I. Catalog Description and Credit Hours of Course:

Focus on the theories and principles of vitamin metabolism and their application to health promotion and disease prevention. (3)

II. Prerequisite(s):

FN 502 or permission of the instructor

III. Purposes or Objectives of the Course:

The student will:

A. Demonstrate an understanding of the bioavailability, requirements, digestion, absorption, metabolism, interactions, utilization and excretion of selected vitamins.
B. Explain the functions of vitamins in health, disease prevention and disease states.
C. Evaluate the differences of the effects of vitamin deficiencies and toxicities within the human body.
D. Summarize the various federal, state, local and professional agencies that govern and influence policies related to vitamins and supplement use.
E. Critically evaluate current research related to therapeutic applications of vitamins in health promotion, disease prevention and as part of therapy.
F. Integrate the ability to communicate information regarding vitamins to both consumers and health care professionals.

IV. Expectations of Students:

A. Regular attendance is an important component of this class. Practical applications will be discussed in class and participation will be required.
B. All assignments are expected to be turned in on time using the format(s) provided.
C. Satisfactory completion of examinations and projects.
V. Course Content or Outline:

A. Course Overview 1 hour
   a. Historical Perspective
   b. Researchers and Major Discoveries

B. Regulation of Vitamin Requirements and Supplements 5 hours
   a. Fortification and Enrichment Laws
   b. Food and Supplement Labeling Policies and Regulations
   c. Pharmaceutical Production of Vitamins
      i. Industry Standards
      ii. Limitations

C. Assessment of Vitamin Status 4 hours
   a. Physical Assessment
   b. Biochemical Assessment

D. Water Soluble Vitamins 15 hours
   a. Niacin, Thiamin, Riboflavin, Folate, B₁₂, B₆
   b. Chemistry and Physical Properties
   c. Nomenclature
   d. Physiologic Functions
   e. Absorption, Transport, Storage
   f. Metabolism
   g. Requirements
   h. Assessment of Nutriture
   i. Deficiency
   j. Toxicity
   k. Translating Requirements into Practice (case study applications)

E. Fat Soluble Vitamins 15 hours
   a. A, D, K
   b. Chemistry and Physical Properties
   c. Nomenclature
   d. Physiologic Functions
   e. Absorption, Transport, Storage
   f. Metabolism
   g. Requirements
   h. Assessment of Nutriture
   i. Deficiency
   j. Toxicity
   k. Translating Requirements into Practice (case study applications)
F. Antioxidants
   a. Vitamins C, E
   b. Role in disease prevention

VI. Textbook(s) and/or Other Required Materials or Equipment:
   No text. Recent readings

VII. Basis for Undergraduate Student Evaluation:
   Evaluation
   Exams 50%
   Assignments, projects 35%
   Class Participation 15%
   TOTAL 100

Grading Scale
90-100 A
80-89 B
70-79 C
60-69 D
59-0 F

VIII. Basis for Graduate Student Evaluation:
   Graduate student additional assignments will include a research project, an evidence-based research/practice review, and a 50 minute lecture to the class.

   Evaluation
   Exams 50%
   Assignments, projects 35%
   Class Participation 15%
   TOTAL 100

Grading Scale
100 - 93% = A
92% - 85% = B
84% - 76% = C
75% - 0% = F

The weight of the evaluation criteria may vary according to each instructor and will be communicated at the beginning of the course.
IX. **Academic Policy Statement:**
Students will be expected to abide by the University Policy for Academic Honesty regarding plagiarism and academic honesty. Refer to:
http://www6.semo.edu/judaffairs/code.html

X. **Student with Disabilities Statement:**
If a student has a special need addressed by the Americans with Disabilities Act (ADA) and requires materials in an alternative format, please notify the instructor at the beginning of the course. Reasonable efforts will be made to accommodate special needs.