

MILWAUKEE AREA TECHNICAL COLLEGE

Course Syllabus

(Spring 2010)

Course: Basic Nutritional Science

Credits: 3

Subject Abbreviation:

Course Number: 172

Section Number: 201

NATSCI

Class Meets: Thursday; 2:00-4:55 P.M., Room C-318; 21 January – 20 May 2010

Instructor: Marian M. Benz, R.D. M.S. C.D.E. C.D.

Office: M-376

**Office Hours: Thursday 1:00-2:00 P.M.
and other hours by appointment**

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(Put 172-201 in subject line for email)

Course Description: This course provides an introduction into the science of nutrition. Basic concepts related to digestion and metabolism are presented. The significance of carbohydrates, lipids, proteins, minerals and vitamins to the human organism are discussed. The relationship of proper nutrition to selected pathological conditions throughout the human life cycle is presented. The concept of sustainability and environmentally-conscious food production is introduced.

Prerequisites: none

ADA Statement:

If you have a disability that impacts your classroom performance and wish to request an accommodation, contact the Center for Special Needs at (414) 297-6838. They may require documentation regarding your disability to enable them to comply with your request. Admission of a disability is voluntary and will be handled in a confidential manner. MATC does not discriminate against individuals with disabilities and fully complies with the Americans with Disabilities Act.

To ensure your academic success in this program, you are strongly encouraged to provide your instructor with a copy of the Instructor Notification Form from the Center for Special Needs.

Textbook: NUTRITION, Science and Applications, Smolin and Grosvenor, 2010, 2nd ed. John Wiley and Sons, ISBN 13:978-0-470-52474-9

Supplies: Calculator, folder, binder

Course Goals:

- 1. Assess the value and importance of each essential nutrient as it relates to optimal health.**
- 2. Analyze and evaluate anatomical and physiological aspects of organs systems involved with digestion, glucose metabolism, cardiovascular health and disease.**
- 3. Identify the individual nutrient needs of individuals from conception to old age.**
- 4. Implement strategies of nutritional intervention to assist in stabilizing or preventing disease conditions.**
- 5. Analyze the path of diseases caused by poor lifestyle.**
- 6. Evaluate the value of nutritional standards, guidelines, and media claims by comparing and contrasting scientific journals and research to electronic and print media.**
- 7. Analyze the impact of sustainability on nutrition well-being from production to consumption.**

COURSE COMPETENCIES:

a. UNIT 1: Nutritional Adequacy and Standards

- 1. Describe nutritional adequacy.**
- 2. Analyze intake for ten nutrients utilizing standards.**
- 3. Explain the role of the Food Guide Pyramid in assessing nutritional adequacy.**
- 4. Describe the role of Dietary Guidelines for Americans for making healthy lifestyle changes.**
- 5. Explain the use of nutrients listed and Daily Reference Value on nutritional labels as tools for making healthy food choices.**

b. UNIT 2: Digestion/Absorption

- 1. Identify the organs of the digestive track.**
- 2. Explain chemical and mechanical components of digestion/absorption.**
- 3. List diseases that impact digestion/absorption.**
- 4. Identify substances absorbed upon completion of protein/fat/carbohydrate digestion.**

c. UNIT 3: Six classes of nutrients

- 1. Describe the role for carbohydrate in human physiology.**
- 2. Describe the role for lipids/fats in human physiology.**
- 3. Describe the role for proteins in human physiology.**
- 4. Describe the role for vitamins in human physiology.**
- 5. Describe the role for minerals in human physiology.**
- 6. Describe the role for water in human physiology.**

UNIT 4: Nutrients and Risk for Disease

- 1. Describe the role of exercise in health prevention, maintenance, and fitness goals.**

2. Describe the role of nutritional choices on risk for cardiovascular disease, cancer, diabetes, and obesity.
3. Identify physiological consequences of nutritional deficiencies/excesses on identified diseases.
4. Identify physiological consequences of nutritional and lifestyle choices on glucose metabolism.
5. Explain health consequences of obesity.
6. Analyze research sources describing lifestyle changes that impact nutritional interventions.
7. Describe nutritional interventions appropriate for identified diseases.

UNIT 5: Human Life Cycle Nutritional Needs

1. Relate nutritional needs to “at risk” groups within each human life cycle stage.
2. Identify nutritional needs during pregnancy, lactation, infancy, childhood, adolescence, early, middle and late adulthood.
3. Differentiate between physical changes of growth years and the physiological changes in middle to late adulthood.
4. Identify effect of lifestyle choices on longevity.
5. Calculate nutritional needs during the life cycle utilizing standard tools of assessment.

UNIT 6: Sustainability

1. Identify how food procurement and production of resources contribute to global environmental problems.
2. Describe global environmental problems in food production.
3. Identify environmentally-conscious decisions that minimize impact on environment.
4. Describe food safety standards.

Course Requirements and Grading:

- 1. Regular attendance: see Attendance Policy**
- 2. Completion of three tests, fifteen worksheets, thirteen discussion questions and comprehensive exam.**

3. Assessment Activities and points:

-Each test is worth 100 points	=	300 points
-Each worksheet is worth 100 points	=	1500 points
-Comprehensive examination	=	600 points
-Weekly discussion and questions	=	1300 points
Total points		3700 points

Extra credit worksheets will be available during the semester; these do not carry a point value but may be used to improve a student's grade.

STUDENTS WITH PERFECT ATTENDANCE WILL AND PUNCTUAL ARRIVAL TO CLASS WILL RECEIVE 5 BONUS POINTS.

GRADING STANDARDS:

A = 95-100 %	C = 73-76
A- = 90-94	C- = 70-72
B+ = 87-89	D+ = 65-69
B = 83-86	D = 60-64
B- = 82-80	U = <60
C+ = 77-79	

Attendance Policy: See student handbook for guidelines.

Regular and punctual attendance is expected of all students. Coming to class late prevents students from obtaining the necessary information to achieve success. The student is responsible for what goes on in class whether he/she is there.

STUDENTS ARRIVING MORE THAN 10 MINUTES LATE FOR TESTS WILL BE REQUIRED TO TAKE THEM AFTER CLASS. NOTE: All cell phones and pagers are to be turned off during class time. In the event of an emergency, the student should place the phone on vibrate and leave the class quietly BEFORE taking the call. Students should not take cell phone calls during class. Texting is not permitted during class.

Optional References/Bibliography: available from instructor upon request
Student Complaint Procedure/Academic Support/ Dropping or Changing Courses (All procedures are outlined in detail in MATC Student Handbook. For student Complaints: Follow the established MATC formal procedure which consists of the following sequence: meet with instructor, meet with Associate Dean, meet with Dean, and consult with Student Life.

For Academic Support: Visit the centers located at each campus for services.
Dropping or changing courses: discuss with instructor, counselor or advisor.

Student Signature: student signature on course attendance card indicates student has received syllabus.

MATC CORE ABILITIES TO BE PRACTICED IN THIS COURSE:

Communicate effectively:

- Learner speaks effectively for the intended purpose, audience, occasion, and topic.
- Learner writes effectively for the intended purpose, audience, occasion, and topic.
- Learner applies rules of standard English language structure, including grammar and spelling.
- Learner uses correctly the language of his/her discipline.
- Learner chooses presentation format (oral, written, graphic) appropriately.
- Learner communicates in a bias-free manner.
- Learner supports viewpoints with evidence.

Collaborate with others:

- Learner cooperates with others.
- Learner resolves conflicts effectively.
- Learner participates in shared problem-solving.
- Learner demonstrates empathy, respect and concern for others.

Respect diversity:

- Learner acknowledges personal prejudices, and biases.
- Learner appreciates perspectives of people outside his/her own background culture.
- Learner works collaboratively with people from other backgrounds/cultures.
- Learner demonstrates awareness of global issues.

Demonstrate responsibility:

- Learner prepares for and attends class/field experience.
- Learner turns in quality work.
- Learner adheres to safety rules and regulations.
- Learner acts professionally to fulfill job duties within chosen field.
- Learner demonstrates flexibility and self-directedness in learning.
- Learner acknowledges a responsibility to the global community (cultural, economic, environmental, political).
- Learner practices environmental sensitivity to his/her profession.
- Learner utilizes effective time management.

Think critically and creatively:

- Learner differentiates between assertions based on evidence and opinion.
- Learner considers others' viewpoints and perspectives.
- Learner presents logical and reasonable arguments.
- Learner devaluates sources of information for credibility and reliability.
- Learner analyzes relationships between ideas, people, events, and things.
- Learner breaks complex problems into component parts.
- Learner selects and applies problem-solving methods.
- Learner evaluates implications of alternative solutions.
- Learner anticipates future trends.
- Learner considers unconventional solutions.

Utilize technology:

- Learner acknowledges the scope of technology.
- Learner recognizes the cultural, social, economic, and political effects of technology.
- Learner solves problems using technology.
- Learner recognizes the impact of technology.
- Learner uses appropriate technology to manage information and obtain information.

Apply math and science:

- Learner applies math concepts and principles appropriately.
- Learner interprets and applies mathematical concepts that reach a solution.
- Learner collects observations and data in a scientific manner.
- Learner generates appropriate questions based on observations.
- Learner formulates appropriate hypotheses.
- Learner test their hypotheses through scientific investigation.
- Learner organizes data in a logical way.
- Learner analyzes data appropriately.
- Learner interprets meaning from scientific data.

Demonstrate environmental responsibility:

- Learner models sustainable practices.
- Learner identifies environmental issues.
- Learner practices resource conservation.
- Learner practices environmental sensitivity.

Embrace change:

- Learner thinks positively of improved outcomes.
- Learner adjusts to changing circumstances.
- Learner realistically assesses workplace environment.
- Learner celebrates successful change.
- Learner anticipates challenges and adjustments.
- Learner increase flexibility.
- Learner reflects upon successful outcomes.

Weekly Course schedule and guidelines:

Each week a chapter or portion of a chapter is assigned, the chapter listed is for that week's topic; it is recommended that students at least review the chapter prior to coming to the lecture. The assigned worksheets and completed questions are due the week following their listing on the syllabus. Please note worksheets and questions turned in late will be subject to a decrease in points; 20 points for each day after the due date.

Dates	Topics	Assignment
21 January	Course introduction	Read Chapter 1
28 January	Standards and Guidelines Worksheets # 1 and # 2	Read Chapter 2, p. 36-52
4 February	Nutritional Labels Worksheet # 3	Read Chapter 2, p. 55-71
12 February	Digestion Worksheet 4	Read Chapter 3
19 February	No class; Teacher Training Day	
26 February	TEST # 1 Lecture after test, Carbs Worksheet # 5	Read Chapter 4
4 March	Lipids/Fats Worksheet # 6	Read Chapter 5
11 March	Protein Worksheet # 7	Read Chapter 6
18 March	TEST #2 Lecture after test Energy Balance/Diseases Worksheets # 8, 9, 10	Read Chapter 7
25 March	Energy Balance continued Vitamins Worksheet # 11	Read Chapters 8, 9
1 April	Minerals and water Worksheet # 12 & 13	Read Chap. 10, 11,12

- 8 April** **No class – Spring Break**
- 15 April** **TEST # 3**
Physical Activity **Read Chapter 13**
Calculate Needs
- 22 April** **Lifecycle** **Read Chap. 14, 15**
(Allergies, Celiac Disease)
- 29 April** **Lifecycle continued and Diseases** **Read Chap. 16**
Worksheet # 14
- 6 May** **Sustainability and Food Safety** **Read Chapters 17 & 18**
Worksheet # 15
Exam review
- 13 May** **Comprehensive Examination and Course Evaluation**
- 20 May** **Pick up exam an obtain grades (Optional attendance)**

Worksheet Number and Title	Due Date	Points (100 each)	Discussion Questions	Due Date	Points (100 each)
1. Food Guide Pyramid	4 Feb.		Week 1	4 Feb.	
2. Standards	4 Feb.		Week 2	4 Feb.	
3. Food Labels	12 Feb.		Week 3	12 Feb.	
4. Digestion	26 Feb.		Week 4	26 Feb.	
5. Carbohydrate	4 March.		Week 5	4 Mar.	
6. Lipids	11 Mar.		Week 6	11 Mar.	
7. Protein	18 Mar.		Week 7	18 Mar.	
8. Body Mass Index	25 Mar		Week 8	25 Mar.	
9. Calculating EER	25 Mar.				
10.Weight Loss Prog.	25 Mar.				
11. Vitamins	1 April.		Week 9	1 April.	
12. Minerals/Water	15 April.		Week 10	15 April	
13. Iron/Calcium	15 April.		Week 11	15 April	
14. Life Cycle	6 May		Week 12	6 May	
15. Sustainability	13 May		Week 13	13 May	

Tests/Assignments Make –up Policy: Make-up tests and examination will not be given unless prior arrangements have been made with the instructor. Written assignments are due on the specified date (see explanation above for point reduction for tardy work); students are to request an extension if one is desired and the request is to be made on the due date. Points will be deducted for worksheets submitted late unless prior approval has been received. Make-up tests must be taken within the week of the test date. No exceptions unless prior approval has been granted by the instructor and that must be due to extenuating circumstances.

Worksheets for the semester are enclosed. It is the student’s responsibility to keep track of the worksheets and when they are due. The worksheets are returned to the students following grading. It is recommended that student record the points received on the enclosed chart and use the chart to keep track of worksheets, due dates and points. Students should use the worksheets to help prepare for tests and the examination.

There are some group activity worksheets used in class that count towards attendance but do not receive points. Worksheet # 10 is the exception and does receive points as indicated on the chart.