COURSE OUTLINE

DIVISION: Health Professions

COURSE: DLH 1204 Nutrition and Dental Health

Date: Spring 2024

Credit Hours: 1

Complete all that apply or mark “None” where appropriate:
Prerequisite(s): Acceptance into the Dental Hygiene A.A.S. Degree

Enrollment by assessment or other measure? Yes ☐ No ☒
If yes, please describe:

Corequisite(s): None
Pre- or Corequisite(s): None

Consent of Instructor: Yes ☐ No ☒

Delivery Method:
☒ Lecture 1 Contact Hours (1 contact = 1 credit hour)
☐ Seminar 0 Contact Hours (1 contact = 1 credit hour)
☐ Lab 0 Contact Hours (2-3 contact = 1 credit hour)
☐ Clinical 0 Contact Hours (3 contact = 1 credit hour)

Offered: ☒ Fall ☐ Spring ☐ Summer

CATALOG DESCRIPTION and IAI NUMBER (if applicable): This course builds on materials presented in DLA 1205 Preventive and Nutritional Care. This course introduces the science of nutrition and its applications on a personal, professional, and community level with importance on its application to dentistry. Students are presented to the analysis of diets, to the evaluation and use of nutritional reference and educational resources, and to patient counseling skills.
ACCREDITATION STATEMENTS AND COURSE NOTES:

- **Standard 2: Educational Program:**
  - **Curriculum:**
    - The curriculum must include content in the following four areas: general education, biomedical sciences, dental sciences, and dental hygiene science. This content must be integrated and of sufficient depth, scope, sequence of instruction, quality, and emphasis to ensure achievement of the curriculum’s defined competencies. A curriculum document must be submitted for each course included in the dental hygiene program for all four content areas.
      - General education content must include oral and written communications, psychology, and sociology. (2-8a)
      - Biomedical science content must include content in anatomy, physiology, chemistry, biochemistry, microbiology, immunology, general and maxillofacial pathology and/or pathophysiology, nutrition, and pharmacology. (2-8b)
      - Dental sciences content must include tooth morphology, head, neck and oral anatomy, oral embryology and histology, oral pathology, radiography, periodontology, pain management, and dental materials. (2-8c)
      - Dental hygiene science content must include oral health education and preventive counseling, health promotion, patient management, clinical dental hygiene, provision of services for and management of patients with special needs, community dental/oral health, medical and dental emergencies, legal and ethical aspects of dental hygiene practice, infection and hazard control management, and the provision of oral health care services to patients with bloodborne infectious diseases. (2-8d)
    - The basic clinical education aspect of the curriculum must include a formal course sequence in scientific principles of dental hygiene practice, which extends throughout the curriculum and is coordinated and integrated with clinical experience in providing dental hygiene services. (2-9)
  - **Patient Care Competencies:**
    - Graduates must be competent in providing dental hygiene care for the child, adolescent, adult, and geriatric patient. Graduates must be competent in assessing the treatment needs of patients with special needs. (2-12)
    - Graduates must be competent in providing the dental hygiene process of care which includes:
      - Comprehensive collection of patient data to identify the physical and oral health status (2-13a)
      - Analysis of assessment findings and use of critical thinking in order to address the patient’s dental hygiene treatment needs (2-13b)
      - Establishment of a dental hygiene care plan that reflects the realistic goals and treatment strategies to facilitate optimal oral health (2-13c)
      - Provision of patient-centered treatment and evidence-based care in a manner minimizing risk and optimizing oral health (2-13d)
      - Measurement of the extent to which goals identified in the dental hygiene care plan are achieved (2-13e)
      - Complete and accurate recording of all documentation relevant to patient care. (2-13f)
• Graduates must be competent in providing dental hygiene care for all types of classifications of periodontal disease, including patients who exhibit moderate to severe periodontal disease. (2-14)
• Graduates must be competent in communicating and collaborating with other members of the health care team to support comprehensive patient care. (2-15)
• Graduates must demonstrate competence in:
  • Assessing the oral health needs of community-based programs (2-16a)
  • Planning an oral health program to include health promotion and disease prevention activities (2-16b)
  • Implementing the planned program (2-16c)
  • Evaluating the effectiveness of the implemented program. (2-16d)
• Ethics and Professionalism:
  • Graduates must be competent in the application of the principles of ethical reasoning, ethical decision making, and professional responsibility as they pertain to the academic environment, research, patient care, and practice management. (2-19)
  • Graduates must be competent in applying legal and regulatory concepts to the provision and/or support of oral health care services. (2-20)
• Critical Thinking:
  • Graduates must be competent in the evaluation of current scientific literature. (2-22)
  • Graduates must be competent in problem solving strategies related to comprehensive patient care and management of patients. (2-23)

COURSE TOPICS AND CONTENT REQUIREMENTS:
I. Orientation to Basic Nutrition
   a. Overview of Healthy Eating Habits
      i. Basic Nutrition
      ii. Physiologic Functions of Nutrients
      iii. Basic Concepts of Nutrition
      iv. Government Nutrition Concerns
      v. Nutrient Recommendations: Dietary Reference Intakes
      vi. Food Guidance System for Americans
      vii. Support Healthy Eating Patterns for All
      viii. MyPlate System
      ix. Other Food Guides
      x. Nutrition Labeling
   b. Concepts in Biochemistry
      i. What is Biochemistry?
      ii. Fundamentals of Biochemistry
      iii. Principle Biomolecules in Nutrition
      iv. Summary of Metabolism
   c. The Alimentary Canal
      i. Physiology of the Gastrointestinal Tract
      ii. Oral Cavity
      iii. Esophagus
iv. Gastric Digestion
v. Small Intestine
vi. Large Intestine
d. Carbohydrate
   i. Classification
   ii. Physiologic Roles
   iii. Requirements
   iv. Sources
   v. Hyperstates and Hypostates
   vi. Nonnutritive Sweeteners/Sugar Substitutes
e. Protein
   i. Amino Acids
   ii. Classification
   iii. Physiologic Roles
   iv. Requirements
   v. Sources
   vi. Underconsumption and Health-Related Problems
   vii. Overconsumption and Health-Related Problems
f. Lipids
   i. Classification
   ii. Chemical Structure
   iii. Characteristics of Fatty Acids
   iv. Compound Lipids
   v. Cholesterol
   vi. Physiologic Roles
   vii. Dietary Fats and Dental Health
   viii. Dietary Requirements
   ix. Sources
   x. Overconsumption and Health-Related Problems
   xi. Underconsumption and Health-Related Problems
   xii. Fat Replacers
g. Use of the Energy Nutrients
   i. Metabolism
   ii. Role of the Liver
   iii. Role of the Kidneys
   iv. Carbohydrate Metabolism
   v. Protein Metabolism
   vi. Lipid Metabolism
   vii. Alcohol Metabolism
   viii. Metabolic Interrelationships
   ix. Metabolic Energy
   x. Basal Metabolic Rate
   xi. Total Energy Requirements
   xii. Energy Balance
   xiii. Inadequate Energy Intake
h. Vitamins Required for Calcified Structures
i. Overview of Vitamins
   ii. Vitamin A (Retinol, Carotene)
   iii. Vitamin D (Calciferol)
   iv. Vitamin E (Tocopherol)
   v. Vitamin K (Quinone)
   vi. Vitamin C (Ascorbic Acid)

i. Minerals Essential for Calcified Structures
   ii. Bone Mineralization and Growth
   iii. Formation of Teeth
   iv. Introduction to Minerals
   v. Calcium
   vi. Phosphorus
   vii. Magnesium
   viii. Fluoride

j. Nutrients Present in Calcified Structures
   i. Copper
   ii. Selenium
   iii. Chromium
   iv. Manganese
   v. Molybdenum
   vi. Ultratrace Elements

k. Vitamins Required for Oral Soft Tissues and Salivary Glands
   i. Physiology of Soft Tissues
   ii. Thiamin (Vitamin B1)
   iii. Riboflavin (Vitamin B2)
   iv. Niacin (Vitamin B3)
   v. Pantothenic Acid (Vitamin B5)
   vi. Vitamin B6 (Pyridoxine)
   vii. Folate/Folic Acid (Vitamin B9)
   viii. Vitamin B12 (Cobalamin)
   ix. Biotin (Vitamin B7)
   x. Other Vitamins

l. Fluids and Minerals Required for Oral Soft Tissues and Salivary Glands
   i. Fluids
   ii. References
   iii. Electrolytes
   iv. Sodium
   v. Chloride
   vi. Potassium
   vii. Iron
   viii. Zinc
   ix. Iodine

II. Application of Nutrition Principles
   a. Nutritional Requirements Affecting Oral Health in Women
      i. Healthy Pregnancy
      ii. Lactation
iii. Oral Contraceptive Agents
iv. Menopause

b. Nutritional Requirements During Growth and Development and Eating Habits Affecting Oral Health
   i. Infants
   ii. Children Older Than 2 Years of Age: Dietary Guidelines 2015–2020 and Healthy People 2020
   iii. Utilizing the ChooseMyPlate Website
   iv. Toddler and Preschool Children
   v. Attention-Deficit/Hyperactivity Disorder
   vi. Children With Special Needs
   vii. School-Age Children (7–12 Years Old)
   viii. Adolescents

   c. Nutritional Requirements for Older Adults and Eating Habits Affecting Oral Health
      i. General Health Status
      ii. Physiologic Factors Influencing Nutritional Needs and Status
      iii. Socioeconomic and Psychological Factors
      iv. Nutrient Requirements
      v. Eating Patterns
      vi. Dietary Guidelines and MyPlate for Older Adults

   d. Food Factors Affecting Health
      i. Health Care Disparities
      ii. Food Patterns
      iii. Working With Patients With Different Food Patterns
      iv. Food Budgets
      v. Maintaining Optimal Nutrition During Food Preparation
      vi. Food Fads and Misinformation
      vii. Referrals for Nutritional Resources
      viii. Role of Dental Hygienists

   e. Effects of Systemic Disease on Nutritional Status and Oral Health
      i. Effects of Chronic Disease on Intake
      ii. Anemias
      iii. Other Hematologic Disorders
      iv. Gastrointestinal Problems
      v. Cardiovascular Conditions
      vi. Skeletal System
      vii. Metabolic Problems
      viii. Neuromuscular Problems
      ix. Neoplasia
      x. Acquired Immunodeficiency Syndrome (AIDS)
      xi. Mental Health Problems

III. Nutritional Aspects of Oral Health
   a. Nutritional Aspects of Dental Caries
      i. Major Factors in the Dental Caries Process
      ii. Other Factors Influencing Carcinogenicity
iii. Dental Hygiene Care Plan
b. Nutritional Aspects of Gingivitis and Periodontal Disease
   i. Physical Effects of Food on Periodontal Health
   ii. Nutritional Considerations for Periodontal Patients
   iii. Gingivitis
   iv. Chronic Periodontitis
   v. Necrotizing Periodontal Diseases
c. Nutritional Aspects of Alterations in the Oral Cavity
   i. Orthodontics
   ii. Xerostomia
   iii. Root Caries and Dentin Hypersensitivity
   iv. Dentition Status
   v. Oral and Maxillofacial Surgery
   vi. Loss of Alveolar Bone
   vii. Glossitis
   viii. Temporomandibular Disorder
d. Nutritional Assessment and Education for Dental Patients
   i. Evaluation of the Patient
   ii. Assessment of Nutritional Status
   iii. Identification of Nutritional Status
   iv. Formation of Nutrition Treatment Plan
   v. Facilitative Communication Skills

INSTRUCTIONAL METHODS:
- Traditional Lecture
- Flipped Classroom
- Slide Presentations
- Class discussion
- Demonstration
- Visual aids - videos, models, slides
- Exams and quizzes
- Problem solving exercises

EVALUATION OF STUDENT ACHIEVEMENT:
- Examinations and homework will be used to evaluate student progress.
- Various projects will be assigned throughout the semester and must be completed with a ‘C’ or higher in order to successfully complete the course.
- A grade of "C" is required for graduation from the Dental Hygiene Program. The following grading scale will be used as a guide in determining the final grade for this course:

A= 92-100
B= 83-91
C= 75-82
D= 68-74
F= 67 and below
INSTRUCTIONAL MATERIALS:
Textbooks

Resources

LEARNING OUTCOMES AND GOALS:
Institutional Learning Outcomes
✔ 1) Communication – to communicate effectively;
☐ 2) Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion;
☐ 3) Social Consciousness – to understand what it means to be a socially conscious person, locally and globally;
✔ 4) Responsibility – to recognize how personal choices affect self and society.

Course Outcomes and Competencies
Upon completion of the course, the student will be able to:
1. Discuss orientation to basic nutrition
   a. Explain an overview of health eating habits
   b. Discuss concepts in Biochemistry
   c. Discuss the alimentary canal
   d. Discuss carbohydrate
   e. Define proteins
   f. Describe lipids
   g. Explain the use of the energy nutrients
   h. Discuss vitamins required for calcified structures
   i. Discuss minerals essential for calcified structures
   j. Describe nutrients present in calcified structures
   k. Describe vitamins required for oral soft tissues and salivary glands
   l. Explain fluids and minerals required for oral soft tissues and salivary glands
2. Discuss the application of nutrition principles
   a. Describe nutritional requirements affecting oral health in women
   b. Explain nutritional requirements during growth and development and eating habits affecting oral health
   c. Discuss nutritional requirements for older adults and eating habits affecting oral health
   d. Discuss food factors affecting health
   e. Explain effects of systemic disease on nutritional status and oral health
3. Discuss nutrition aspects of oral health
   a. Describe nutritional aspects of dental caries causes, prevention, and treatment
   b. Describe nutritional aspects of gingivitis and periodontal disease
   c. Discuss nutritional aspects of alterations in the oral cavity
   d. Demonstrate nutritional assessment and education for dental patients