# NUTRITION SYLLABUS

**SEMESTER:**  Jan-11

**COURSE TITLE:** Nutrition

**COURSE NUMBER:** BIOL-0145-5

**CREDIT HOURS:** Three (3)

# INSTRUCTOR: CURTIS v. sMITH, Phd, pROF. bIOLOGY

**OFFICE LOCATION**: sCience bldg. 2402

**OFFICE HOURS**: M-w 12-2; t-Th 11:30-1:30; F 9-11.

**TELEPHONE**: 288-7314 cvsmith@kckcc.edu

**PREREQUISITES:** Eat food and Drink Water!

**REQUIRED TEXT:** Whitney and Rolfes, *Understanding Nutrition*, 12th ed. 2010.

**COURSE DESCRIPTION:**

Nutrition is a general biology course for building knowledge about nutrients in food. Students study how nutrients are used by the body and their relation to the new pyramid food groups and food labels. Proper nutrition for each stage of the human life cycle will be examined, as well as good nutrition in exercise, considerations of diet related health problems, and individual diet assessments

**ASSESSMENT OF LEARNER OUTCOMES**

* **5 multiple choice evaluations** (IF ATs) = 500 points: Consists of 50 questions 2 points each. None of the evaluations will be dropped due to low score. You are allowed one make up due to illness or unusual extenuating circumstances. Make ups must be taken as soon as possible. There will be no extra credit
* **Personal diet history** (50 points). Go to the website <http://www.usda.gov/cnpp>. Click on project in left hand column. Click on “mypyramid tracker.” Click on assess food intake. Register and assess your food intake. Within a few hours print out 3 pages. Nutrient Intakes; My Pyramid recommendations. And List of Food Consumed. You must turn in these 3 pages to receive full credit. You must eat at least 1,200 Kcal for the day of your analysis in order to receive full credit.
* Watch the documentary film, ***Fast Food Nation*** (50 points), and provide a five hundred word report. Explain what the movie was about, and what you learned from it, and then provide one thick paragraph explaining your opinion about the film and the subject matter.
* Total 600 points possible. Straight 90-80-70-60% cut off for A-B-C-D-F grades.

**METHOD OF INSTRUCTION:** A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

**COURSE OUTLINE:**

I. Overview of Nutrition

A. Six Classes of Nutrients

1. Carbohydrates

2. Lipids

3. Proteins

4. Vitamins

5. Minerals

6. Water

B. How to calculate energy intake.

C. How do we choose our foods?

D. Key conversions to memorize.

E. Setting the RDA

F. What is the DRV and How To Read A Food Label

G. Aspects of performing a nutritional assessment.

H. The 10 Leading Causes of Death in the U.S.A.

I. Two approaches to health problems.

1. Medical

2. Preventative

J. Sources of Reliable Information

II. Planning A Healthy Diet

A. Diet Planning Principles

1. Adequacy

2. Balance

3. Calorie Control

4. Nutrient Density

5. Moderation

6. Variety

B. Diet Planning Guides

1. The Old Four Food Group Plan

2. The Pyramid Plan

3. The Exchange System

4. Vegetarian Plans

III. Digestion, Absorption and Transport

A. Digestive System

1. Three hormones that regulate digestion

IV. Carbohydrates

A. Chemistry

1. monosaccharides

2. disaccharides

3. polysaccharides

4. sugar catabolism

B. Health Aspects of Sugar

C. Blood Glucose Homeostasis

D. Fiber

V. Lipids

A. Chemistry

1. Triglycerides

2. Phospholipids

3. Essential PUFA

B. Lipid Digestion

C. Transport lipoproteins

D. Health Aspects of Fat

E. How to Reduce Fat Intake

VI. Proteins

A. Chemistry

1. Amino Acids

B. How to calculate your RDA for protein

C. Protein Digestion

D. Protein Quality

E. Health Aspects of Protein Malnutrition

VII. Energy Metabolism

A. ATP

B. What is ATP used for?

C. Cellular Respiration

1. Glycolysis

2. Fermentation

3. Transition Reaction

4. Krebs Cycle

5. Electron Transport Chain

D. How Fats and Proteins Enter Metabolism

E. Alcohol and Nutrition

VIII. Energy Balance and Weight and Control

A. Bariatrics

1. Obesity

2. Anorexia

3. Bulimia

4. Binge Eating Disorder

B. Basal Metabolic Rate

C. Weight Loss Rates

IX. Vitamin Function, Source, Deficiency and Toxicity

A. Water Soluble

1. thiamin

2. riboflavin

3. niacin

4. pyridoxal

5. folate

6. cyanocobalamin

7. pantothenic acid

8. biotin

9. vitamin C

B. Fat Soluble

1. Vitamin A

2. Vitamin E

3. Vitamin D

4. Vitamin K

X. Water and the Major Minerals

A. Water

1. Breakdown of Sources

2. Excretion

3. Water Homeostasis

B. Sodium

C. Calcium

D. Phosphorus

E. Magnesium

F. Sulfur

XI. Minor Minerals

A. Iron

B. Zinc

C. Iodide

D. Fluoride

XII. Exercise and Nutrition

A. What You Get With Fitness

B. Components of fitness

C. Fuels and Nutrients

D. Protein

E. Minerals and Vitamins

1. Fluids and Electrolytes
2. Diets for Athletes

H. Caffeine

XIII. Pregnancy, Lactation and Infancy Nutrition

A. Stages of Fetal Development

B. Key Nutrients During Pregnancy

C. Nutritional Risk Factors During Pregnancy

D. Lactation Nutrition

E. First Infant Foods

XIV. Childhood, Adolescence and Aging Nutrition

A. Adverse Reactions To Foods

B. Behavior and Nutrition

C. Hunger Behavior

D. Eating Habits

E. Adolescent Nutrition

F. Nutrition and Aging

XV. Consumer Concerns

A. 2-40-140 Rule

1. Gastroenteritis

**EXPECTED LEARNER OUTCOMES:**

1. The student will demonstrate a broad knowledge about essential nutrients.
2. The student will demonstrate a broad knowledge about diet planning principles.
3. The student will demonstrate a broad knowledge about dietary related diseases.

**COURSE COMPENTENCIES:**

1. The student will specify the six classes of nutrients.
2. The student will determine how the six classes of nutrients.
3. The student will identify which of the six classes of nutrients provide energy.

4. The student will calculate energy intake for a typical breakfast, lunch and dinner.

1. 5. The student will define the purposes and limitations of the RDA, DRV and the RNI.

6. The student will illustrate the six diet planning principles.

1. 7. The student will analyze their diet with the aid of the pyramid plan and exchange system.

8. The student will compare reliable and unreliable nutrition information.

9. The student will interpret a food label.

10. The student will identify and determine function of the digestive organs.

11. The student will summarize blood glucose homeostasis.

12. The student will contrast different types of lipid transport proteins.

13. The student will distinguish the basic pathways of glucose metabolism.

14. The student will identify the four major diseases related to poor nutrition.

15. The student will identify nutritional risk factors in relation to four major human diseases.

16. The student will identify ways that nutrition can prevent or forestall the four human

diseases.

17. The student will chart healthy techniques for weight loss and weight control.

18. The student will identify the food sources, functions, deficiencies and toxicity of the

essential water soluble vitamins.

19. The student will identify the food sources, functions, deficiencies and toxicity

of the essential fat soluble vitamins.

20. The student will identify the food sources, functions, deficiencies and toxicity

of the essential major minerals.

21. The student will identify the food sources, functions, deficiencies and toxicity

of the essential minor minerals.

1. 22. The student will identify the combined significance of exercise and nutrition.
2. 23. The student will identify key nutrients for good health during pregnancy.
3. 24. The student will identify key nutrients for the infant.
4. 25. The student will identify key nutrients for the child.
5. 26. The student will identify key nutrients during adolescence.
6. 27. The student will identify key nutrients during the later years.
7. 28. The student will conduct an internet research project about nutrition and list at
8. least 3 websites in the corresponding “webliography” about the topic.
9. 29. The student will demonstrate an ability to prepare a recipe that contains
10. ingredients consistent with the diet planning principles.

**SPECIAL NOTES**:

This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

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Tentative Nutrition Class Schedule

Jan. 19 Syllabus Chapter 1 key terms

Jan. 21 Chapter 1 6 classes of nutrients

Jan. 24 Chap. 1 RDA, DV, AI and energy requirements

Jan. 26 Chap 1 Dietary Related Causes of Death in U.S.

Jan. 28 Chap. 2 Dietary Planning

Jan. 31 Chapter 2 My pyramid

Feb. 2 Chapter 2 Food Labels

Feb. 4 Chapter 3 Digestive System

**Feb. 7 Evaluation 1: chapters 1 – 2 -3**

Feb. 9 Chapter 4 carbohydrates

Feb. 11 Chapter 4

Feb. 14 Chapter 4

Feb. 16 Chapter 5 Lipids

Feb. 18 Chapter 5

Feb. 21 Presidents Day no classes

Feb. 23 Chapter 6 Proteins

Feb. 25 Chapter 6

**Feb. 28 Evaluation 2 chapters 4-5-6**

March 2 Chapter 7 Metabolism

Mar. 4 Chapter 7 metabolism

Mar. 7 Chapter 7 metabolism

Mar. 9 Chapter 8 Energy Balance

Mar. 11 Chapter 8 Energy Balance

Mar. 14 Chapter 9 Eating Disorders

Mar. 16 Chapter 9 Problems of Obesity

**Mar. 18 Evaluation 3 chapters 7-8-9**

Spring Break no classes March 19-27

Mar. 28 Chap. 10 Water Soluble Vitamins: B vitamins and C

Mar. 30 Chap. 10

April 1 Chap. 10

April 4 Chap 10

April 6 Chap 11 Fat Soluble Vitamins A,D, E and K

April 8 Chap 11

April 11 Chap 11

**April 13 Evaluation 4 chapters 10-11**

April 15 Chapter 12 Water and Major Minerals

April 18 Chapter 12 Water

April 20 Chapter 12

April 22 Chapter 13 Minor Minerals

April 25 Chapter 13

April 27 Chapter 13

April 29 Chapter 13

May 2 Chapter 13

May 4 Nutrition and Pregnancy

May 6 Nutrition and Aging

May 9 Nutrition and Fitness

May 11 Herbal Nutrition

**May 13 Evaluation 5 Final at 11:20 p.m.**