Course Title: Nutritional Science

Course Duration: 1 Year (2 Semesters)

Instructor Information:

- Name: Jillian Russo
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Mrs. Russo has been a dedicated educator in the Wachusett School District since 2018. Prior to that, she taught Biology at Abby Kelley Foster Charter Public School. She earned her Bachelor of Science from Worcester State University in 2016 and went on to complete her Master of Education at American International College in 2019.

Course Description:

This course provides students with an in-depth understanding of the principles of nutrition and their impact on overall health and well-being. Students will explore topics such as the functions of nutrients, dietary guidelines, meal planning, food safety, and the relationship between nutrition and chronic diseases. Through hands-on activities, research projects, and discussions, students will develop skills to make informed food choices, understand cultural and societal influences on diet, and create personalized plans for maintaining a healthy lifestyle. The course emphasizes critical thinking about food systems, sustainability, and the role of nutrition in achieving long-term wellness goals.

Prerequisites:

C or better in Science of Health and Wellness. Open only to students in the Education and Health Science Pathways in the 2025-2026 school year. Students in the Health Science Innovation Pathway will have priority.

Course Objectives:

Upon successful completion of this course, students will:

- Gain a comprehensive understanding of human nutrition, including the digestive system, macronutrients, micronutrients, hydration, and food safety.
- Understand how nutrition affects health, growth, and disease prevention.
- Develop practical skills for meal planning, food labeling, and making informed dietary choices.
- Analyze food choices to promote health and well-being.
- Collaborate with peers in group projects and discussions about nutrition.
- Utilize technology to research and analyze nutritional information.

Massachusetts State Standards Alignment:

Biology Standards (MA Science and Technology/Engineering Framework)

- **HS-LS1-2**: Develop and use a model to illustrate the structure of the body systems and how they interact (e.g., digestive and circulatory systems).
- **HS-LS1-3**: Plan and conduct an investigation to demonstrate how digestion and nutrient absorption function in the human body.
- **HS-LS1-7**: Use a model to explain how macronutrients contribute to energy production in the body through cellular respiration.
- **HS-LS2-7**: Design solutions for reducing the human impact on food systems and sustainability.

Family & Consumer Science Standards (MA Family and Consumer Science Framework)

- **FCS.4.2**: Identify essential nutrients and their roles in maintaining health.
- **FCS.4.3**: Examine how digestive health influences overall well-being.
- **FCS.4.4**: Identify different types of macronutrients and their impact on energy and health.
- **FCS.5.1**: Analyze the role of macronutrients in body function and disease prevention.
- **FCS.5.3**: Evaluate food choices based on nutrition labels, portion control, and health considerations.
- **FCS.7.1**: Apply principles of meal planning and food preparation to support a healthy lifestyle.

Career & Technical Education (CTE) Standards (MA Health Science and Human Services Framework)

- **HHS-1.2**: Understand the role of carbohydrates, proteins, and fats in maintaining energy balance and health.
- **HHS-1.3**: Demonstrate understanding of macronutrients and micronutrients and their role in human health.
- **HHS-2.3**: Demonstrate knowledge of how nutrients are absorbed and utilized by the human body.
- **HHS-3.1**: Explore careers in nutrition, dietetics, and health sciences.
- **HHS-5.2**: Apply food safety and sanitation principles in meal preparation and storage.

Materials Needed:

- Textbook:**Human Nutrition: Science for Healthy Living**By Tammy Stephenson and Caroline Passerrello
- https://plantrician.rouxbe.com/syllabus?_ga=2.18064697.1285570277.1748962552-808585382.1748962551&pk_vid=a7a84cb0fa5f6ba51748962616ddb7aa

- Notebook/Journal for notes and assignments

Grading Criteria:

- Class Participation (10 Points)
- Labs and Activities (30 Points)
- Quizzes and Tests (30 Points)
- Projects and Presentations (20 Points)
- Final Project (10 Points)

Course Structure:

- **Semester 1**:
  - Unit 1: Introduction to Nutrition
  - Unit 2: The Digestive and Circulatory Systems
  - Unit 3: Nutrition and Chronic Disease
- **Semester 2**:
  - Unit 4: Essential Nutrients
  - Unit 5: Meal Planning
  - Unit 6: Career in Nutrition and Health

Scope and Sequence

Week	Unit	Section (Topic)	Assessments
1	Unit 1: Introduction to Nutrition	The role of nutrition in health, Proper Diet	Food label analysis
2	Unit 1: Introduction to Nutrition	Overview of essential nutrients (macronutrients and micronutrients)	Quiz on essential nutrients
3	Unit 1: Introduction to Nutrition	Sustainable Nutrition: Gardening and Food Production	Sustainability Project
4	Unit 2: The Digestive & Circulatory System	Anatomy and function of the digestive system	Digestive System Model Lab Quiz on digestive system anatomy and function

5	Unit 2: The Digestive & Circulatory System	Nutrient transport through the bloodstream	Circulatory System and Nutrient Flow Activity Group presentation on nutrient transport
6	Unit 2: The Digestive & Circulatory System	Factors influencing digestive health	Case Study on digestive health
7	Unit 3: Nutrition and Chronic Disease	Connection between diet and chronic diseases (heart disease, diabetes, obesity)	Case study analysis on diet and chronic disease
8	Unit 3: Nutrition and Chronic Disease	Preventing and managing chronic conditions through nutrition	Chronic Disease Prevention Plan Chronic Disease Quiz
9	Unit 3: Nutrition and Chronic Disease	Public health strategies for disease prevention	Public Health Campaign Design
10	MIDTERM	Review of key concepts from semester 1	STUDY GUIDE MIDTERM
11	Unit 4: Essential Nutrients	Macronutrients: carbohydrates, proteins, and fats	Quiz on carbohydrates, proteins, and fats
12	Unit 4: Essential Nutrients	Micronutrients: vitamins and minerals	Quiz on vitamins and minerals Nutrient density meal plan project
13	Unit 4: Essential Nutrients	Importance of water as a nutrient	Reflection journal on hydration
14	Unit 5: Meal Planning	Foundations	Meal Planning Budget & Nutrition Analysis
15	Unit 5: Meal Planning	Techniques and Strategies	Meal Prep Demonstration & Reflection
16	Unit 5: Meal Planning	Practical Application and Personalization	Personalized Meal Prep
17	Unit 6: Career in Nutrition and	Careers Overview	Guest speakers or virtual interviews with professionals

	Health		in the field
18	Unit 6: Career in Nutrition and Health	Emerging trends	Career Research
19	Unit 6: Career in Nutrition and Health	Career Readiness	Mock Job Interview Career Research Presentation
20	FINAL	Review of key concepts from all units	STUDY GUIDE FINAL