slide a large cover onto the pan to extinguish the fire **only if you can do so without being burned.**
- **IF YOU ARE USING A FIRE EXTINGUISHER FOR ANY FIRE THAT IS NOT IMMEDIATELY EXTINGUISHED!**
  - **Use a fire extinguisher rated ABC for kitchen fires.**
  - **Do not use water on a grease fire.** (Water will spread the flames.)
  - **Do NOT throw any powdered substance on an open flame, powders, including flour can explode.**
  - **Grease can catch fire and should be handled carefully. Do not pour hot grease into a glass or plastic container which can break or melt.**
  - **Never leave cans with fat drippings around the range...put them in the refrigerator or the garbage.**
  - **Clean any grease build-up from the stove, oven & exhaust fan regularly.** Cooking grease & oil ignite easily & burn rapidly.
- **Oven fires**
  - **DO NOT OPEN THE OVEN DOOR**
  - **If the fire does not go out quickly, pull the fire alarm and leave the building.**

### **Oven Safety**

- **Pull the oven racks out** when testing foods for doneness, putting food in or removing food. Do not lean into the oven. Hot oven gases can burn.
- **Use sturdy pot holders** for handling hot pans and oven racks rather than dish towels or other substitutes which can cause burns if they are too thin, become entangled or catch fire.
- **Never use a wet towel** or pot holder, they can cause burns

### **Additional Stove safety**

- Avoid reaching over the stove for anything while cooking. Store frequently needed items in other areas of the kitchen.
- Dress for fire safety in the kitchen. Don't wear loosing fitting clothing.
- **Never leave cooking unattended.** If you must leave the kitchen for some reason, turn the heat off & take something with you to remind you that you have something cooking.
- **Shield yourself from steam when uncovering food,** especially microwave servings. Steam can cause serious burns. Tip the cover away from you when taking it off a pan. Always remember that steam will rise out of a boiling pot of water when you take off the cover.
  - Steam is often thought of as the cloud of visible vapor that comes out of a teapot. Wrong! The visible part is just the part of the steam cloud that has cooled down to under the boiling point of water and is visible as a cloud of condensed water droplets. Real, live, dangerous steam is water vapor that is above the boiling point of water, often way above it, and escaping confinement. It can be highly pressurized and moving very fast, and is almost invisible as it escapes its confinement. It causes real nasty burns. Be particularly wary of pressure cookers, steam pipes, water into super heated environments, and boilers.

- **If you take a hot pan or a cover from the fire and put it on a counter, place it on a hot pad AND leave a hot pad on top of the hot lid or utensil as a warning to the others in the kitchen that it is hot.**

### Cleaning Ranges

- On most ranges, the burner knobs, burner grates, burner bowls and burners can be removed for cleaning at the sink. On some models, the burner top can be lifted for easy cleaning; on others, it can be completely removed to make it easy to clean the burner box.
- Wipe up spills when they happen, using a soft, dry cloth or paper towel. When the range has cooled, wash off the spills with a sudsy cloth or sponge.
- Wipe any spatters off adjacent burners too, so that when those burners are used, the spatters will not burn onto the burner and be hard to clean.
- Harsh cleaners and scouring pads will scratch the range finish. Use only cleaners recommended by the range manufacturer.

### Microwave safety

- **NEVER super heat liquids in a microwave**, they can explode when removed. Food can become superheated when the temperature below the surface is above boiling and the surface tension retains the steam.
- If you heat liquids ALONE in the microwave put a glass stir stick into the cup to release the surface tension.
  - Never super heat a liquid in the microwave. Most liquids, of 1 to 2 cup volume will reach boiling in 2 minutes.
- **Use pot holders to remove hot items from microwave**
- Use glass utensils in the microwave, not plastic, which can bend and spill hot items

### Slips and Falls

Soapy water, grease and oils, and things like the traditional vegetable and fruit peel are standard in kitchens and are all slippery.

- **If you spill something on the floor, clean it up.** Keep a mop or such handy for this purpose. Mops in the CCC kitchen are in the pantry Spills on floors should be immediately cleaned and dried. When a spill occurs in a kitchen where other people are working, place a cone (if available) or a metal pan over the spill. Announce to others in the area that you are marking a spill and will get cleaning equipment. If possible, ask another person to monitor the area and make others aware of the spill.
- **If no one is around to help, place a waste paper basket on top of the spill, or cover with towels and leave them in place. In the CCC kitchen, when you see a waste basket in the middle of a kitchen, or towels on the floor you should immediately think – SPILL, and avoid the area except to assist with clean up.**
- Clean up as much as possible with paper towels. Use a mop or additional towels and hot soapy water to clean any grease, or residue. Grease spills can be particularly slippery, be sure that you continue to clean the area until all grease is eliminated. Dry the floor with additional paper towels.
- Often when you are working in the kitchen you are moving fast. Don't leave book bags, boxes, stools, bags of groceries or anything else out on the floor where they can trip up a fast moving cook.

## Safety around Kitchen Electricity

- **Report all frayed or cut electrical cords immediately and do not use the equipment.**
- **Never put your hand into an appliance with blades that is plugged in** (examples are blenders, food processors, slicers, mixer, robot-coupe). Unplug the appliance prior to reaching into it, to extract food, or unstuck blades.
- Don't overload circuits by using multiple plugs, extension cords or the like. If you have old wiring, it is often a good idea to get it checked by a professional for load carrying capacity.
- **Don't use appliances near the sink or other water.** If one falls in, it can electrocute anyone nearby. If you must have a wall socket near the sink, make sure it has a "Ground Fault Interrupter" type socket assembly.

## Sanitation and Food Safety

- **DO NOT reuse a towel that has been used** to clean utensils or counter tops. Immediately after use, place these towels in the laundry.
- Use freshly washed towel or paper towels anywhere food will touch.
- **Clean Sponges after every lab, by washing in hot soapy water, rinsing until water runs clear, and placing in the microwave for 60 seconds.**
  - Use care when removing the sponge, it contains hot water and steam. USE A POT HOLDER!
  - Allow to dry at room temperature.
- Follow guidelines for food storage. Cold food should be in the refrigerator or freezer until used. Hot food should be held at the correct temperature. Follow storage guidelines (Appendix One)

## Cross Contamination Prevention

Cross-contamination is the transfer of harmful bacteria from contaminated foods to cutting boards, utensils, and other foods if they are not handled properly. This is especially true when handling raw meat, poultry, and seafood. Keep these foods and their juices away from already cooked or ready-to-eat foods and fresh produce.

When handling foods, it is important to **Be Smart, Keep Foods Apart -- Don't Cross-Contaminate.** By following these simple steps, you can prevent cross-contamination and reduce the risk of food borne illness.

- **When Shopping:**
  - Separate raw meat, poultry, and seafood from other foods in your grocery-shopping cart. Place these foods in plastic bags to prevent their juices from dripping onto other foods.
  - Place these foods at the bottom of your cart; this prevents juices from dripping onto other foods.
  - It is also best to separate these foods from other foods at check out and in your grocery bags.
- **When Refrigerating Food:**
  - Place raw meat, poultry, and seafood in containers or sealed plastic bags to prevent their juices from dripping onto other foods. Raw juices often contain harmful bacteria.
  - Place these items on the lowest shelf in your refrigerator.
  - Store eggs in their original carton and refrigerate as soon as possible.

- **When Preparing Food:**
  - Wash hands and surfaces often. Wash hands with soap and warm water for 20 seconds before and after handling any food, after using the bathroom, changing diapers; or handling pets.
  - Use hot, soapy water and paper towels or clean cloths to wipe up kitchen surfaces or spills.
  - Wash cloths often in the hot cycle of your washing machine.
  - Wash cutting boards, dishes, and counter tops with hot, soapy water after preparing each food item and before you go on to the next item.
  - A solution of 1 tablespoon of unscented, liquid chlorine bleach per gallon of water may be used to sanitize surfaces and utensils.
  
- **Cutting Boards:**
  - Always use a clean cutting board.
  - If possible, use one cutting board for fresh produce and a different board for raw meat, poultry, and seafood.
  - Once cutting boards become excessively worn or develop hard-to-clean grooves, you should replace them.
  
- **Marinating Food:**
  - Always marinate food in the refrigerator, not on the counter.
  - Sauce that is used to marinate raw meat, poultry, or seafood should not be used on cooked foods, unless it is boiled just before using.
  
- **When Serving Food:**
  - Always use a clean plate.
  - Never place cooked food back on the same plate or cutting board that previously held raw food.
  
- **When Storing Leftovers:**
  - Refrigerate or freeze leftovers within 2 hours of cooking. Store in clean, shallow, covered containers to prevent harmful bacteria from multiplying.
  - **Use the 2 inches, 2 hours rule.** It takes two hours to chill 2 inches. If a food is stored in a container that is more than two inches deep, separate it into two or more shallow containers, or use an ice water bath and stir the contents to chill quickly.

### **Cleaning Counter tops**

- Clear the countertop of everything that is movable. In the CCC kitchens EVERYTHING is moveable.
- Fill the sink with hot water, add a dish washing detergent.
- With a damp cloth or paper towels, wipe the entire area.
  - **If there are stains** sprinkle a light coating of baking soda. Make sure the baking soda covers the stain evenly. You may want to drop a little water across the counter to help dampen the baking soda for better absorption.

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Laboratory One – Week Two

Barbara M. Carlson, MA, RD, CDE

- Wait 15 to 30 minutes. Dampen a clean scrub cloth and use small circles to rub the baking soda into the countertop. If the counter is deeply stained, leave the rubbed-in baking soda for another 15 minutes or so to allow complete absorption.
- If this is noticed at the end of class, notify your professor. They will help determine whether the area will need treatment after class ends.
- Rinse your cleaning cloth and begin wiping the counter to remove the baking soda paste. Do a thorough job of wiping away all the pasty grit created by the baking soda mix.
- Check with your finger to detect any residual baking soda. When you are sure the entire counter surface is wiped clean and free of soda, use a paper towel or dish towel to dry it.

This list is not meant to cover every possible danger within a kitchen. But, it does highlight major dangers. If these guidelines are followed throughout all kitchen experiences, most accidents and dangers will be prevented.

## Appendix A. - Critical Temperatures for Food Service

The following temperature guidelines, based on the federal **Food and Drug Administration's 2006 Food Code**, apply at various stages of food preparation and serving. Strictly maintaining these temperatures is particularly important when dealing with potentially hazardous foods. Foods which favor bacterial growth include meat, poultry, eggs, seafood, dairy products, cut melon, raw seed sprouts, garlic-in-oil mixtures, cooked rice or potatoes and others.

Your book may have slightly different temperatures for some foods. Books and guidelines change over time as new information about food safety develops. In most cases, temperatures for cooked foods are decreasing, from recommendations of previous years. For example temperatures for pork were once set at 175 degrees and higher.

It is critical that you know the DANGER ZONE temperatures, the correct temperatures for refrigeration and freezing. You do not need to know the temperatures for individual foods in this course. However, you do need to know where to access them.

**Remember the danger zone: 41° F - 140° F.** Potentially hazardous foods exposed to this temperature range **for a cumulative total of more than 4 hours are not safe to eat.**

### Storage

Refrigeration (food) temperature	40° F or below
Freezer (food) temperature	0° F or below
Dry storage	50° F - 70 ° F

- Use open shelving and do not cover food with foil during the chilling process. Food should be covered and labeled after it reaches the chill temperature.
- Seafood should be held at temperatures of 30° F – 34° F for freshness and control of pathogens; it is the only exception to refrigeration temperatures.
- Check foods in multiple locations throughout a cold storage area; temperature may not be uniform.
- For ready-to-eat foods prepared on-site, label and comply with storage time standards. For many foods the standard is seven days maximum for food held at 40° F or below. Standards may be different for hospital food service facilities.

### Thawing

In the refrigerator	40° F or below
Under running water	70° F or below (water temperature)

- Do not thaw at room temperature.
- If a microwave is used to thaw food, the food must be cooked immediately after thawing.

### Cooking

Food	Thermometer <b>must hold this temperature</b> for
Beef roast	145° F minimum of 3 minutes <b>or</b>
	140° F for 12 minutes
	130° F for 121 minutes
Beef, steaks, fish, seafood (filets, chops or intact pieces), bacon	145 ° F for minimum of 15 seconds
Pork, veal and lamb	160 ° F for minimum of 15 seconds
Ground beef or pork, chopped/flaked meat	160 ° F for minimum of 15 seconds
Poultry, stuffed foods	165° F for minimum of 15 seconds
Eggs	
Cooked to hold	155° F for minimum of 15 seconds
Cooked to order	145° F for minimum of 15 seconds
Foods cooked in microwave	165° F, hold for minimum of 2 minutes
Fruits, vegetables	140° F (no minimum time)

- For combination dishes, choose the ingredient with the most stringent standard and follow it.
- Measure temperature in the thickest part of the food.

### Cooling Potentially Hazardous Food

From hot temperature	Cool to 70° F within two 2 hours; cool to 41° F or below within 4 more hours (6 hours total)
From room temperature	Cool to 40° F within 4 hours

- Do not cool at room temperature.
- Use a blast chiller or ice bath to hasten cooling.
- Divide food into small units or use a shallow pan. Two inches of food can chill within 2 hours.
- Food should never be left out at room temperature for more than 2 hours (one hour if the temperature is over 90 degrees)

### Holding

Hot food	140° F or above
Cold food	40° F or below

- Keep food covered.
- Stir hot food frequently.
- Store utensil in food.
- Take actual food temperature; do not rely on a thermostat setting.
- Check temperature frequently (at least every 2 hours).
- Do not use hot holding equipment to heat or reheat food.

### Reheating

Leftovers	165° F minimum
Cold food	40° F or below

- Food must reach temperature within 2 hours.

### More Useful Temperatures

Hand washing water	110° F
Sanitizing solutions (heat)	170° F for minimum of 30 seconds
Sanitizing solutions (chemical)	75° F - 120° F

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Name: \_\_\_\_\_

Please Print

I read and understand the safety information provided in this document. I understand that it is my responsibility to work in a manner that ensures my safety and the safety of my classmates.

My weekly lab grade will be based on the assignment and following lab protocols and safety procedures.

\_\_\_\_\_/\_\_\_\_\_  
Signature Date

**Nutrition 220: Introductory Foods Preparation  
Lab check IN / Check OUT and Evaluation**

**Kitchen check out and Lab procedures and weekly report.** Date: \_\_\_\_\_

Work group: List team names here

Names: \_\_\_\_\_ / \_\_\_\_\_  
\_\_\_\_\_

**Personal Dress and Hygiene prior to lab.**

1. **Did you wear appropriate shoes, without open toes or open tops?**

\_\_\_\_\_ Yes \_\_\_\_\_ No

If no, did you ask to be excused from lab and make an appointment to complete the lab at another date?

2. **Did you wear appropriate head covering?**

\_\_\_\_\_ Yes \_\_\_\_\_ No

3. **Did you wear gloves if your nails were polished?**

\_\_\_\_\_ Yes \_\_\_\_\_ No

4. **Did you remove jewelry that was not appropriate?**

\_\_\_\_\_ Yes \_\_\_\_\_ No

**TEAM Assessment: Teams should work together to assure the following are completed before and after lab.**

2. **All equipment will be washed prior to use and counter tops sanitized and counter tops dried with paper towels.**

Completed: \_\_\_\_\_ yes \_\_\_\_\_ no

3. **Cross contamination of equipment will be minimized by use of clean measuring equipment for every item acquired during Mise en Place (preparation).**

Was clean measuring equipment used? \_\_\_\_\_ yes \_\_\_\_\_ no

Was measurement completed at designated location? \_\_\_\_\_ yes \_\_\_\_\_ no

4. **Counter tops sanitized**

Were countertops sanitized prior to lab? \_\_\_\_\_ yes \_\_\_\_\_ no

Were countertops sanitized after lab? \_\_\_\_\_ yes \_\_\_\_\_ no

5. **Sinks clean and wiped dry after lab?** \_\_\_\_\_ yes \_\_\_\_\_ no

6. **Garbage Disposals must be cleared of any waste by running the disposal, using running cold water.**

Were garbage disposals cleared after lab? \_\_\_\_\_ yes \_\_\_\_\_ no

- 7. Drawers, pots and pans and bake wear lists must be verified to assure the equipment belonging to each kitchen is returned to its proper place and available for the next lab.**  
Was all equipment cleaned and returned to its proper location? \_\_\_\_\_ yes \_\_\_\_\_ no
- 8. Was equipment use in your kitchen OR equipment borrowed from the stock kitchen, or another kitchen cleaned and returned to the original location?** \_\_\_\_\_ yes \_\_\_\_\_ no
- 9. Only dishes, cups and silverware may be placed in dishwashers. All food preparation equipment is to be washed and dried with clean dish towels.**  
Were utensils (dishes, silverware and cups) placed in dishwasher? \_\_\_\_\_ yes \_\_\_\_\_ no
- 10. Dish towels, soiled pot holders, sponges will be placed in the clothes baskets in the utility room. Sponges should be washed with soap and water, rinsed and microwaved for 60 seconds to sterilize them.**  
Was the sponge sanitized & microwaved for 60 seconds? \_\_\_\_\_ yes \_\_\_\_\_ no

**Assessment of Performance:**

Assessing the contribution of team members is required in every organization. Should you become a food service director, or clinical nutrition manager you will be required to assess the work habits and quality of work for employees.

Complete this section by fairly evaluating your team members. Treat this information as if it is confidential. If a team member falls into either the 2 or 3 range, offer one suggestion for helping improve their performance. If the team member falls into the 4 or 5 range, comment on their performance and why it was considered good or very good. This information WILL NOT be used to grade your team members, it will be used only as part of your grade.

	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Marginal	Fair	Good	Very Good
Team Members Names below:	A. Mise en Place: Measurement of ingredients, and kitchen sanitation and set-up	B. Technique and preparation: Reading recipe and following instructions.	C. Discussion and evaluation of product properties:	D. Clean up sanitation: did each team member assist with sanitation.
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have one (or more) suggestions for your team members, or the professor to make this lab a better learning experience? \_\_\_\_\_

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Team member signatures:

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Turn in the above pages prior to leaving the lab.

**Nutrition 220: Metric conversion**

**Soft Metric Conversion Chart – Gourmet Sleuth.com**

Soft conversion is exact. Hard conversion rounds up or down to easily remembered numbers. Note that there is even some difference in units used in the UK and Canada, versus metric systems used in other countries. You will sometimes see the term imperial units (British). A good comparison chart for the many systems and types of measure is compiled in Wikipedia at:

[http://en.wikipedia.org/wiki/Approximate\\_conversion\\_of\\_units](http://en.wikipedia.org/wiki/Approximate_conversion_of_units) While Wikipedia must be used with some caution, if you look at the resources used for their extensive charts you will find they are highly reputable and extensive.

The chart below (without hard conversion numbers) comes from **Gourmet Sleuth**, an excellent cooking reference on the WWW.

<http://www.gourmetsleuth.com/index.asp>

Volume	=	U.S. Units	Metric Units*	Hard conv.
1 teaspoon (US)	=	1/6 ounce	4.929 milliliters	5 ml
1 tablespoon (US)	=	0.5 ounce	14.79 milliliters	15 ml
1 fluid ounce (US)	=	1 ounce	29.57 milliliters	30 ml
1 gill (US)	=	4 ounces	118 milliliters	
1 cup (US)	=	8 ounces	236.6 milliliters	240 ml
1 pint (US)	=	16 ounces	473.2ml	480ml
1 quart (US)	=	32 ounces	946.3ml	960ml
1 gallon (US)	=	128 ounces	3.785 liters	3.84liters
1 cubic inch	=	0.5541 ounces	16.387 milliliters	
1 teaspoon (UK)	=	1.2 teaspoons	6.16 milliliters	
1 dessert spoon (UK)	=	2.4 teaspoons	12.32 milliliters	
1 tablespoon (UK)	=	1.2 tablespoons	18.48 milliliters	
1 fluid ounce (UK)	=	0.96076 ounces	28.4 milliliters	
1 gill (UK)	=	1.2 gills	142 milliliters	
1 breakfast cup (UK)	=	1.2 cups	284 milliliters	
1 pint (UK)	=	1.2 pints	568 milliliters	
1 quart (UK)	=	1.2 quarts	1.136 liters	
1 gallon (UK)	=	1.2 gallons	4.546 liters	
1 milliliter	=	0.203 teaspoon	1 milliliter	
1 centiliter	=	2.03 teaspoons	10 milliliters	
1 deciliter	=	0.423 cup	100 milliliters	
1 liter	=	1.057 quarts	1000 milliliters	
1 dekaliter	=	2.642 gallons	10000 milliliters	

## **Nutrition 220: Introductory Food Preparation**

### **Laboratory One – Week Two**

#### **1. Review of Kitchen Safety:**

- a. Prior to lab students will read Safety and Sanitation homework.
  - i. Using the Safety and Sanitation homework as a guide students will be prepared to practice all concepts in the lab.

#### **2. Weights and measures – Students will weigh and measure a variety of ingredients**

- a. Objectives
  - i. Using common measurement and scales students will weigh and compare common ingredients in a recipe and compare their weight to a standard calculation.
  - ii. Following exercise, students will compare accuracy of measurements.
  - iii. Following exercise students will have a basic introduction to conversion of common measures from Metric to American Measure.

#### **3. Preparation of a basic bar cookie, for kitchen familiarization.**

- a. Objectives
  - i. Students will prepare a simple bar cookie.
  - ii. Students will be able to follow simple recipe instructions.
  - iii. Students will become familiar with basic equipment, ovens, organization in kitchen areas.

#### **4. Sensory Quality of Food**

- a. Objectives
  - i. Students will complete “Affective” product evaluations.
  - ii. Students will correctly complete a scalar comparison form.
  - iii. Students will be able to prepare a product evaluation form.

#### **5. Laboratory Check In/Out procedures**

- a. Objectives
  - i. Students will be able to properly clean kitchen area before and after use.
  - ii. Students will be able to access, use and replace equipment
  - iii. Students will be able to evaluate individual and team contributions to laboratory

Please complete activities in the order listed. This will allow each kitchen free access to microwaves, scales and mixers without overlap.

Kitchen One and Three:

1. Thermometer calibration
2. Microwave use – frozen entrée
3. Setting and checking oven temperature
4. Brownie Preparation
5. Measurement Exercise
6. Knife use – Vegetable preparation
7. Garbage disposal use
8. Hedonistic Scales and product Assessment
9. Self and Team Evaluation

Kitchen Two and Four:

1. Setting and checking oven temperature
2. Brownie Preparation
3. Measurement Exercise
4. Thermometer calibration
5. Microwave use – frozen entrée
6. Knife Use – Vegetable preparation
7. Garbage disposal use
8. Hedonistic Scales and product Assessment
9. Self and Team Evaluation

### **Measurement Exercise**

Follow these instructions prior to preparing the bar cookie recipe.

1. Set scale to gram measurement.
2. “Tare” any measuring cup, glass bowls, paper prior to adding ingredients.
3. Measure each ingredient.
4. Weigh each ingredient after measuring.
5. Record the actual weight.
  - a. If any ingredient varies more than 10 % from the Metric Measure provided, adjust the ingredient.

***Each Kitchen will prepare a basic bar cookie recipe.***

***Kitchen One – Chocolate syrup brownies / Kitchen Two – Basic Brownies /***

***Kitchen Three – Gluten Free Brownies / Kitchen Four – Butterscotch Brownies***

**CHOCOLATE SYRUP BROWNIES**

<b>Measured Ingredient</b>	<b>Metric Measure (calculated)</b>	<b>Actual weight</b>
1/2 cup butter	115 g butter	Butter _____
1 cup white sugar	200 g white sugar	White sugar _____
4 eggs	4 eggs	Eggs _____
16 ounce chocolate syrup	474 ml chocolate syrup	Choc syrup _____
1 teaspoon vanilla extract	5 ml vanilla extract	Vanilla _____
1 1/8 cups all-purpose flour	140 g all-purpose flour	Flour _____
1/3 cup evaporated milk	80 ml evaporated milk	Evap milk _____
1/4 cup butter	55 g butter	Butter _____
1 1/2 cups white sugar	300 g white sugar	Sugar _____
1/2 cup semisweet choc chips	85 g semisweet choc chips	Choc chips _____

- 15 by 12 inch sheet pan
- Measuring Spoons
- Glass baking cups
- Mixing bowl
- Spatula
- Measuring Cups
- Wax paper sheets

1. Preheat oven to 350 degrees F (175 degrees C).
2. Measure Ingredients.
3. Weigh Ingredients and Record Weight
4. If the actual weight is more than 10 % different (more or less) than the anticipated weight, adjustment may be needed. Discuss with your professor.
5. Combine: 1/2 cup butter, 1 cup sugar, eggs, chocolate syrup, vanilla, in a mixing bowl
6. Add flour; beat well.
7. Spread batter in a 15 x 12 inch pan.
8. Bake at 350 degrees F (175 degrees C) for 25 to 30 minutes.
9. Cool.

***Kitchen One – Chocolate syrup brownies / Kitchen Two – Basic Brownies /  
 Kitchen Three – Gluten Free Brownies / Kitchen Four – Butterscotch Brownies***

**GLUTEN FREE BROWNIES**

<b><u>Measured Ingredient</u></b>	<b><u>Metric Measure (calculated)</u></b>	<b><u>Actual weight</u></b>
1 (15.5 ounce) can black beans, rinsed and drained	439 g black beans, rinsed and drained	Black Beans _____ g
3 eggs (2 oz or 60 grams each)	3 eggs: 180 g	Eggs: _____ g
3 tablespoons vegetable oil	45 ml vegetable oil	Vegetable Oil _____ g
1/3 cup cocoa powder	30 g cocoa powder	Cocoa Power _____ g
1 teaspoon Baking Powder	5 grams Baking Powder	Baking Powder _____ g
1 pinch salt	1 g salt	Salt _____ g
1 teaspoon vanilla extract	5 ml vanilla extract	Vanilla extract _____ g
3/4 cup white sugar	150 g white sugar	White sugar _____ g
2 teaspoon instant coffee	2g instant coffee	Instant Coffee _____ g
1/2 cup milk chocolate chips	85 g milk chocolate chips	Chocolate chips _____ g

**Equipment needed:**

- Blender
- Spatula
- Measuring Cups
- Wax paper sheets
- 8 inch square baking dish (glass or metal)
- Measuring Spoons
- Glass baking cups

**DIRECTIONS**

1. Preheat oven to 350 degrees F (175 degrees C).
2. Measure Ingredients.
3. Weigh Ingredients and Record Weight
4. If the actual weight is more than 10 % different (more or less) than the anticipated weight, adjustment may be needed. Discuss with your professor.
5. Lightly grease an 8x8 square baking dish with nonstick spray or vegetable shortening.
6. Combine the black beans, eggs, oil, cocoa powder, salt, vanilla extract, sugar, and instant coffee in a blender; blend until smooth; pour the mixture into the prepared baking dish. Sprinkle the chocolate chips over the top of the mixture.
7. Bake in the preheated oven until the top is dry and the edges start to pull away from the sides of the pan, about 30 minutes.

***Kitchen One – Chocolate syrup brownies / Kitchen Two – Basic Brownies /  
 Kitchen Three – Gluten Free Brownies / Kitchen Four – Butterscotch Brownies***

**Butterscotch Brownies**

<u>Measured Ingredient</u>	<u>Metric Measure (calculated)</u>	<u>Actual weight</u>
3 1/2 cups all-purpose flour	440 g all-purpose flour	Flour _____
2 1/4 teaspoons baking powder	8 g baking powder	Baking powder _____
3/4 teaspoon salt	5 g salt	Salt _____
3/4 cup butter, softened	170 g butter, softened	Butter _____
1 1/2 cups packed brown sugar	330 g packed brown sugar	Brown sugar _____
3/4 cup white sugar	150 g white sugar	White sugar _____
3 eggs	3 eggs (180 grams)	Eggs _____
1 egg yolk	1 egg yolk	Egg yolk -----
2 teaspoons vanilla extract	10 ml vanilla extract	Vanilla _____
6 tablespoons peanut butter	100 g peanut butter	Peanut butter _____
2 cups semisweet choc chips	335 g semisweet choc chips	Choc chips _____

- 9 by 13 inch baking pan
- Measuring Spoons
- Glass baking cups
- Mixing bowl
- Spatula
- Measuring Cups
- Wax paper sheets

**DIRECTIONS**

1. Preheat oven to 350 degrees F (175 degrees C).
2. Measure Ingredients.
3. Weigh Ingredients and Record Weight
4. If the actual weight is more than 10 % different (more or less) than the anticipated weight, adjustment may be needed. Discuss with your professor.
5. Grease a 9x13 inch baking dish.
6. Sift together the flour, baking powder and salt; set aside.
7. In a large bowl, cream together 3/4 cup of butter, brown sugar and white sugar until light and fluffy.
8. Beat in the eggs and yolk one at a time.
9. Stir in the vanilla and 6 tablespoons peanut butter.
10. Blend in the sifted ingredients and stir in the chocolate chips.
11. Press the mixture evenly into the prepared pan.
12. Bake in the preheated oven for 25 to 30 minutes, or until a toothpick inserted into the center comes out with moist crumbs. Cool

***Kitchen One – Chocolate syrup brownies / Kitchen Two – Basic Fudge Brownie /  
 Kitchen Three – Gluten Free Brownies / Kitchen Four – Butterscotch Brownies***

***Basic Fudge Brownie***

<u>Measured Ingredient</u>	<u>Metric Measure (calculated)</u>	<u>Actual weight</u>
8 (1 ounce) squares unsweetened baking chocolate	224 g unsweetened baking chocolate	Baking choc _____
1 cup butter	225 g butter	Butter _____
5 eggs	5 eggs (300 grams)	Eggs _____
3 cups white sugar	600 g white sugar	White sugar _____
1 tablespoon vanilla extract	15 ml vanilla extract	Vanilla _____
1 1/2 cups all-purpose flour	190 g all-purpose flour	Flour _____

- 9 X 13 inch baking pan
- Measuring Spoons
- Glass baking cups
- Mixing bowl
- Spatula
- Measuring Cups
- Wax paper sheets

**DIRECTIONS**

1. Preheat oven to 375 degrees F (190 degrees C).
2. Measure Ingredients.
3. Weigh Ingredient and Record Weight
4. If the actual weight is more than 10 % different (more or less) than the anticipated weight, adjustment may be needed. Discuss with your professor.
5. Grease a 13x9-inch baking pan. If using a glass dish, preheat to 350 degrees F (175 degrees C).
6. Place 8 ounces of baking chocolate with 1 cup of butter in a microwave-safe bowl.
7. Microwave on High until the chocolate is soft and the butter has melted. Use 30 second intervals and stir after each interval.
8. Stir butter and chocolate to mix.
9. Place the eggs, 3 cups of sugar, and 1 tablespoon of vanilla extract in a large bowl, and beat with an electric mixer on high speed for 2 minutes.
10. Reduce the mixer speed to low, and beat in the melted butter-chocolate mixture.
11. Beat in the flour until just combined (do not over mix).
12. Spread the batter in the prepared pan.
13. Bake in the preheated oven until a toothpick inserted into the center comes out with fudgy crumbs, about 35 minutes. Do NOT over bake, cool in the pan.

### Laboratory Session One / Sensory Evaluation of Bar Cookies

Compare the four bar cookies. Use the following rating scale and characteristics of good quality product to determine your rating.

Rate the brownies in this order:

1. Standard Brownie – this recipe should be the standard by which the others are rated
2. Chocolate Syrup Brownie
3. Blondie
4. Gluten Free Brownie

Use the following scale

<u>Points</u>	<u>Quality</u>
7	Excellent
6	Very good
5	Good
4	Medium
3	Fair
2	Poor
1	Very Poor

1. Place the numerical score in the box in the upper left hand corner of each square. Comments should justify the numerical score.
2. Use the characteristics of a high quality brownie to justify your score.

#### **Characteristics of a High quality product.**

Regular, even shape with crust of uniform color. Tender, even grained, with good flavor. Cooked throughout, neither dry nor mushy. Sweetness should enhance, not overpower other flavors.

#### **EXTERNAL CHARACTERISTICS**

**SHAPE** - uniform and even

**CRUST** - uniform color, characteristics of kind

**APPEARANCE** Uniform, well cut shape

#### **INTERNAL CHARACTERISTICS**

**TEXTURE** - appropriate to recipe: chewy or cake like

**GRAIN** - even cells

**COLOR** - characteristic of kind, brown or golden

**FLAVOR** Blended flavor of well-baked ingredients, characteristic of the kind, free from excessive flavor of spices or other flavorings.

Brownie: Sensory Evaluation

Sample	Appearance Exterior	Appearance Interior	Volume and weight	Texture Moisture, Tenderness	Flavor
Sample One: Basic Brownie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Two: Chocolate Syrup Brownie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Three: Blondie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Four: Gluten Free	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which product was your favorite? \_\_\_\_\_ Why?

Use terms that describe flavor, taste, odor and texture. Be specific and factual. \_\_\_\_\_

\_\_\_\_\_

Which product was your least favorite? \_\_\_\_\_

Why? Use terms that describe flavor, taste, odor and texture. Be specific and factual.

\_\_\_\_\_

\_\_\_\_\_

**Sensory Evaluation – Lemonade**

Objectives:

1. Students will use a Duo-Trio test to identify differences in the product.
2. Students will be able to use a simple scale to record their findings.

This is a Duo-Trio test. You are to **choose the sample that is different**. Two samples are identical, one is different. Taste the **standard lemonade**, then, choose the different sample and explain why it seemed different to you.

Select the sample that is different.

Sample	Identical to standard	Different from Standard
A.		
B.		

The sample that was different was: \_\_\_\_\_.

The sample that I preferred was: \_\_\_\_\_.

Check each of the characteristics that made sample \_\_\_\_\_ seem different.

\_\_\_\_\_ It was sweeter.

\_\_\_\_\_ It was less sweet.

\_\_\_\_\_ It was bitter.

\_\_\_\_\_ It had an aftertaste.

\_\_\_\_\_ It was more flavorful.

\_\_\_\_\_ It was less flavorful.

\_\_\_\_\_ It had more pulp.

\_\_\_\_\_ It had less pulp.

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Create your own evaluation chart for chocolate.**

Objective: Following completion of this exercise students will have a basic understanding of the steps of developing a product evaluation and form to assess food product qualities.

Consider the following:

1. What characteristics would you rate?
2. What descriptive terms would you use on your evaluation sheet
3. What scale would you use to differentiate excellent products from products that are lower in quality?
4. You must have at least 3 categories to evaluate the chocolate. Once you have created your evaluation, taste the three varieties of chocolate and rate them on your scale.

Rating Scale		
	/	
	/	
	/	
	/	
	/	

Characteristics of good Chocolate: Choose 3 variables and describe what you would use as a high standard for each.

1. \_\_\_\_\_ : standard \_\_\_\_\_
2. \_\_\_\_\_ : standard \_\_\_\_\_
3. \_\_\_\_\_ : standard \_\_\_\_\_

Variable	1.	2.	3.
Sample Number One	<input style="width: 50px; height: 30px;" type="text"/>	<input style="width: 50px; height: 30px;" type="text"/>	<input style="width: 50px; height: 30px;" type="text"/>
Sample Number Two	<input style="width: 50px; height: 30px;" type="text"/>	<input style="width: 50px; height: 30px;" type="text"/>	<input style="width: 50px; height: 30px;" type="text"/>
Sample Number Three	<input style="width: 50px; height: 30px;" type="text"/>	<input style="width: 50px; height: 30px;" type="text"/>	<input style="width: 50px; height: 30px;" type="text"/>

Which sample was your favorite and why? \_\_\_\_\_

**Fall 2009: Nutrition 220**

**Study guide for Quiz One and Midterm.** After completing the study guide, email the completed paper to me, I will send you the correct answers in return.

Use your book and lecture notes to find the correct answers and take the quiz.

1. The **Five primary tastes** are: (circle 5)
  - a. Salty
  - b. Umami or savory
  - c. Sour
  - d. Bitter
  - e. Sweet
  - f. Peppery
  - g. Hot
  - h. Pungent
  - i. Fishy
  - j. Chemical
  - k. Putrid
  
2. Objective evaluation of a food involves:
  - a. A panel of individuals who taste food and describe it in terms of flavor, texture, consistency and appearance.
  - b. Is judged by computers
  - c. Is carried out by use of a variety of equipment types dependent on what is being evaluated.
  - d. Evaluation of texture only.
  
3. Flavor precursors are substances that produce flavors after (or as a result of):
  - a. Cooking (heat): baking, roasting, boiling or frying
  - b. An enzyme or chemical agent catalyzing a reaction in the food: fermentation (cheese), addition of an acid (cerviche) or the addition of a yeast or microbe.
  - c. Flavors that are synthesized and added to foods.
  - d. All of the above are correct

4. Which of the following do not require a Nutrition Facts label? Circle all that are correct.
  - a. Fresh fruit and vegetables
  - b. Raw fish, sold unpackaged at the meat and fish counter
  - c. Single raw ingredient meat and poultry
  - d. Eggs
  - e. Foods with insignificant amounts of nutrients
  - f. Foods prepared and ready to eat in grocery (not factory)
  - g. Foods sold in food services
  - h. Luncheon meat sliced at the deli counter
  - i. Tea and Coffee
  - j. Spices
  
5. Food Borne illness is always caused by a bacteria.
  - a. True
  - b. False
  
6. The types of food borne illness include
  - a. Bacterial Toxins (produced prior to consumption)
  - b. Bacterial Food infection
  - c. Prions
  - d. Trichina and parasites
  - e. Viral infections
  - f. Chemical contaminants
  - g. All of the above
  
7. Preventing Food Borne illness requires that a kitchen manager can ignore only one of the following in his/her kitchen. Which one?
  - a. Organic versus - Non Organic ingredients
  - b. Sources of possible cross contamination
  - c. Employee cleanliness and use appropriate kitchen attire.
  - d. Calibration of thermometers on a regular basis
  - e. Temperatures of refrigerators
  - f. Temperatures of freezers
  - g. How long food deliveries stand at room temperature
  - h. Cleanliness of shelving and elimination of moisture build up
  - i. Temperature of dishwashing water
  - j. Depth of pans used to chill pre-cooked foods

8. What are the following conversions (you may use either hard or soft conversion). You must give BOTH hard and soft for ounces. Some conversions are metric to English, some are metric to smaller or larger metric measures, some conversions are English to English smaller or larger conversions.

- a. 1 pound = \_\_\_\_\_ grams
- b. 1 ounce = \_\_\_\_\_ grams (soft conversion)
- c. 1 ounce = \_\_\_\_\_ grams (hard conversion)
- d. 1 teaspoon = \_\_\_\_\_ grams
- e. 1 liter = \_\_\_\_\_ milliliters
- f. 3 teaspoons = \_\_\_\_\_ tablespoons
- g.  $\frac{1}{4}$  cup = \_\_\_\_\_ tablespoons
- h. 8 tablespoons = \_\_\_\_\_ cup(s)
- i. 16 tablespoons = \_\_\_\_\_ cup(s)
- j. 1 quart = \_\_\_\_\_ cup(s)
- k. 4 quarts = \_\_\_\_\_ gallon(s)

9. Liquids should always be measured in liquid measuring cups. To assure accuracy the cup must be
- a. Held at eye level, and the amount of liquid should be at the bottom of the level point.
  - b. Placed on a table, and the amount of liquid should look for a meniscus at the top of the level line.

10. Match the recipe format with the correct type of recipe:

- a. Standard Style
- b. Action Style
- c. Descriptive Style
- d. Narrative Style

b \_\_\_\_\_ The action or method is described in order of the steps used in the mixing procedure. Example:

Measure and Sift together:

1 cup flour  
1 teaspoon salt  
1 teaspoon soda

c \_\_\_\_\_ The ingredient is followed by the procedure. For example:

1 cup flour                      Sift dry ingredients into mixing bowl.

d \_\_\_\_\_ The ingredients and instructions are not listed separately. They are combined into paragraphs. Example:

Sift and combine 1 cup flour, 1 teaspoon salt and 1 teaspoon soda in a large mixing bowl.

a \_\_\_\_\_ In this method ingredients are listed first and are followed by detailed instructions.

1 cup flour  
1 teaspoon salt  
½ cup butter

Preheat oven to 350 degrees F. Cut the butter into ½ inch cubes. Combine the flour and salt. Cut the butter into the flour and salt mixture.

11. The four media for heat transfer are:

- a. Water, steam, broiling and braising
- b. Steam, frying and baking
- c. Water, steam, air and fat
- d. Convection, conduction, radiation and transfer

12. Heat transfer from an energy source typically uses more than one form of transfer.
  - a. True
  - b. False
  
13. The primary agencies that oversee food safety and trade are the FDA, USDA and the CDC.
  - a. True
  - b. False
  
14. Thermometers are calibrated in the factory and should maintain perfect temperature for years.
  - a. True
  - b. False
  
15. Measurement is preferred over weighing ingredients because it is more accurate.
  - a. True
  - b. False
  
16. A commercial kitchen might use the 2 inch, 2 hour rule for which of the following?
  - a. Cooking a casserole
  - b. Cooling a casserole
  - c. Setting gelatin
  - d. Freezing leftovers
  
17. Food poisoning is unpleasant but never causes death or long term health problems.
  - a. True
  - b. False