Eggs
Chapter 16, page 280
Guide to Good Food textbook
And the Eggcyclopedia from the American Egg Board
Nutrition
Great source of protein
Contain amino acids, thiamin, riboflavin, iron, phosphorous, vitamins A and D, and calcium
The egg yolk contains high amounts of cholesterol
  Egg white is the healthiest part of the egg
A regular large egg has around 80 calories
  Majority of calories, cholesterol, and nutritional value found in yolk
Grades
Determined by four factors:
  Condition of shell
  Size of air cell
  Clearness and thickness of egg white
  Condition of egg yolk
Candling
  Process to grade eggs
  Eggs move on rollers over very bright lights
  Look for blood spots
  Found on yolk, less than 1% of eggs
  Not indication of fertile egg
Grades
Grade AA- best quality (fancy fresh)
  Clean, unbroken shell
  Small air cell
  Thick, clear white which spreads little
  Yolk stands high and is firm
Grade A
  Clean, unbroken shell
  Slightly larger air cell
  White covers larger area than AA, fairly thick but can tell difference between thin and thick layers
  Yolk fairly firm, stands high
Grades
Grade B
  Unbroken shell, clean or slightly stained
  Larger air cell
  Thin white and yolk
  Spreads when broken
  Rarely seen in stores, used in preparation of other food products
Also Grade C, used in food production
No nutritional difference among the grades
See page 282 of textbook

Color
Shell of egg is white or tan/brown
Determined by breed of chicken
- Breeds with white ear lobes have white eggs
- Breeds with red ear lobes have brown eggs
No nutritional, quality, or flavor difference
- Some argue farm fresh tan eggs taste better

Size
Based on medium weight per dozen
6 basic sizes; XL, L and M most common
- Jumbo
- Extra large
- Large
- Medium
- Small
- Pee wee
Size has no relation to quality

Storage
Store in original carton, large end up
Refrigerate
Last 4-6 weeks after purchase
Only cook cracked eggs, may contain bacteria
Refrigerate hard-boiled eggs
- Use within a week

Usage of Eggs
Emulsifier
- Especially the yolk
- Helps other ingredients stick together
  - Binds ingredients of foods like meatloaf
- Help dry ingredients combine

Foam
- Used to add air to foods
- Air beaten into eggs, usually the whites
- Helps baked products rise, increased volume
  - Air used to leaven when heated
- Egg whites stiffens
  - Meringue

Usage of Eggs
Thickens
- Heat causes egg proteins to coagulate (thicken)
- Whole eggs or egg yolks used to thicken
- Adds structure
- 2 eggs whites can be substituted for 1 whole egg

- **Liquid**
  - Used as a liquid to moisten baked goods
    - Moisture creates steam in oven, helps leaven
  - Usually in combination with another liquid

- **Nutrition, flavor and color**
  - **Usage of Eggs**
  - **Raw eggs**
    - Risk of salmonellae
    - Bacteria killed with proper cooking
    - Consume items with raw eggs (such as eggnog) immediately
    - Pregnant women, small children, the elderly, and people who are already ill should not risk eating contaminated raw eggs

- **Principles of Egg Cookery**
  - Eggs coagulate when heated
  - Temperature, time, and other ingredients affect
  - Too high of temps cause proteins to toughen
  - Low temps recommended
  - Additional ingredients cause eggs to coagulate at a higher temp
    - Scrambled eggs w/o milk coagulate at lower temps

- **Cooking Methods**
  - **Scrambled**
    - Break into bowl, beat w/ whisk or fork until blended
    - Other liquid can be added
      - No more than 1 Tablespoon per egg
      - Proteins cannot thicken properly if too much
  - **Poached**
    - Break egg into pan with just enough boiling water to cover egg
    - Small amt of salt or an acid (vinegar) may be used
      - Help proteins coagulate quicker
    - Reduce heat to below boiling, cook 3 to 5 minutes
    - White firm and yolk semi-liquid

- **Cooking Methods**
  - **Frying**
    - Too high of temps make eggs tough
    - Too low of temps cause egg whites to spread
    - Add eggs to heated skillet w/ a small amt of fat
    - Cover skillet and cook 3 to 5 minutes

- **Baking**
  - Bake in individual, greased dishes
  - Moderate heat 12-18 minutes
  - Can add variety with cheese or bacon, etc.

- **Cooking Methods**
  - **Cooked in the shell**
- **Soft-cooked**
  - **Cold water method of cooking**
    - Eggs in deep pan, cover with cold water
    - Bring water to boil, cover pan and remove from heat
    - Keep in pan 1 to 4 minutes for soft-cooked (boiled) egg
  - **Hot water method**
    - Add eggs to simmering (just below boiling point) water
    - Simmer for 1 to 4 minutes, do not boil

- **Hard-cooked eggs**
  - Either method above, increase cooking time 13-17 min.

- **Cool eggs immediately under cold water**
  - **Cooking Methods**

  - **Microwave**
    - Can be scrambled, poached, or baked in microwave
    - Airy egg dishes do not cook well in microwave
    - Cook quickly and continue cooking after removed from microwave while standing
    - Eggs need removed from shell before put in microwave

  - **Eggs also used in omelets, soufflés, meringues, custards, see page 288-293**
  - **Egg Substitutes**
    - Because of foods with cholesterol being linked to heart disease
    - Made largely from egg whites
    - No yolks
    - Cholesterol and fat free and low in calories
    - Can be used in most egg dishes
    - ¼ Cup of egg substitute = 1 egg

  - **Review**
    - Complete To Review Questions 1-14 page 295
    - Write out and define To Know vocabulary terms on page 295