

Massasoit Community College  
Brockton, Massachusetts

Course Outline  
Spring Semester

**COURSE NAME:** Introduction to Human Nutrition  
**COURSE NUMBER:** BIOL 138-01  
**INSTRUCTOR:** Mr. Marc Simmons  
**OFFICE:** S110  
**OFFICE HOURS:** M 9:00-10:00, T 9:30-10:30, W 1:00-2:00, R 12:00-1:00, F 9:00-10:00 and by appointment  
**PHONE:** 508.588.9100, EXT. 1648  
**EMAIL:** MSIMMONS@MASSASOIT.MASS.EDU

**COURSE DESCRIPTION:** This course is an introduction to the science of human nutrition and its role in health. It will include such topics as types of nutrients, nutrient digestion, absorption and metabolism, food sources, recommended nutrient intakes, food safety, and food technology. Emphasis will be placed on application of these concepts to promote health and fitness. This course is designed for the non-science major.  
Lecture: 3 hours.

**PREREQUISITE:** Preparing for College Reading II (ENGL092), Introductory Writing (ENGL099), and Fundamentals of Mathematics (MATH010) or waiver by placement testing results or Departmental Approval

**REQUIRED TEXT:**Sizer, F. & Whitney, E. 2003. *Nutrition: Concepts and controversies. Ninth edition.* Belmont, CA: Wadsworth – Thomson Learning.

**GENERAL OBJECTIVES:** Nutrition is an evolving science and there are currently many controversies in the field. Food choices abound in stores and restaurants, we are bombarded with advertisements for nutritional supplements and diet aids, and health “experts” promote a wide variety of eating plans. This course will help students develop an understanding of the underlying biology of nutrition, and will help them develop decision-making skills based on scientific analysis of information. Students in culinary arts, childcare, and allied health may find this course to be interesting and relevant to their respective fields of study. This course is designed to reinforce the cross curriculum competencies: **critical thinking, oral communication, quantitative skills, reading, technology skills, and writing.**

**CLASS FORMAT:** We will use a lecture/discussion approach. You are encouraged to contribute relevant information whenever appropriate and upon recognition by the instructor. However, private comments and conversations are not allowed.

There are specific factual and conceptual course objectives for each topic. You are expected to complete the assigned pages in the text **PRIOR TO CLASS DISCUSSIONS**. This preparation will allow you to become a more active participant in the learning process.

**GRADING:** Your final grade will be determined by a series of announced quizzes, one-hour lecture exams, final exam, and writing assignments according to the following point system:

Attendance	100 points
Monday Quizzes =	100 points
4 Lecture Exams =	300 points
Final Exam =	200 points
Writing Assignment =	100 points
Nutrition Project =	100 points
<u>Diet Project =</u>	<u>100 points</u>
Total =	1000 points

Final grades will be determined as follows:

A	=	92.5% or higher	=	925 points or greater
A-	=	90.0% - 92.4%	=	900-924 points
B+	=	87.5% - 89.9%	=	875-899 points
B	=	82.5% - 87.4%	=	825-874 points
B-	=	80.0% - 82.4%	=	800-824 points
C+	=	77.5% - 79.9%	=	775-799 points
C	=	72.5% - 77.4%	=	725-774 points
C-	=	70.0% - 72.4%	=	700-724 points
D+	=	67.5% - 69.9%	=	675-699 points
D	=	62.5% - 67.4%	=	625-674 points
D-	=	60.0% - 62.4%	=	600-624 points
F	=	0.0% - 59.9%	=	0-599 points

Lecture quizzes will be on Mondays (except when we have an exam) and will consist of a short series of multiple-choice questions. Lecture quizzes will be given the first ten minutes of class. **DO NOT ARRIVE LATE!!** There will be **NO** make up of lecture quizzes, so a missed quiz will be assigned a zero grade. However, the lowest lecture quiz grade will be dropped.

There will be a total of four lecture exams throughout the semester. Exams will consist of a mixture of multiple choice, true/false, fill-in-the-blank, matching, short answer, and essay questions. You will **not** be allowed to make up an exam during the semester, so a missed exam will be assigned a zero grade. Exceptions will be made only under extraordinary circumstances **and** when the proper documentation is provided. One missed exam, **or** your lowest lecture exam will be dropped.

The final exam will have the same format as a lecture exam. It will be a comprehensive exam on the major concepts discussed throughout the semester. A missed final exam will not be made up or an I grade given except under extraordinary circumstances and by prior arrangement, when the proper documentation is provided. The final exam date and time will be arranged by the Registrar.

There will be a short writing assignment asking you to report on a specific dietary plan. In addition, you be asked to present that plan to the class. This assignment will also be explained in a separate handout.

There will be a short writing assignment asking you to report on a specific form of malnutrition, which will be explained in a separate handout.

There will be a project consisting of completing a journal reporting on and evaluating your daily nutrition over a three-day period. The assignment will be explained in a separate handout.

**ATTENDANCE  
POLICY:**

You are expected to attend all meetings of the course each week. An outgoing spirit of active participation is your best assurance of success. If extenuating circumstances force you to miss a class, please inform me in advance (if possible) or upon your return to class. You are responsible for making up any material missed. More than **THREE** absences will result in a reduction of your attendance grade by one point for each day missed.

You are expected to be present in the classroom at the **BEGINNING** of the class period. **LATE ARRIVALS** disturb the class and will **NOT** be tolerated. They will be counted as an absence and on quiz days you might not be able to take the quiz.

**HELPFUL HINTS:**

When having difficulties, seek help from the instructor at the first indication of problems. Set up study groups with other students in lecture. Prepare for each class by completing objectives. There are several resources available if extra help is needed.

**DISABILITY:  
SERVICES**

The Biology department embraces the position of the disability service providers at the college. "Students with disabilities who believe that they may need accommodations in the classroom are encouraged to contact the Learning Disability Coordinator, Nancy Sullivan, at extension 1082, or Disability Counselor, Stan Oliver, at extension 1464, as soon as possible, in order to ensure that such accommodations are implemented in a timely fashion."

**SPECIFIC:  
OBJECTIVES**

These objectives represent the overall goals for the course. Completion of these objectives should provide you with the tools to help you to understand in general how your body absorbs and utilizes food. You should also be able to evaluate your diet and daily activity levels accurately and understand the relationship between diet and health. This should allow you to begin to make health-promoting decisions about the food you eat and the amount and types of exercise you get. In addition, you should have the tools necessary to evaluate nutrition articles and advertisements and make informed choices about food additives, food supplements, and processed foods in your diet.

**Chapter 1**

Food Choices and Human Health

1. Describe the general role of nutrients in the body.
2. Discuss the general effect of nutrition on health.
3. Describe the general effects of life choices on health.
4. List vital and “helper” nutrients.
5. Describe general relationships between food, emotional satisfaction, and hormonal stimuli.
6. List the characteristics of a healthy diet.
7. Explain the relationship between cultural traditions and social values and food choices.
8. Describe dietary guidelines.
9. Describe the use of the scientific method in the study of nutrition.

**Chapter 2**

Nutrition Tools-Standards and Guidelines

1. Define Recommended Dietary Allowances and Dietary Reference Index.
2. Describe RDA, AI, UL, and EAR.
3. Describe how to read a food label.
4. Describe the Food Guide Pyramid and list all of its advantages and drawbacks.
5. Describe the importance of understanding serving size as it applies to nutrition.

**Chapter 3**

The Remarkable Body

1. Identify the characteristics of a cell and describe levels of organization in the body.
2. Describe the major structures and functions of the cardiovascular, hormonal (endocrine), nervous, digestive, and excretory systems.
3. Describe the process of mechanical and chemical digestion.
4. Describe the processes of absorption, transportation, and storage of nutrients.

**Chapter 4**

The Carbohydrates

1. Distinguish among various types of carbohydrates.
2. Describe the body’s use of glucose.
3. Describe carbohydrate digestion and absorption.
4. Discuss various health conditions related to carbohydrate intake.
5. Discuss the role of fiber in body health.

**Chapter 5**The Lipids

1. Distinguish among various types of lipids.
2. Explain the use of lipids in the body.
3. Describe the structure of triglycerides and distinguish between saturated and unsaturated fats.
4. Describe the processes of lipid digestion, absorption, and transport.
5. Distinguish among the structure and function of the various types of lipoproteins in the body.
6. Explain why manufacturers hydrogenate fats and discuss the role of trans-fatty acids in diet.

**Chapter 6**The Proteins

1. Describe protein structure.
2. Distinguish between essential and non-essential amino acids.
3. Describe protein digestion and absorption.
4. Describe the roles of proteins in the body.
5. Discuss the importance of protein quality and mutual supplementation.
6. Describe the consequences of protein deficiency and protein excess.

**Chapter 7**The Vitamins

1. Define vitamin and describe how vitamins are classified.
2. Distinguish between fat-soluble and water soluble vitamins.
3. List the chief functions and food sources of each vitamin.
4. Describe the characteristics of vitamin deficiency and toxicity.
5. Discuss guidelines for choosing vitamin supplements and planning a diet rich in vitamins.

**Chapter 8**Water and Minerals

1. Discuss the major role of water in the body.
2. Describe regulation of water intake and excretion.
3. Describe the importance of electrolyte and acid-base balance in the body.
4. Explain the roles of minerals in maintaining fluid and electrolyte balance.
5. Describe the characteristics of mineral deficiency and toxicity.
6. List good sources of major and trace minerals.

**Chapter 9**Energy Balance and Healthy Body Weight

1. List and define three components on the body's energy budget.
2. Identify and explain the factors affecting basal metabolic rate.
3. Learn how to estimate total energy expenditure.
4. Describe the role of fat in body health.
5. Evaluate methods of estimating body fat.
6. Summarize the issues involved in developing strategies to promote weight control.

**Chapter 10**Nutrients, Physical Activity, and Body's Responses

1. Explain the benefits and guidelines for regular physical activity.
2. Summarize the body's response to physical activity.
3. Discuss the role and risks of various supplements on athletic performance.
4. Describe ways to remain hydrated during exercise.

**Chapter 11**Diet and Health

1. Describe the relationship between nutrition and various health conditions.
2. Describe strategies to reduce risks of certain diseases.

**Chapter 14**Food Safety and Food Technology

1. List five hazards in our food supply.
2. Discuss ways to prevent microbial food poisoning.
3. Describe the risks, if any, of toxins, contaminants, pesticides, and hormonal residues.
4. List major food processing techniques and their effects on nutrient content of foods.
5. Discuss the regulations associated with food additives.

<b>DATE</b>	<b>LECTURE SUBJECT</b>	<b>TEXT ASSIGNMENT</b>
<b>JAN 21-23</b>	<u>Food Choices and Human Health</u>	Chapter 1: P. 1-28
<b>JAN 26-30</b>	<u>Nutrition Tools-Standards and Guidelines</u>	Chapter 2: P. 29-66
<b>FEB 2-6</b>	<u>The Remarkable Body</u>	Chapter 3: P. 67-97
<b>FEB 9</b>	<b>EXAM 1: CH 1, 2, 3</b>	
<b>FEB 11-13</b>	<u>The Carbohydrates</u>	Chapter 4: P. 99-136
<b>FEB 16</b>	<b>PRESIDENT'S DAY</b>	<b>NO CLASSES</b>
<b>FEB 18-20</b>	<u>The Carbohydrates</u> <u>The Lipids</u>	Chapter 4: P. 99-136 Chapter 5: P. 137-175
<b>FEB 23-27</b>	<u>The Lipids</u> <u>The Proteins</u>	Chapter 5: P. 137-175 Chapter 6: P. 177-209
<b>MAR 3</b>	<b>EXAM 2: CH 4, 5, 6</b>	
<b>MAR 5</b>	<u>The Vitamins</u>	Chapter 7: P. 211-263
<b>MAR 8-12</b>	<u>The Vitamins</u>	Chapter 7: P. 211-263
<b>MAR 15-19</b>	<b>SPRING BREAK</b>	<b>NO CLASSES</b>
<b>MAR 22-26</b>	<u>Water and Minerals</u>	Chapter 8: P. 265-310
<b>MAR 29-APR 2</b>	<u>Energy Balance and Healthy Body Weight</u>	Chapter 9: P. 311-357
<b>APR 5</b>	<b>EXAM 3: CH 7, 8, 9</b>	
<b>APR 7-9</b>	<u>Nutrients, Physical Activity, and Body's Responses</u>	Chapter 10: P. 359-392
<b>APR 12-16</b>	<u>Diet and Health</u>	Chapter 11: P. 393-434
<b>APR 19</b>	<b>PATRIOT'S DAY</b>	<b>NO CLASSES</b>
<b>APR 21-23</b>	<u>Food Safety and Food Technology</u>	Chapter 14: P. 509-556
<b>APR 26</b>	<b>EXAM 4: CH 10, 11, 14</b>	
<b>APR 28-MAY 7</b>	<u>Diet Reports</u>	