

Prepared by: G. Golling  
Prepared by: W. Berry  
Prepared by: M. Mayfield  
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C & G E Approved: May 11, 2023  
Board Approved: June 14, 2023  
Semester Effective:

Biology (BIOL) 2370 Nutrition Science (3 Units) CSU: UC  
[formerly Biology 15]

Advisory: Completion or either BIOL 1500, 1510, or 2257 and eligibility for English 1500 or 1501 strongly recommended.

Hours and Units Calculations:

48 hours lecture. 96 Outside-of-class Hours (144 Total Student Learning Hours) 3 Units

Catalog Description: Scientific concepts of nutrition related to the function of nutrients in basic life processes and current health issues with emphasis on individual needs.

Type of Class/Course: Degree Credit

Text: Smolin, Lori A., and Mary B. Grosvenor. Nutrition: *Science and Applications*. 4<sup>th</sup> ed., Wiley & Sons, 2019.

Additional Instructional Materials: Food Diary and Activity Application

Course Objectives:

By the end of the course, a successful student will be able to:

1. Identify function and sources of nutrients
2. Demonstrate basic knowledge of nutrient digestion, absorption and metabolism
3. Apply dietary guidelines and current nutrition recommendations
4. Scientifically analyze and evaluate nutrition information
5. Relate nutrition to health, fitness and disease and
6. Utilize a computer database to evaluate a personal diet record

Course Scope and Content:

- Unit I            Nutrition and Our Diet
- A.     Food choices for a healthy diet
  - B.     The science behind nutrition
  - C.     Evaluating nutrition information
- Unit II           Nutrition Guidelines
- A.     Development of nutrition recommendations
  - B.     Dietary reference intakes
  - C.     Dietary guidelines for Americans
  - D.     Food and supplement labels

- Unit III      Digestion, Absorption, and Metabolism
- A.      Digestion and absorption
  - B.      Digestion and health
  - C.      Metabolism of nutrients
  - D.      Elimination of metabolic wastes
- Unit IV      Carbohydrates
- A.      Types of carbohydrates
  - B.      Carbohydrates and health
  - C.      Recommendations for carbohydrate intake
- Unit V      Lipids
- A.      Types of lipids
  - B.      Lipids and health
  - C.      Recommendations for lipid intake
- Unit VI      Proteins
- A.      Amino acid functions in the body
  - B.      Proteins and health
  - C.      Recommendations for protein intake
- Unit VII      Vitamins
- A.      Water-soluble vitamins
  - B.      Lipid-soluble vitamins
  - C.      Meeting needs with dietary supplements
- Unit VIII      Water, electrolytes, and minerals
- A.      Water balance
  - B.      Electrolyte balance and hypertension
  - C.      Major minerals
  - D.      Osteoporosis and bone health
  - E.      Trace minerals
- Unit IX      Energy Balance and Weight Management
- A.      Obesity epidemic
  - B.      Estimating energy requirements
  - C.      Body weight and health
  - D.      Guidelines for healthy body weight
  - E.      Recommendations for managing body weight
  - F.      Approaches to weight loss
- Unit X      Nutrition and Physical Activity
- A.      Exercise, fitness, and health
  - B.      Exercise recommendations
  - C.      Exercise and energy metabolism
  - D.      Fluid needs for physical activity
- Unit XI      Nutrition During Pregnancy and Lactation
- A.      Physiology of pregnancy
  - B.      Nutritional needs of pregnancy

- C. Factors that increase the risks of pregnancy
- D. Lactation and feeding the newborn

- Unit XII Nutrition from Infancy to Adolescence
- A. Nourishing infants, toddlers, and young children
  - B. Nutritional and health concerns in children
  - C. Nourishing adolescents
  - D. Special concerns of teenagers

- Unit XIII Adult Nutrition and Aging
- A. Causes of aging
  - B. Malnutrition
  - C. Nutritional needs of adults

- Unit XIV Alcohol
- A. Alcohol absorption and excretion
  - B. Alcohol metabolism
  - C. Adverse effects of alcohol consumption
  - D. Safe drinking

- Unit XV Food Safety
- A. Keeping food safe
  - B. Pathogens in food
  - C. Agricultural and industrial chemicals in food
  - D. Genetically modified foods

#### Learning Activities Required Outside of Class:

The students in this class will spend a minimum of 6 hours per week outside of the regular class time doing the following:

1. Reading assigned materials,
2. Studying,
3. Answering questions,
4. Problem solving activity or exercise,
5. Written assignments/research,
6. Observation of or participation in an activity related to course content, and
7. Recording diet and exercise information

#### Methods of Instruction:

1. Lecture
2. Individual research
3. Speakers/class reports
4. Film/videos

#### Methods of Evaluation:

1. Substantial writing assignments, including:
  - a. reading reports

- b. research and term papers
- c. written homework
- 2. Computational or non-computational problem-solving demonstrations, including:
  - a. exams
  - b. homework problems
  - c. diet and exercise diary
- 3. Skill demonstrations, including:
  - a. class performance
  - b. performance exams
  - c. field work
- 4. Other examinations, including:
  - a. completion/fill in the blank
  - b. matching items
  - c. true/false
  - d. multiple choice

Supplemental Data:

|                              |   |
|------------------------------|---|
| TOP Code:                    | 049900: Other Biological Sciences                                 |
| SAM Priority Code:           | E: Non-Occupational   |
| Distance Education:          | Online; Offline   |
| Funding Agency:              | Y: Not Applicable(funds not used)                                 |
| Program Status:              | 1: Program Applicable   |
| Noncredit Category:          | Y: Not Applicable, Credit Course                                  |
| Special Class Status:        | N: Course is not a special class                                  |
| Basic Skills Status:         | N: Course is not a basic skills course                            |
| Prior to College Level:      | Y: Not applicable   |
| Cooperative Work Experience: | N: Is not part of a cooperative work experience education program |

|                                 |                               |
|---------------------------------|-------------------------------|
| Eligible for Credit by Exam:    | E: Credit By Exam             |
| Eligible for Pass/No Pass:      | C: Pass/No Pass               |
| Taft College General Education: | LNS: Local GE Natural Science |
| Discipline                      | Biological Sciences           |