

**HHP 432**  
**Nutrition in Health and Human Performance**



Taught by:

***Kathe A. Gabel, PhD, RD, CSSD***

***Department of Health and Human Performance***

***Spring Semester, 2011***

***College of Allied Health Professions***  
***Montana State University – Billings***

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**MSU – Billings**  
**College of Allied Health Professions**  
**Department of Health and Human Performance**  
**Spring, 2011**

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**Course Rubric & Title:** HHP 432 – Nutrition in Health and Human Performance  
**Instructor:** Kathe A. Gabel, PhD, RD, CSSD  
**Office/Hours:** PE 117, T & Th, 1 – 4:00 p.m.  
**Phone:** 406-657-2927  
**E-mail:** [kgabel@msubillings.edu](mailto:kgabel@msubillings.edu)  
**Class Times:** MWF, 10:30 – 11:30 a.m.  
**Location:** PE 52  
**E-mail for dept. information:** <http://www.msubillings.edu/hhp/>

**Required Text:** Fink, Burgoon, & Mikesky (2009). *Practical Applications in Sports Nutrition*. USA: Bartlett & Brown.

**Catalog Description:** HHP 432, Nutrition in Health and Human Performance, 3 cr.

**Recommended prerequisite courses:**

Biol 104 – Nutrition for Health Careers, or  
Biol 221 – Human Nutrition, or  
or a basic nutrition course.

Courses in anatomy, physiology, and biochemistry will also be helpful to succeed in this course.

*The course explores the relationships among nutrition, human behavior, epidemiology, and human performance. Course topics will include nutrition for disease prevention and treatment, obesity and weight control, eating for endurance and non-endurance sport performance, nutritional ergogenic aids, digestion, absorption and metabolism related to energy production, eating disorders, dietary analysis and prescriptions.*

## **Course Goals:**

Upon successful course completion, you will be able to:

1. List energy and macro/micro nutrient requirements during exercise and training.
2. List viable fluid/food intake programs for active adults prior to, during and after exercise or competition.
3. Discuss the purported effects of ergogenic aids on macro-nutrient metabolism and performance.
4. Identify characteristics and consequences of disordered eating in active individuals.
5. Discuss appropriate weight gain/loss/maintenance programs for active adults.
6. Discuss dietary approaches for the prevention of heart disease, cancer and osteoporosis.
7. List usable anthropometric methods appropriate for a given population.
8. Evaluate and indicate validity of nutrition information related to ergogenic aids and food products marketed to active individuals.
9. Develop an evidence based nutritional education video, specifically for an active individual.

**Course Content:** Please see specific course topics listed in your tentative **Semester Schedule**.

**Class Policies:** Your conduct is to be consistent with the Code of Student Conduct in the current MSU-B Student Handbook.

A student will fail the course if he or she participates in academic dishonesty, i.e. cheating, plagiarism, dishonesty, inappropriate use of electronic devices, or any violation of expectations listed in the MSU-B Student Handbook.

At this level of your education, you are expected to demonstrate professionalism in all behavior, i.e. respect for others, presentation & completion of projects, respect for diverse opinions, depth of inquiry, punctuality and participation in class discussions and activities.

Cell phones are expected to be turned off and out of sight during class.

**Class Attendance:** Attendance to each class is expected. Any missed information is your responsibility.

**Class Accommodations:****Students with Disabilities:**

MSU Billings is committed to providing equal access. If you anticipate barriers related to the format or requirements of this course, please meet with me so that we can discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please contact Disability Support Services (657-2283; located in the Academic Support Center). We can then plan how best to coordinate your accommodations.

**Course Evaluation:** Grades will be assigned according to the following criteria

<b>Grade</b>	<b>Percent</b>	<b>Points</b>
A	93 – 100	418 - 450
A-	90 – 92	405 - 417
B+	87 – 89	391 - 404
B	83 – 86	373 - 390
B-	80 – 82	360 - 372
C+	77 – 79	346 - 359
C	73 – 76	328 - 345
C-	70 – 72	315 - 327
D+	67 – 69	301 - 314
D	63 – 66	283 - 300
D-	60 – 62	270 - 282
F	<60	<270

**Evaluative Components:**

Exam 1	100 points
Exam 2	100
Exam 3	100
Sports Nutrition Project	100
Nutrition Education project	50
Total	450 points



## National Athletic Trainers' Association

This course is designed to meet the following requirements:

### Competency

Competency Code	Competency
NU-C1	Describe personal health habits and their role in enhancing performance, preventing injury or illness, and maintaining a healthy lifestyle.
NU-C2	Describe the USDA's "My Pyramid" and explain how this can be used in performing a basic dietary analysis and creating a dietary plan for a patient.
NU-C3	Identify and describe primary national organizations responsible for public and professional nutritional information.
NU-C4	Identify nutritional considerations in rehabilitation, including nutrients involved in healing and nutritional risk factors (e.g., reduced activity with the same dietary regimen and others).
NU-C5	Describe common illnesses and injuries that are attributed to poor nutrition (e.g., effects of poor dietary habits on bone loss, on injury, on long-term health, and on other factors).
NU-C6	Explain energy and nutritional demands of specific activities and the nutritional demands placed on the patient.
NU-C7	Explain principles of nutrition as they relate to the dietary and nutritional needs of the patient (e.g., role of fluids, electrolytes, vitamins, minerals, carbohydrates, protein, fat, and others).
NU-C8	Explain the physiological processes and time factors involved in the digestion, absorption, and assimilation of food, fluids, and nutritional supplements. Further, relate these processes and time factors to the design and planning of preactivity and postactivity meals, menu content, scheduling, and the effect of other nonexercise stresses before activity.
NU-C9	Describe the principles, advantages, and disadvantages of ergogenic aids and dietary supplements used in an effort to improve physical performance.

NU-C10	Explain implications of FDA regulation of nutritional products.
NU-C11	Identify and interpret pertinent scientific nutritional comments or position papers (e.g., healthy weight loss, fluid replacement, pre-event meals, and others).
NU-C12	Explain principles of weight control for safe weight loss and weight gain, and explain common misconceptions regarding the use of food, fluids, and nutritional supplements in weight control.
NU-C13	Explain consequences of improper fluid replacement.
NU-C14	Describe disordered eating and eating disorders (i.e., signs, symptoms, physical and psychological consequences, referral systems).
NU-C15	Identify effects of macronutrients (e.g., saturated fats, incomplete proteins, and complex carbohydrates) on performance, health, and disease.
NU-C16	Describe signs, symptoms, and physiological effects of mineral deficiency (e.g., iron, and calcium), and identify foods high in specific mineral content.
NU-C17	Identify and explain food label Daily Value recommendations and common food sources of essential vitamins and minerals in using current USDA Dietary Guidelines.
NU-C18	Describe the principles and methods of body composition assessment (e.g., skinfold calipers, bioelectric impedance, body mass index [BMI]) to assess a patient's health status and to monitor progress in a weight loss or weight gain program for patients of all ages and in a variety of settings.
NU-C19	Explain the relationship between basal metabolic rate, caloric intake, and energy expenditure in the use of the Food Pyramid Guidelines.
NU-C20	Identify the nutritional benefits and costs of popular dietary regimen for weight gain, weight loss, and performance enhancement.
NU-P1	Assess body composition by validated technique (e.g., skinfold calipers, bioelectric impedance, BMI, etc.) to assess a patient's health status and to monitor progress during a weight loss or weight gain program.
NU-P2	Calculate energy expenditure, caloric intake, and BMR.
NU-P3	Provide educational information about basic nutritional concepts, facts, needs, and food labels for settings associated with physically active individuals of a wide range of ages and needs.
PS-C10	Identify the symptoms and clinical signs of common eating disorders and the psychological and sociocultural factors associated with these disorders.


## HHP 432 – Nutrition in Health and Human Performance Tentative Semester Outline and Assignments


Day	Lecture Topic	Related Reading Assignment	Notes
12 Jan. 11	Welcome  Course Introduction  Case – You are the Nutrition Coach!		Purchase text.  Please submit Information form and Work Style survey this week.
14 Jan. 11	Sports Nutrition Plans  Nutrition Education Methods	Chapter 1 <i>Introduction to Sports Nutrition</i>  Chapter 10 <i>Nutritional Consultation with Athletes</i>	Start collecting images for use in an Animoto clip.
17 Jan. 11	Martin Luther King Day	No Class ☺	
19 Jan. 11	2010 Dietary Guidelines for Americans  Application to athletes and active individuals  Use of MyPyramid	Chapter 1 <i>Introduction to Sports Nutrition</i>  Position Stands from professional organizations	Prior to class, review DGAs and MyPyramid  Prior to next class, go to ACSM and print off the Position Stand. The international Society of Sport Nutrition also has several position statements.
21 Jan. 11	Professional Position Stands: 1) American Dietetic Association, Dietitians of Canada, and American College of Sports Medicine  2) International Society of Sport Nutrition		Prior to class, read the position stands.

24 Jan. 11	Food Intake Assessment	Chapter 10 p. 284 – 296	
26 Jan. 11	Food Intake Assessment		
28 Jan. 11	Human Energy – Energy Pathways and Systems	Chapter 2, p. 44 - 60 <i>Nutrients: Ingestion to Energy Metabolism</i>	
31 Jan. 11	Human Energy – Energy Metabolism	Chapter 11, p. 326 - 329 <i>Weight Management</i>	Please bring a calculator to class.
2 Feb. 11	Applications Energy Calculations		Please bring a calculator to class. <b><i>Evidence based resource paper for Animoto assignment is due today.</i></b>
4 Feb. 11	<b>Review of Sports Nutrition Project</b>	Please print off the Sports Nutrition Project and bring to class.	Please record your food intake at your evening meal. List name of food, amount, and how the food was prepared. This will be <b>used for the next class.</b>
7 Feb. 11	Carbohydrate: Classification, GI and GL	Chapter 3 <i>Carbohydrates</i>	
9 Feb. 11	Carbohydrate: Before Exercise		
11 Feb. 11	Carbohydrate: After Exercise		
14 Feb. 11	Lipids	Chapter 4 Fats	



16 Feb. 11	Lipid Metabolism	Chapter 4 <i>Fats</i>	
<b>18 Feb. 11 Exam day!</b>	<b>Exam 1</b>		
21 Feb. 11	Presidents' Day	No class ☺	
23 Feb. 11	Protein Metabolism	Chapter 5 <i>Protein</i>	<b>Learning Objectives are due today by 5:00 p.m.</b>
25 Feb. 11	Applications <b>Review of Exam 1</b>		
<b>28 Feb – Mar 4</b>	<b>Spring Break</b>	<b>No class</b>	<b>Yahoo!</b>
7 Mar 11	Protein & Creatine Supplements		Today, please bring a protein or creatine project or advertisement to class.
9 Mar 11	Ergogenic Aids	Chapter 9, <i>Nutritional Ergogenics</i>	<b>Phase 1 of Sports Nutrition project is due today by 5:00 p.m.</b>
11 Mar 11	Anthropometry	Chapter 11, p 319 - 325 <i>Weight Management</i>	<b>Submit Animoto video into D2L Discussion section.</b>
14 Mar 11	<b>Presentation and evaluation of Animoto videos</b>		
16 Mar 11	<b>Presentation and evaluation of Animoto videos</b>		
18 Mar 11	Body Weight	Chapter 11 p. 316 - 317 <i>Weight Management</i>	

21 Mar 11	Weight Loss	Chapter 11 p. 329 - 336 <i>Weight Management</i>	<b>Papers for the Nutrition Education project are due today by 5:00 p.m.</b>
23 Mar 11	Disordered Eating	Chapter 11 p. 336 - 348 <i>Weight Management</i>	
25 Mar 11	Weight Gain	Chapter 11 p. 348 - 351 <i>Weight Management</i>	
28 Mar 11	Excessive Weight Gain	Chapter 11 p. 314 – 318 <i>Weight Management</i>	
<b>30 Mar 11</b>	<b>Exam 2</b>		
1 April 11	Vitamins	Chapter 6 <i>Vitamins</i>	
4 April 11	Minerals – Calcium	Chapter 7 p 189 - 201 <i>Minerals</i>	
6 April 11	Minerals – Iron	Chapter 7 p 202 – 216 <i>Minerals</i>	
8 April 11	Problem Based Learning (PBL)		<b>Phase 2 of the Sports Nutrition project is due at 5:00 p.m.</b>
11 April 11	PBL Case	<i>Chapter 8, 9, 12, 13 and 14</i>	

13 April 11	PBL Case	<i>Chapters 9, 12, 13, and 14</i>	
15 April 11	PBL Case	<i>Chapters 9, 12, 13, and 14</i>	
18 April 11	PBL Case	<i>Chapters 9, 12, 13, and 14</i>	
20 April 11	Case Review Course Evaluations	<i>Chapters 9, 12, 13, and 14</i>	
<b>10:00 – 11:50 a.m. Monday 25 April 11</b>	<b>Exam 3</b>		



# **Nutrition in Health and Human Performance**

## **Spring Semester, 2011**

### **Teaching Methods**

This course is taught using a variety of methods: lecture, discussion, case studies, feedback lecture and Problem Based Learning (PBL). The variety of methods will promote differing approaches to understanding this exciting area of research in sports medicine.

### **Exam Description**

The exam questions are of various types:

1. multiple choice
2. fill in the blank
3. matching
4. true/false – If false, correct the statement
5. calculations
6. short essay
7. case studies

### **Source of exam questions:**

1. Lecture and case study discussion
2. Lecture activities
3. Learning issues from PBLs
4. Each chapter has review questions, plus application cases (*You are the Nutrition Coach*).
5. Research articles and evidence based material

### **General Guidelines**

1. Class attendance is expected. Much information can be gained from interaction among your colleagues and activities presented during class time.
2. The general guideline for studying is to spend two hours studying for every one hour spent in class. Approximately six hours per week should be used outside of class to prepare for a 3-credit course and eight hours for the typical 4-credit course.
3. You are encouraged to ask questions during class. If something is unclear to you, it probably means that other students have a similar question.
4. Common courtesy dictates that you pay attention to the speaker and not talk to your neighbor or send/answer text messages during class time. Such talking and/or sending text messages annoy and distract fellow classmates and the professor. The obvious exception to this would be small group discussion or a paired activity. In that case, actively listen to your colleague in order to enhance the interaction and activity.
5. Smile and laugh a lot! Better health and fewer wrinkles are benefits.