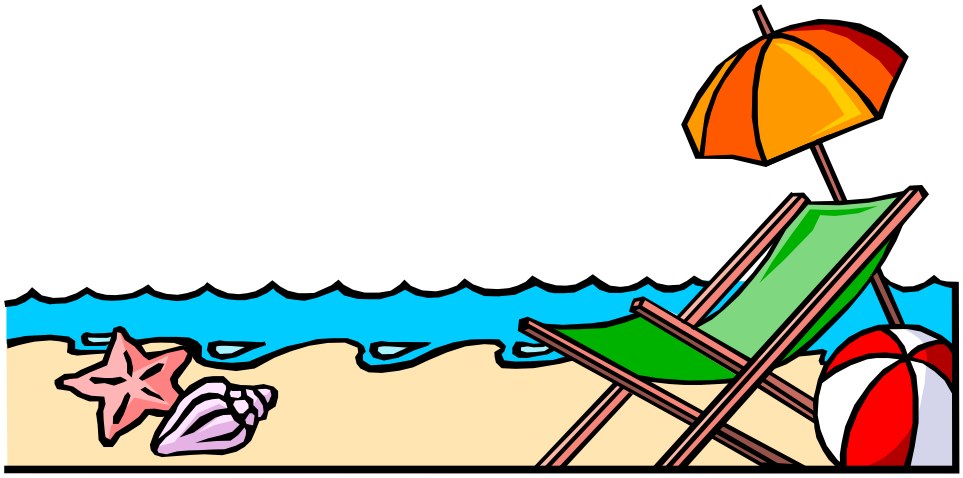
Introduction to Nutrition Biology 111
Summer 2009

Tuesdays and Thursdays 6:00 p.m. to 9:00 p.m.

Three Rivers Community Technical College
Room A216 Norwich, CT. 06360

Instructor: Rosemary Gentile M.S., R.D.
rosemarygentile@yahoo.com



June 9	Introduction/Nutrition and Food Choices in Today's World	Chapter 1 Controversy 1,2
June 9	Nutrition Rx; Tools for Planning Nourishing Meals and Snacks	Chapter 2
June 11	Remarkable Body: Digestion/Absorption Carbohydrates (CHO)	Chapter 3 pp 77- 92 Chapter 4 Controversy 4
June 16	CHO/ Lipids	Chapter 4/ 5 Controversy 5
June 18	Lipids/Protein/Vegetarianism	Chapter 6 Controversy 6
June 23	***Exam 1 Chapters 1, 2,3(pp77-92) 4, 5, 6 Selected Controversies*** ***After test: Presentations***	
June 25	Vitamins	Chapter 7 Controversy 7
June 30	Minerals/Water/Osteoporosis	Chapter 8 Controversy 8
July 2	Metabolism/Energy Balance	Handout/Chapter 9
July 7	Weight Control/Fad Diets	Chapter 9 Controversy 9
July 9	Eating Disorders/Sports Nutrition	Chapter 10 Controversy 10
July 14	***Exam 2 Chapters,7,8,9,Metabolism and Controversy 9*** ***After test: Presentations***	
July 16	Pregnancy/Lactation/Infant Child Feeding **Nutrition Self Study Due**	Chapter 13 & 14
July 21	Teen/Older Adult/Alcohol Food Safety/Hunger in Connecticut	Chapter 14 Controversy 3 Chapter 12 pp 462-477
July 23	Nutrition and Heart Health, Cancer or Special Interest Topics ***Presentations***	Chapter 11
July 28 ***July 30***	***Exam 3 Chapters 10,11, 13,14 Cont. 3*** ***Comprehensive final Exam***	

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Introduction to Nutrition

Text: Nutrition Concepts and Controversies, Frances Sizer and Eleanor Whitney, 11th Edition, West Publishing.

Course Description

This introduction course covers the principles of nutrition, nutrients, their functions and sources, the interaction between those nutrients and the human body; the selection of adequate diets for different age groups and life stages; the relationship of diet in preventing/treating certain diseases; evaluation of nutrition information and influences of culture on food choices.

General Course Objectives and Rationale

1) To aid the student in developing an understanding of the principles of nutrition.
2) To encourage the student to become aware of the need for nutrition education.
3) To enhance student awareness of his or her own food habits and nutritional status.
4) To introduce student to current nutrition recommendations and standards base on science.
5) To understand the principles of human digestion, absorption, and metabolism of nutrients.
6) To aid student in understanding the roles and food sources of carbohydrates, fats, proteins, vitamins, and minerals, and water.
7) To help student distinguish valid, controversial, fallacious nutrition information and to know where to find valid information.
8) To help student understand energy balance and weight management.
9) To introduce student to nutrition throughout lifecycle, for sports, and relative to certain diseases.
10) To empower students to apply nutrition guidelines in their own lives.

Methods of Evaluation

1. Tests, Final Exam, Nutrition Self Study Project, and Other Assignments

There will be three exams, a comprehensive final exam, a Nutrition Self-study, and other written and oral assignments. There will also be in-class group activities and/or presentations. All of these assignments count toward your final grade.

You are required to take **ALL 3 unit exams**. If you have an 88 average of 3 tests, you may opt out of the final exam. If you take all 3 exams and the final, the lowest grade will be dropped. **If you do not take all 3 exams you MUST take the final exam. THERE WILL BE NO MAKE UP EXAMS. The final is scheduled for** July 30. The final exam will not be returned.

A Nutrition Self Study Project will be due on July 16. If you do not wish to study yourself, you may opt to study another person's diet and physical activity. If you don't complete the Nutrition Self Study, you will have a zero averaged into your final grade calculation. Late papers will lose 20 points and wont' be accepted later than July 21. Early papers will always be accepted.

Other assignments

Other written and oral assignments along with in class group activities may be assigned as the instructor determines to enhance learning. These will be announced well in advance.

2. **Class Attendance Policy**

Students are expected to attend all class sessions. Leaving class early counts as an absence. Class attendance, participation in class activities, and discussions will be included in your final grade.

Grading

3 Exams or 3 Exams + Final minus lowest grade = possible 300 points
Quizzes/Assignments 50 points
Nutrition Diet Analysis Study 100 points
Class Participation/Presentations and Class Activities 100 points

Grade = your total number of points divided by 550 points

Grades are based on the following percentages:

100	-	93	A
92	-	90	A-
89	-	88	B+
87	-	84	B
83	-	80	B-
79	-	78	C+
77	-	73	C
72	-	70	C-
69	-	65	D+
64	-	60	D
59	-	0	F

Revisions to the Syllabus

The instructor reserves the right to revise any part of the academic schedule, course outline, or syllabus. Changes in test dates will be announced well in advance.

College Withdrawal Policy

A student who finds it necessary to discontinue a course must notify the Registrar's Office. The withdrawal deadline for the semester is July . Students who do not withdraw, but stop attending will be assigned an "F" grade, adversely affecting the transcript and cumulative average.

Disability Statement

If you are a student with a disability or challenge and believe you will need accommodations for this class, it is your responsibility to contact the Disabilities Counseling Services at 860-383-5240. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. Please note that I cannot provide accommodations based upon a disability until I have received an accommodation letter from the Disabilities Counselor.

Classroom Ground Rules

Please:

Turn off your cell phones, beepers, and other noise maker features on all your portable electronic friends.

Come to class on time. I will start class on time and finish on time. We will have a short break.

Sign the attendance sheet at every class.

If you need to leave the classroom, go quietly and return quietly.

Eating dinner during class is ok as long you clean up after class.

Raise your hand when you wish to speak.

When someone is speaking in class, please show respect by listening; only one person at a time speaking.

INTRODUCTION TO NUTRITION COURSE OUTLINE

UNIT I

I. Introduction - Nutrition today and your relationship to food
   - A. What affects your food choices?
   - B. What are the cornerstones of a healthy diet?
   - C. Current issues in nutrition/Dietary Guidelines/ DRIs/Pyramids
   - D. Assessing and planning diets
   - E. Evaluating nutrition information

II. Digestion, Absorption & Transport
   - A. Anatomy of the Digestive Tract
   - B. Process of Digestion
     1) Mouth
     2) Stomach
     3) Small Intestine
     4) Large Intestine
   - C. Absorptive System
     1) Normal Functioning
     2) Problems
     3) Transport of Nutrients
   - D. Keeping System at its Best/ Brain and Gut Connection
   - E. Digestion/Absorption of Carbohydrates, Lipids, and Protein,

III. Carbohydrates: Dietary Guidelines' recommended amount
   - A. Sugars & Starch & Fiber
     1) Basic chemistry of carbohydrates
     2) Food sources
     3) Fiber
   - B. Body's Use of Glucose
     1) Hormonal regulation of blood glucose levels
     2) Storage systems of carbohydrate

C. Why does the body need carbohydrates?
D. Whole Grains, Enriched, Refined Carbohydrates
E. Artificial Sweeteners
F. Label Reading for Carbohydrates
G. Lactose intolerance, insulin resistance, hypoglycemia, diabetes
H. Low carb diets

IV. Lipids: Dietary Guidelines' recommended amount
A. What's our current pattern of consumption compared to other countries
B. Why do we need fat? Where's the fat in our diets?
C. Terminology and characteristics of:
1) The triglycerides: saturated, unsaturated, polyunsaturated
2) Essential fatty acids: omega 3 and omega 6
3) Phospholipids
4) Cholesterol
5) Hydrogenation

D. How the body handles fat
1) Storage of fat
2) Transport
3) Significance of HDL and LDL
E. Guidelines for consuming adequate amounts of fat/Danger of too little fat
F. Label reading
G. Artificial fats
H. Fish oils supplements; flax seed

V. Protein
A. Structure and characteristics of
B. Function of proteins in the body
C. Essential and nonessential amino acids
D. Protein complementarity and protein quality
E. RDA levels and other recommendations
F. What's the danger of too much protein? What about high protein diets?
G. Is it healthy to be a vegetarian?
H. Amino acid supplementation, gelatin, soy
I. Malnutrition-protein calorie malnutrition

UNIT II

I. Vitamins
A. Definition and Classification
B. Functions and storage
C. RDA's and DRI's
D. Current concerns for optimal health; deficiency states
E. Toxicity
F. Food Sources and food prep to preserve vitamins
G. Supplementation www.supplementwatch.com
H. Claims

II. Minerals
- A. Definition and Classifications
- B. Functions, storage
- C. RDA's and DRI's
- D. Current concerns for optimal health; deficiency
- E. Toxicity
- F. Bioavailability and interactions
- G. Supplementation
- H. Food Sources
- I. Osteoporosis

III. Water
- A. Sources of water
- B. Distribution of body's water
- C. Need for water, water losses, and recommended amount
- D. Functions and water balance
- E Should you filter? Bottled? Well?

IV. Metabolism
- A. Glycolysis
- B. Krebs Cycle or TCA Cycle
- C. Pathways of Glucose, Protein and Fat
- D. Starvation & Feasting

V. Energy Balance – What is energy balance? What affects energy balance?

A. Energy In
1) Calories: definition/as energy in food
2) Effect of Food Prep and portion size on Calorie Intake
3) Rx Calorie Intake

B. Energy Out
1) Basal Metabolism or Basal Metabolic Rate (BMR)
   a. Influences on BMR
   b. How to Calculate BMR
   c. Basal Energy Needs
2) Physical Activity
3) Thermogenesis

C. Energy Balance
1) Effect of Dieting, Starvation, Physical Activity on Energy Balance

VI. Obesity, Eating Disorders, Starvation
- A. Prevalence of obesity, problems of & complexities
- B. What is desirable body weight?
  1) Current standards & tools for measurement
- C. Body fat measurement techniques
- D. Theories of obesity
- E. Approaches to weight loss, weight maintenance, weight management
  What about fad diets?
- F. Dying to Be Thin: Eating Disorders: Anorexia, Bulimia, Bulimarexia, Binge Eating Disorder
  1) Definitions & Characteristics/Prevalence/Contributing BioPsychoSocial Factors/Psychological Profile/Nutritional consequences
  2) Current Treatment Approaches

Unit III

I. Sports Nutrition
- A. Conditioning the Body
- B. Body's Use of Fuels
  - 1) Glycogen and Glucose
  - 2) Fat and Fatty Acids
  - 3) Protein
- C. Vitamins and Minerals
- D. Fluids and Performance
- E. Pre-Game & During Competition Nutrient Needs
- F. Sports Drinks, Pills, Powders and Potions

Nutrition and the Lifecycle

I. Pregnancy
- A. Nutrition & pregnancy outcome
- B. Maternal weight gain during
- C. Maternal nutrient needs
- D. Dietary Supplements
- E. Alcohol, Caffeine, Smoking
- F. Discomforts of Pregnancy
- G. Toxemia
- H. Exercise
- I. Teen Pregnancy

II. Lactation & Infant Feeding
- A. Nutrient needs of nursing mother
- B. Meeting nutrient needs of infant
  - 1) Breast Milk/bottle
- C. Introducing Solids

III. Nutrition & Pre-school Years - Ages 1-6 Years
- A. Nutrient needs; what is normal growth?
- B. Eating behaviors and developing a healthy feeding relationship
- C. Supplements
- D. Lead,anemia

IV. Nutrition & The Middle Years - Ages 6-11 Years
- A. Nutrient needs
- B. Issues - obesity, hyperactivity, TV, allergies

V. Nutrition & Adolescence
- A. Nutrient needs
- B. Social & emotional issues affecting diet

VI. Adulthood/Aging
- A. Nutrition for 60 years plus

VII. Nutrition & Disease Prevention
- A. Nutrients and the Immune System
- B. Lifestyle Choices and Disease Risk
- C. Atherosclerosis and Nutrition
  - 1) Development
  - 2) Risk Factors
  - 3) Diet and Exercise Rx/TLC

VIII. Hypertension
A. Development
B. Diet and Weight Control Rx/DASH diet

IX. Cancer
A. Development
B. Diet and Cancer Research Finding
C. HIV and Nutrition
D. Diet Rx
E. Pesticides

X. Stress/Mood/PMS & Nutrition
A. Physiological Stress Response
B. Physical vs. Emotional Stress and Nutrition
C. Stress Effects on Eating Habits
D. Current Findings on Food and Mood
E. PMS - Diet Rx

XI. Hunger
A. Problems - Political, Geographical, Climatic, Social, and Agricultural
B. Solutions

XII. Special Topics - Alcohol & Nutrition

COURSE OBJECTIVES
INTRODUCTION TO NUTRITION

1) The student will be able to define or explain the terms nutrition, nutrient and essential nutrients.

2) The student will demonstrate knowledge of the major energy nutrients (carbohydrates, lipids, and protein) and their major food sources.

3) The student will be able to name and give the general function of vitamins.

4) The student will be able to explain the results of vitamin deficiencies and excesses.

5) The student will be able to name and describe the general function of the major minerals and trace elements essential to humans and will be able to explain the results of deficiencies and excesses.

6) The student will be able to explain the role of water in nutrition.

7) The student will be able to list the types of water and electrolyte (mineral, as well as acid/base) imbalances.

8) The student will be able to list the effect of water/electrolyte (mineral and acid/base) imbalances.

9) The student will be able to name, give the location and function of the digestive organs.

10) The student will be able to list, give the source, the target site and action of hormones involved in digestion.

11) The student will be able to list the enzymes secreted by the various digestive glands and describe the action of each.

12) The student will demonstrate knowledge of the hydrolysis (digestion) of carbohydrates, lipids, and proteins.

13) The student will be able to explain how the products of digestion (simple sugar, amino acids, fatty acid, glycerol, fat droplets, etc.) are absorbed.

14) The student will be able to explain how the products of digestion are utilized by the cell.

15) The student will be able to review the major events that occur during cellular respiration (energy metabolism).

16) The student will be able to explain what is meant by BMR (Basal Metabolic Rate).

17) The student will demonstrate knowledge of the regulation of BMR by the thyroid gland.

18) The student will be able to understand the measurement of energy in terms of calories and joules.

19) The student will understand concepts relating to energy balance and weight control.

20) The student will be familiar with recommended and not recommended weight loss and weight gain approaches.

21) The student will understand the characteristics and treatment of eating disorders.

22) The student will be able to use the Recommended Dietary Allowances, the Dietary Guidelines, and the Food Pyramid to evaluate menus and diet plans.

23) The student will be able to plan an adequate diet.

24) The student will be able to explain the nutritional requirements during the various stages in the human life cycle.

25) The student will be able to explain the nutritional requirements during pregnancy and lactation.

26) The student will develop a better understanding of present day eating habits, nutritional trends, and current recommendations.

27) The student should become aware of the need for nutrition education.

28) The student will understand what influences his or her own food choice.

29) The student will know how to assess his or her own diet for nutritional adequacy.

30) The student will know how to use food label information.

31) The student will be able to name the basic tools used to determine food habits and nutritional status.

32) The student will be able to name the basic methods of nutrition assessment.

33) The student will know how to evaluate nutrition information and know where to find reliable information.

34) The student will be able to use a Table of Food Composition.

35) The student will understand the effect of alcohol on nutritional status.

36) The student will understand nutrition's role in fitness and athletic performance.

37) The student will have a basic awareness of nutrition's role in the etiology and treatment of heart disease, cancer, diabetes, and some GI diseases.