**Cocke County High School**

# *Nutrition Science and Diet Thearpy
# *2025-2026 Syllabus

## Part 1: Course Information

### Instructor Information

**Instructor:** Ashley Dudley
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#### Prerequisite

- Intro to Human Studies

### Textbook & Course Materials

#### Required Text

- Principles of Food Science, 3rd Edition, Janet D. Ward, ISBN-978-1-60525-609-2

#### Recommended Texts & Other Readings or Resources

- Other readings will be provided as the semester progresses.

### Course Requirements

- A gmail/google account will be required to submit class assignments.

### Course Structure

Nutrition Science and Diet Thearpy is a combination of lecture, individual, group, and lab activities. The course is very interactive and allows students to complete many hands-on activities to provide an effective, beneficial learning environment.

# Part 2: Student Learning Outcomes

1. Professional Standards and Safety

1.1 Career Development Plan: Create a career development plan outlining activities that will increase employment opportunities for a nutrition science candidate including: a. Educational opportunities, b. Entry-level job opportunities, c. Volunteer plans to enhance the career experience, and d. Labor market data, including economic and demographic trends in nutrition related occupations.

1.2 Ethics: Describe the code of ethics for dietetic practitioners published by the Academy of Nutrition and Dietetics or other health and nutritional organizations.

1.3 Safety and Sanitation: Compile and critique safety and sanitation procedures related to handling, preparing, storing, and serving food from industry-approved technical manuals and government fact sheets. Identify and review common laboratory safety procedures including but not limited to prevention and control procedures. Incorporate safety procedures and complete a teacher made safety test with 100 percent accuracy.

2. Nutrition and Health Overview

2.1 Optimum Nutrition: Explain the importance of a balanced diet in the achievement of optimum nutrition. Compare and contrast nutritional needs of a normal healthy diet with the needs of a client being treated for and/or recovering from illnesses.

2.2 Body Mass Index: Define BMI, list the steps and information necessary to calculate BMI, and identify the four weight categories. Explain how dietitians and health care workers use BMI in the evaluation of their clients.

2.3 Basal Metabolic Rate: Define BMR and list the steps and information necessary to calculate the energy needs and ideal body weight of a client.

3. Nutrient Metabolism

3.1 Major Metabolic Pathways: Create a model and/or graphic illustrating the major metabolic pathways used to produce energy for the body. Explain the chemical processes that occur at each stage in the pathway. Categorize each stage as an anabolic or a catabolic reaction, citing relevant evidence from academic or medical materials. Stages include: a. Glycolysis b. Kreb’s cycle c. Electron transport d. Anaerobic glycolysis

3.2 Energy Balance: Demonstrate the ability to determine energy balance using standard tools and equations to calculate Estimated Energy Requirements (EER). Determine the energy content of an individual’s diet. Based on the client’s EER and calculated caloric intake, predict the effect on the client’s weight. Calculate the following: a. Physical Activity Level (PAL) b. Total Energy Expenditure (TEE) c. Energy Expenditure (BEE) d. Thermic Effect of Food (TEF) e. Metabolic Equivalents (METs)

4. Nutrients

4.1 Properties of Water: Create a model or graphic that illustrates the scientific properties of water. Explain the functions of water in its relation to food, digestion, and maintenance of the body.

4.2 Structure of Carbohydrates: Describe the molecular structure of carbohydrates in relation to their function in food, food preparation, and the body using domain-specific terms. Create a graphic illustration/model to compare and contrast the differences in complex and simple carbohydrates. Suggested Labs: Hydrolysis of Sugar; Sweetness & Solubility; Digestion of Starch

4.3 Properties and Composition of Lipids: Analyze the properties and composition of lipids in relation to their functions in food preparation and to the body. Compare and contrast the composition of saturated and unsaturated fats. Explain the role of cholesterol in the body. Define and identify appropriate levels of total cholesterol, triglycerides, HDL and LDL.

4.4 Molecular Structure of Proteins: Describe the molecular structure of proteins and identify essential and nonessential amino acids. Compare and contrast complete and incomplete proteins by analyzing the functions of protein in food and their importance in the body. Research nutritional diseases related to insufficient protein. Describe ways in which protein is used in food preparation. Suggested Labs: Effects of Minerals on Protein; Protein in Eggs

4.5 Major and Trace Minerals: Using NIH Fact Sheets, differentiate between the major and trace minerals, food sources of each, and health conditions associated with inadequate and excessive intake of both.

4.6 Vitamins: Use NIH Vitamin Fact Sheets to investigate the chemical properties of watersoluble and fat-soluble vitamins. Classify each vitamin and its chemical properties, identify food sources for each vitamin, and explain the main role of vitamins in the human body. Suggested Labs: Vitamin C Titration (using pipettes); Fat Soluble Vitamins.

5. Clinical Nutritional Assessments and Diagnosis

5.1 Nutritional Assessments: Compare and contrast the types of data collected, the insights they give into the nutritional status of a client, and the limitations of the data for the following four types of nutritional assessments used by a registered dietitian or other trained health care professional. a. Historical information b. Anthropometric data c. Physical examination d. Laboratory tests

5.2 Nutrition Care Process: Demonstrate the Nutrition Care Process to clients and/or their families and verbalize the role it plays in the total health care of a client. Outline what occurs in each of the four phases of the process: nutrition assessment, nutrition diagnosis, nutrition intervention, and nutrition monitoring and evaluation. Compile a list of frequently asked questions and their answers.

5.3 Nutrition Assessment Data: Analyze nutrition assessment data, including lab data related to protein status, iron status, diabetes, heart disease, and kidney disease,

gathered from client information to formulate nutrition diagnosis and an intervention plan.

6. Diet Analysis

6.1 Nutrient Intake: Quantify the nutrient intake of individuals based on food journals, observations, or other reports. Using appropriate databases, determine the intake of macro- and micro-nutrients. Compare the individual's results to the recommended intake of each nutrient. Explain why the data would or would not be sufficient to make dietary changes. Distinguish between nutrient dense and calorie dense foods.

7. Nutritional Counseling

7.1 Nutritional Counseling Techniques: List and summarize various counseling techniques, including a patient centered approach to counseling. Practice interviewing clients about dietary and lifestyle habits. Explain the purpose of follow up visits and the link to continuing care.

7.2 Questioning: Describe the difference between open ended and closed ended questions. Demonstrate the use of open and closed ended questions during a mock nutritional counseling session.

8. The Relationship of Nutrition to Specific Diseases

8.1 Food Additives: Drawing on findings from food and health research, compare and contrast the advantages and disadvantages of the use of food additives in processed products. Investigate regulations governing the use of food additives established by the Food and Drug Administration (FDA) and U.S. Department of Agriculture (USDA). Suggested Labs: Conduct a sensory evaluation of foods with and without food additives

8.2 Common Digestive Problems: For each of the following common digestive problems, summarize symptoms, common causes, prevention strategies, and treatments. Explain how they can impact the digestion and absorption of nutrients in the digestive system. a. Choking b. Vomiting c. Diarrhea, irritable bowel syndrome, colitis d. Constipation e. Belching and gas f. Heartburn and acid indigestion g. Ulcers

8.3 Food Allergies and Intolerances: Differentiate between food allergies and food intolerances, describing the body's reaction to each. Research the eight most common food allergens and describe treatment for an allergic reaction. Use academic research and medical literature in order to: a. Describe how the immune system of a person with a food allergy responds when exposed to the food allergen. Contrast this to reactions originating from a food intolerance. b. Outline precautions to take to avoid food allergens and/or foods to which an individual has an intolerance both at home and when eating out. c. Recommend food substitutes and recipe modifications to avoid problematic foods, citing specific reasoning and evidence to justify the recommendation. Suggested labs: Using indicators identify which "student" (solution) is allergic (shows reaction to) to an allergen

8.4 Obesity: Research obesity using academic research and authoritative nutrition and obesity sources to: a. Describe the need for prevention of obesity to begin at an

early age. b. Analyze the role of various factors, such as appetite-regulating hormones, gut microbiota, physical activity, and body composition, that affect energy homeostasis. c. Describe the contributions of genetics and environment to development of obesity. d. Justify the use of a research-based weight-loss strategy that ensures adequate nutrition. e. Make a claim about the need for extreme measures (such as surgery) for extreme cases, supporting claim(s) with reasoning and evidence from research. f. Compare and contrast the impact of lifestyle changes to increase physical activity and address stress and change environmental factors on an individual's weight. g. Make recommendations on activities necessary for the maintenance of weight loss. Suggested Labs: Anthropometry Lab; Nutritious Snack Lab

8.5 Eating Disorders: Differentiate between the major eating disorders (anorexia, bulimia, binge eating) and other forms of disordered eating then: a. Describe the disease/condition, including symptoms and specific ways the body is affected. b. Justify the role of nutrition as a contributor to the disease/condition and highlight specific dietary recommendations for minimizing those contributions. c. Justify the role of nutrition in the treatment of the disease/condition, outlining a healthy eating plan and providing lists of specific foods/nutrients that should be included in the diet. d. Make recommendations for other lifestyle changes and psychological interventions that will reduce the risk or aid in the therapy for the disease/condition. Suggested labs: Demonstrate the effect of acid erosion on teeth

8.6 Vitamin Deficiencies: Research one of the following diseases linked to vitamin consumption issues. Summarize symptoms, common causes, prevention strategies, and treatments. Topics might include but are not limited to: a. Beriberi b. Pellagra c. Scurvy d. Rickets

8.7 Osteoporosis: Research osteoporosis and the role minerals play in the condition to: a. Describe osteoporosis, including symptoms and organ(s) affected. b. Justify the role of nutrition as a contributor to the disease/condition and highlight specific dietary recommendations for minimizing those contributions. c. Justify the role of nutrition as a in the treatment of osteoporosis, outlining a healthy eating plan and providing lists of specific foods/nutrients to reduce or exclude from the diet and those that should be included in the diet. d. Make recommendations for other lifestyle changes that will reduce the risks or aid the therapy for osteoporosis.

8.8 Nutrition and Cancer: Assess the impact of nutrition on cancer focusing on the body sites affected. Use academic research and medical literature to: a. Describe the disease/condition, including symptoms and organ(s) affected. b. Justify the role of nutrition as a contributor to the disease/condition and highlight specific dietary recommendations for minimizing those contributions. c. Justify the role of nutrition in the treatment of the disease/condition, outlining a healthy eating plan for those undergoing treatments such as chemotherapy and radiation, and providing lists of specific foods/nutrients that act as anti-promoters from the diet and those that should be included in the diet. d. Make recommendations for other lifestyle changes that will reduce the risk or aid in the therapy for the disease/condition.

8.9 Diabetes: Research the impact of carbohydrates on diabetes, differentiating between Type 1 diabetes (T1DM) and Type 2 diabetes (T2DM). Cite specific textual evidence

from NIH MedlinePlus to: a. Describe the disease/condition, including symptoms and organ(s) affected. b. Justify the role of lifestyle factors as a contributor to the disease/condition and highlight specific dietary recommendations for minimizing those contributions. c. Justify the role of nutrition in the treatment of the disease/condition, outlining a healthy eating plan that includes a variety of dietary patterns to reduce or exclude unhealthy eating. d. Make recommendations for other lifestyle changes that will reduce the risk or aid in the therapy for the disease/condition. Suggested Labs: Meal Preparation for diabetic patient; Count the Carbs activity

8.10 Cardiovascular Disease, Hypertension, and Stroke: Investigate the correlation between fats in the diet and coronary artery disease, hypertension, and stroke, citing evidence from academic research, medical literature, and NIH sources to: a. Describe the disease/condition, including symptoms and organ(s) affected. b. Justify the role of diet as a contributor to the disease/condition and highlight specific dietary recommendations for minimizing those contributions. c. Justify the role of nutrition in the treatment of the disease/condition, outlining a healthy eating pattern and providing lists of foods that should be included in the diet. d. Make recommendations for other lifestyle changes that will reduce the risks or aid the therapy for the disease/condition. Suggested Labs: Extraction of Fat in Hot Dogs; Fat Content in Beef; Testing Oils in Frying; Alternative Fats in Foods; Low Fat Cookery Lab

8.11 Nutrition and Renal Disease: Investigate the correlation between diet and renal disease. Identify markers of renal disease and how they are impacted by dietary intervention. a. Describe the disease/condition, including symptoms and organ(s) affected. b. Justify the role of diet as a contributor to the disease/condition and highlight specific dietary recommendations for minimizing those contributions. c. Justify the role of nutrition in the treatment of the disease/condition, outlining a healthy eating pattern and providing lists of foods that should be included in the diet. d. Make recommendations for other lifestyle changes that will reduce the risks or aid the therapy for the disease/condition.

8.12 Celiac Disease: Research the correlation between grain-based food consumption and celiac disease, citing evidence to: a. Describe the disease/condition, including symptoms and organ(s) affected. b. Explain the digestive problems and the impact on digestion and absorption of nutrients. c. Make recommendations for precautions that will reduce the risks of exposure in eating venues other than home. Suggested Labs: Compare & Contrast Alternative Ingredients for Gluten in Foods

8.13 Acids and Bases: Define acidic and basic as they relate to nutrition. Create a pH scale including examples of common acidic and basic foods. Summarize symptoms, common causes, and treatments for heartburn, acid indigestion, and ulcers. Suggested Labs: Acids & Bases Indicators in Food

9. Behavioral-Environmental Assessments: The Individual Community

9.1 Community Nutritional Environment: Review the tools for assessing community nutritional environment. Select one tool that identifies existing problems in the local community. Make recommendations for informing community members about the

problem(s).

9.2 Food Insecurity: Compare issues related to hunger and malnutrition, food insecurity, and food insufficiency locally, nationally, and globally. Describe short-term and sustainable development relief efforts used to combat these problems.

- Students will complete seatwork as assigned.
- Students will participate in lab assignments as assigned.
- Students will make a 100 percent on safety tests given.

# Part 3: Grading Policy

### Late Work Policy

**Work is due by assigned date given by instructor. Student work missed due to absences will be submitting within 3 days of days missed. Teacher discretion will be used with variations to this rule.**

### Viewing Grades in ASPEN (optional)

Points you receive for graded activities will be posted to the ASPEN Grade Book. Click on the My Grades link on the left navigation to view your points.

## Grades will be posted to Aspen on a weekly basis.

## Letter Grade Assignment

Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:

**This can be modified, but must match the district scale.**

| Letter Grade | Percentage | Performance |
|---|---|---|
| A | 90-100% | Excellent Work |
| B | 80-89% | Good Work |
| C | 70-79% | Average Work |
| D | 60-69% | Poor Work |
| F | 0-59% | Failing Work |

**Important note:** For more information about grading at Channel Islands, visit the academic policies and grading section of the university catalog

# Part 4: Course Policies

## Attend Class

Students are expected to attend all class sessions as listed on the course calendar.

- Attendance and participation in all classwork will impact grade.

## Participate

Participation is required in seatwork, group work, and lab work for this course.

## Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing your instructor when difficulties arise during the semester so that they can help you find a solution.

## Complete Assignments

Assignments must be submitted by the given deadline or special permission must be requested from instructor *before the due date*. Extensions will not be given beyond the next assignment except under extreme circumstances.

All discussion assignments must be completed by the assignment due date and time. Late or missing discussion assignments will effect the student's grade.

### Incomplete Policy

Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned if the teacher deems it necessary. All incomplete course assignments must be completed within time frame determined by teacher.

## Academic Dishonesty Policy

Cheating and dishonesty of any type will not be tolerated. A zero will be given if a student is caught cheating. Administrator involvement will occur if necessary. Student is expected to do his or her own work at all times throughout this class.

# Student Testing Code of Ethics and Security

It is important for you as a student to know that the following guidelines are to be strictly followed. This year the TNReady EOC test will count at least 15% of your final semester grade. Your work on this test is very important and it deserves your best effort.
I understand that during testing on the days of the assessment, I am responsible for:

- Not having any electronic devices on me or in my purse/backpack/pockets
    - Including but not limited to cell phones, smart phones, smart watches, etc. **during testing or during breaks.**
    - Best practice is for students to leave devices at home or in their lockers on the day of testing.
    - If I am caught with a device during testing or during breaks, my test may be nullified, resulting in a zero as at least 15% of my semester grade, and any school level disciplinary action as deemed appropriate by the administration.
- Trying my best on the test
    - If I do not attempt to test (I give **no answers or randomly answer** questions) my test score may be nullified, resulting in a zero as at least 15% of my semester grade, and any school level disciplinary action as deemed appropriate by the administration.
    - The testing administrators and proctors in the testing environment will determine if no answers or random answering is taking place.
    - I will focus and put forth effort on the test .
- Being honest and not cheating
    - If I am caught cheating (taking pictures of the test, writing down and passing answers, talking to other students, looking on other computers, using software outside the testing platform), my test may be nullified, resulting in a zero as at least 15% of my semester grade, and any school level disciplinary action as deemed appropriate by the administration.

**Important Note:** Any form of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs.

**Course policies are subject to change.** It is the student's responsibility to check for corrections or updates to the syllabus. Any changes will be posted in the classroom.