American Public University System

The Ultimate Advantage is an Educated Mind

School of Management
Course Number: SPHS 503
Course Name: Nutrition for Sports Performance
Credit Hours: 3
Length of Course: 8 weeks

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Instructor Information

Instructor:

Email:

Office Hours:

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Course Description (Catalog)

Nutrition plays an integral part of our daily lives. It becomes even more important for athletes, who push the physical limits of their body. Providing adequate fuel is essential and can make a difference between success and failure. Yet most athletes and coaches lack basic nutrition knowledge important for enhancing strength, speed and endurance. This class will focus on the nutritional needs and requirement of athletes. First, the student will recognize and establish sound nutrition principles and the nutrients that play a role in determining these principles. Nutrients and other food constituents are integrated into the human body. These affect the athlete's metabolism, health, and performance. The student will trace the metabolic fate of

dietary components and recognize how each nutrient and/or food constituent affects metabolism, health and performance. Using this knowledge, the student will design several healthy diets that optimize performance.

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Course Scope

Welcome to SPHS503, Nutrition for Sports Performance. This is a graduate course specifically designed to expand your current knowledge of practices, theories, and trends in the field of Sports Nutrition. From the academic training and practical experiences, you will be able to assemble protein, carbohydrate, and fat recommendations for athletes and discern between dietary recommendations for disease prevention and recommendations for performance.

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Course Objectives

After successfully completing this course, you will be able to:

- 1. Identify macro and micronutrients.
- 2. Identify foods that provide these nutrients.
- 3. Identify other food constituents that are not essential nutrients that affect metabolism and/or athletic performance.
- 4. Compare and contrast nutrients and dietary constituents.
- 5. Establish nutrition principles that guide performance.
- 6. Diagram and explain the metabolic pathways for each macronutrient.
- 7. Recognize how each macro and micronutrient influences performance.
- 8. Develop two diets that optimize performance using the established nutrition principles.
- 9. Evaluate dietary ergogenic aids and their effect on human performance.
- 10. Evaluate nutrition claims found on the web, in written material such as newspapers and magazines, and television.
- 11. Determine if the food you eat affects your health.

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Course Delivery Method

This course, delivered via distance learning, will enable you, the student, to complete academic work in a flexible manner, completely online. Course materials and access to an online learning management system will be made available to you. Online assignments, quizzes, and tests are

due by Sunday evening of the week as noted. Forum discussions are due on Wednesday and Sunday. Assigned faculty will support the students throughout this eight-week course.

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Course Materials

Required Course Textbook and Resources:

Williams, MH. *Nutrition for Health, Fitness, and Sport*. McGraw Hill, 10th Ed. 2012 ISBN: 0078021324.

Access to NutritionalCalc Plus online: You will use this site for the first week's assignment. Please secure access to this site in the first few days of the term.

https://highered.mcgraw-

hill.<wbr></wbr>com/paris/donothavecodeview.<wbr></wbr>do?productid=0073328642&email=<wbr>></wbr>null

Required Readings:

You can find each week's required reading in several places. First, the readings are listed in the Course Outline below. Second, the readings can be found in the weekly announcement posted in the classroom early each Monday morning. Finally, you can find the required reading in the classroom under "Lesson." I urge you to look at each of these.

Additional Resources

Additional resources are available in the classroom under the tab titled, "Resources".

Websites

In addition to the required course texts the following public domain Websites are useful. Please abide by the university's academic honesty policy when using Internet sources as well. Note web site addresses are subject to change.

Site Name	Website URL/Address
The OWL at Purdue	http://owl.english.purdue.edu/
APA Style Homepage	http://www.apastyle.org/index.aspx

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Evaluation Procedures

The nature of an on-line course requires a significant amount of independent work. You will be provided with structure, resources, guidance, and instructor experience for learning the course material. You are responsible for managing your time to complete the assignments on time, to complete the readings, and to make inquiries as needed to complete the course effectively. This is an 8-week course, which means the material must be learned in a short period of time. This requires dedication and diligence your part.

To help you in your scholarly efforts the University also maintains, and is constantly upgrading, the Online Research Center (ORC). This resource is available for both faculty and students and represents a state of the art and very comprehensive knowledge base. Please make sure you take advantage of this valuable tool it is a great place to start any research effort and is available from within the electronic campus.

It is important that you check email, classroom messages, and posted Professor's notes for each week's work. Additional readings, internet-work and assignments will be posted on-line at the beginning of each week of the course. Assignment due dates will be posted with assignment directions. All assignments will have due dates of one week. You are expected to complete all work on time. As adults, students, and working professionals I understand you must manage competing demands on your time. Should you need additional time to complete an assignment, please contact me before the due date so we can discuss the situation and determine an acceptable resolution. Routine submission of late assignments is unacceptable and may result in points deducted from your final course grade.

For the purposes of this course, a "week" is defined as the time period from Monday to Sunday. The first week begins on a Monday. Note: The last day of this course will end on a Saturday. The start and stop time are for Eastern Standard Time (EST).

Please use email to contact me at Kristin.ondrak@mycampus.apus.edu. I will check email daily and in most instances will respond within 24 hours. There may be times it may take me as long as 48 hours. The University requires you to contact me at least weekly during the semester, which in this course will be necessary to complete all assignments. This contact can include forums and submission of assignments.

Due to the busy schedules, all forum work is asynchronous, meaning you are not required to be on–line at a specific time with the professor or other students. Instead you may post your comments or questions on the forum. You may, of course, interact with the professor or other students via e-mail at any time.

Grading will be based on 3 written weekly assignments, 7 forum topic responses, a 5-10-page project, 6 open book quizzes, and an open book final quiz.

Here is how I will evaluate each graded activity:

Reading Assignments: You do not have to turn these in. I trust you to complete the reading assignments. If you do not, this will become apparent in your forum discussions, assignments, and tests.

Supplemental Readings: Each week, there will be supplemental reading to augment the textbook and our weekly forum discussions. You will find the supplemental readings listed in the outline below, posted in the weekly announcement, listed in the lesson plan, under "Required Reading" for that week. Again, you do not have to turn these in. I trust you to complete these reading assignments. If you do not, this will become apparent in your forum discussions, assignments, and tests.

Forum Assignments: There are 15 forum topics that require a response. Forums are designed to initiate dialog among the students. Feel free to debate, praise, and share thoughts about the topic with fellow classmates. In order to respond to a forum topic, post your response in the forum section of the classroom. Your initial response must be >300 words. You are also required to respond to the posts of at least **two** classmates for each forum. These responses must be >200 words in length. You will earn between 14 points and 30 points for each forum topic. These account for 42% of your grade.

Homework Assignments:

You have a total of 3 written assignments that must be completed and uploaded. A minimum of 300 words per assignment is the baseline, unless otherwise directed. These assignments are worth 1 to 50 points and account for 12% of the total grade.

Quizzes

There are 6 quizzes you will complete in this class. They are multiple choice and true/false. These account for 21% of your grade.

There is one final. It consists of multiple choice, true/false, and short answer essay questions. The final quiz is comprehensive and consists of questions dealing with various issues discussed during the course. The final quiz is worth 12.5% of your final grade.

Field Experience Assignments: None

Final Project:

There is one larger assignment to complete. It is titled, Assignment 4, "Putting Your Knowledge to Action." Have fun with this. See the assignment for more details. This assignment is worth 12.5% of your final grade.

Grade Instruments	Points

Week 1 – Forum Discussion 1a	15
Forum Discussion 1b	30
Assignment 1	40
Quiz 1	35
Week 2 – Forum Discussion 2a	30
Forum Discussion 2b	30
Assignment 2	40
Quiz 2	35
Week 3 – Forum Discussion 3a	30
Forum Discussion 3b	30
Assignment 3	40
Quiz 3	35
Week 4 – Forum Discussion 4a	30
Forum Discussion 4b	30
Quiz 4	35
Week 5 – Forum Discussion 5a	30
Forum Discussion 5b	30
Quiz 5	35
Week 6 – Forum Discussion 6a	30
Forum Discussion 6b	30
Quiz 6	35
Week 7 – Forum discussion 7a	30
Forum Discussion 7b	30
Assignment #4 Project	125
Week 8 – Forum Discussion 8	14
Final Quiz	126
Total	1000

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Please see the <u>Student Handbook</u> to reference the University's grading scale

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8 - Week Course Outline

Week	<u>Topic</u>	Learning Objectives	<u>Readings</u>	<u>Assignment</u>

<u>Week</u>	<u>Topic</u>	Learning Objectives	<u>Readings</u>	Assignment
	Understanding the Consumer Athlete	 Explain the influence of genetics and the environment on nutrition. List the twelve guidelines underlying a prudent healthy diet Summarize the most recent Dietary Guidelines Define nutrition quackery List at least 3 strategies to determine whether the claim of a dietary supplement is valid List the elements of a scientific study List the 6 major classes of nutrients Explain the development of the DRI and its various components including RDA, AI, AMDR, UL, EER, and EAR List the components of the MyPlate Explain nutrient density List the components of a food label Describe the various classes of vegetarians 	William's Text Readings: Chapters 1, 2 Supplemental Required Reading: 3 files on the Dietary Guidelines – located under "Resources, Week 1, Required Reading" Websites: This is the website to introduce this week's lesson: http://www.youtube.com /watch?v=nkpbdJnOxA8&f eature=related These are the other websites you should visit this week. 1. Calculate how many fruit and vegetables you need: http://www.fruitsandv eggiesmatter.gov/ 2. Take the quiz: http://hp2010.nhlbihi n.net/portion/ 3. Read and interact with: http://www.choosemy plate.gov/ 4. Familiarize yourself: http://www.health.go v/dietaryguidelines/20 10.asp 5. familiarize yourself with: http://www.cnpp.usd a.gov/dietaryguidelin es.htm	Forum #1a Forum #1b Assignment #1: What's in my diet? Quiz #1

Week	Topic	Learning Objectives	Readings	Assignment
	<u> </u>		<u></u>	- 100-G-1111-011-0
	Energy and the Primary Energy Fuel,	Explain the various forms of chemical, thermal and mechanical energy.	William's Text Readings: Chapters 3, 4	Forum #2a Forum #2b
	Carbohydrate	Use mathematical equations to convert among the different forms of energy.	Supplemental Required Reading:	Assignment #2: What's on my plate? What am I
		3. Identify the major human energy systems, where they are	1 file on the Energy Drinks - located under	burning?
		stored and where they are metabolized.	"Resources, Week 2, Required Reading"	Quiz #2
		4. List the major components of TDEE. What makes up each?	Website: Here is video humor to	
		5. What affects REE?6. How do we measure energy	introduce one of this week's topics.	
		expenditure during energy? How do you convert between these?	http://www.youtube.com/ watch?v=qRuNxHqwazs	
		 Explain how the 3 different muscle fiber types affect energy production during exercise. 	This article shows you how one dietitian used what's on my plate.	
2		8. Explain the relationship between PAL and EER.	http://www.jconline.com/ article/20110814/SPORT S020101/108140348//Nu	
		9. Describe the role of the 3 energy systems during exercise.	tritionist-helps-Purdue- football-layers-change-	
		 List nutritional interventions that may help delay the onset of fatigue during exercise. 	habits?odyssey=mod%7 Cnewswell%7Ctext%7C newswell%7Ctext%7CF	
		11. List food rich in each type of carbohydrate.	RONTPAGE%7Cs	
		12. Describe dietary carbohydrate metabolism starting with digestion and ending with secretion.		
		13. Explain the role of carbohydrates in human energy systems.		
		 Describe the role of carbohydrate in enhancing exercise and exercise fatigue. 		
		15. Describe how carbohydrate can be used to optimize training.		
		16. Identify when carbohydrate loading is appropriate.		
		17. Identify carbohydrate- containing foods that are		

	<u>Learni</u>	ng Objectives	<u>Readings</u>	<u>Assignment</u>
		considered to be more healthful and explain why.		
The Alternatenergy Fuels and Protein	2. 3. 4. 5. 6. 7. 8. 10. 11. 12. 13.	Identify the different types of dietary fat and at least one source of each type of dietary fat Calculate the amount of fat, MUFA, SFA, and PUFA in your diet. Describe fat digestion and absorption throughout the GI tract. Explain fat metabolism including lipogenesis, lipolysis, and fat oxidation. Identify locations of fat in the human body. Articulate the functions of fat. Explain the role of fat during exercise including endurance exercise. Explain the various dietary fat strategies and supplements developed to enhance exercise performance.	William's Text Readings: Chapters 5, 6 Supplemental Required Reading: 1 file on the Protein Drinks—located under "Resources, Week 3, Required Reading" Website: Here is the website to start off this week's topics: http://www.youtube.com/ watch?v=49FPDxD3q6s Are protein drinks safe? Here is video on protein drinks. You are also reading the article. We will discuss this in our forum. http://www.youtube.com/ watch?v=w-tMZerqYko	Forum #3a Forum #3b Assignment #3: Drive Thru Diet Quiz #3

of APU		Leave to Object or	D 1"	A * 1
<u>Week</u>	<u>Topic</u>	<u>Learning Objectives</u>	<u>Readings</u>	<u>Assignment</u>
		 16. Explain protein absorption. 17. Identify where protein is located in the body. 18. Articulate the functions of protein. 19. Describe the function of protein during exercise. 20. Elaborate the protein recommendations for athletes on a daily basis, and before and after exercise. 21. List the potential hazards of too much protein and too little protein. 		
4	Micronutrients: Important Metabolic Regulators	 List the essential vitamins and identify foods rich in these List the RDA and AI for each essential vitamin. Identify at least 3 functions for each vitamin and choline. List the health consequences of consuming an excess and/or deficient amount of each vitamin. Describe the role of each vitamin and choline during exercise. Discuss the pros and cons of supplements versus food. List the essential minerals and identify foods rich in each. Distinguish the macro and microminerals. List the RDA and AI for each mineral. Identify at least 3 functions for each mineral. List the health consequence of consuming an excess and/or deficient amount of each mineral. Describe the role of each vitamin and choline during exercise. Discuss the importance of calcium, zinc, chromium, 	William's Text Readings: Chapters 7, 8 Supplemental Required Reading: 1 file on the Dietary Supplement Use by Athletes—located under "Resources, Week 4, Required Reading" Website: http://www.ehow.co.uk/vi deo 4397747 nutrients- support-energy- metabolism.html	Forum #4a Forum #4b Quiz #4

Mest	Tarris	Learning Objections	Dood!:	A a a ! a
<u>Week</u>	<u>Topic</u>	<u>Learning Objectives</u>	<u>Readings</u>	<u>Assignment</u>
		selenium, boron, vanadium, and iron for the athlete. 14. Identify the bodies' water compartments and a general function of each.		
5	Body Composition and the Importance of Water	 Describe water balance and how your body maintains it. Describe how sodium and potassium balance are maintained. List foods high or low in sodium and potassium. Explain how the 4 components of environmental heat stress impact the heat balance equation during exercise under hot, humid environmental conditions. Compare and contrast exercise in the heat vs. cooler temperatures. Explain the physiological response to each. Identify and describe the various heat illnesses including cause, clinical indicators and treatment. List strategies to reduce heat illness. Describe high blood pressure and associated health risks. Describe the role of exercise and diet in preventing and treating hypertension. Identify the various components that comprise human body composition. List the techniques used to measure body composition. Detail the pros and cons of each body composition method. Describe how the body maintains body weight. Be sure to include the CNS and peripheral organs and tissues. 	William's Text Readings: Chapters 9 ,10 Supplemental Required Reading: None Website: Here is the website to introduce one of this week's topics, hydration: http://www.youtube.com/ watch?v=itFmMSI7Hcs&fea ture=related	Forum #5a Forum #5b Quiz #5

Wook	Tonic	Learning Objectives	Poodings	Accianment
<u>Week</u>	<u>Topic</u>	Learning Objectives	Readings	<u>Assignment</u>
		 14. List and explain the various genetic and environmental factors that affect body weight. 15. List and explain factors that may predispose to underweight, overweight and obesity. 16. Explain risks and health problems of being underweight, overweight and obese. 17. Describe different types of weight loss diets and the pros and cons of each. 		
6	Proper Body Weight and Maintenance of Weight	 Calculate how many calories are needed each day to maintain a particular weight with a sedentary to active lifestyle. Calculate the amount of body mass an overweight or obese person must lose to attain a healthier BMI or body fat. List at least 5 behavior modification techniques that are important for weight loss. Calculate the number of calories needed to safely lose weight. List the key principles of a weight loss diet that are important for successful weight maintenance of a healthy body weight. Plan a weight maintenance and weight loss diet using the Food Exchange System. Explain the importance of including exercise in a weight loss and weight maintenance program. Your response should include the type, intensity, duration and frequency of exercise. Discuss the importance of 	William's Text Readings: Chapters 11, 12 Supplemental Required Reading: 1 file on Energy Density and Energy Intake — located under "Resources, Week 6, Required Reading" Website: Start with the video on this website: www.fda.gov/weightlossfr aud It was produced by the FDA. It points out some of the hazards of weight loss drugs. Then peruse the box on the left titled "Resources for You." View the slide show titled "Beware of Fraudulent Dietary Supplements."	Forum #6a Forum #6b Quiz #6

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<u>Week</u>	<u>Topic</u>	Learning Objectives	<u>Readings</u>	<u>Assignment</u>	
		exercise and diet. 9. List the steps for gaining weight, particularly muscle mass. 10. Plan a diet for somebody who wants to gain weight. 11. List dietary supplements commonly used to stimulate muscle building and body-fat loss. 12. List and explain the principles of resistance training. 13. Describe the difference among resistance-training programs for muscular hypertrophy, muscular strength and power, and muscular endurance. 14. Compare and contrast the health benefits of aerobic endurance exercise and resistance exercise.			
7	Supplement: Should I Participate?	 List the metabolic, physiological and psychological effects of alcohol in the body. List the possible beneficial and detrimental effects of alcohol composition on health. Explain the theories suggesting caffeine is a beneficial ergogenic aid. Summarize caffeine's effect on exercise performance. List the possible beneficial and detrimental effects of caffeine. List the potential health problems of ephedra containing supplements. Explain the theories of suggesting sodium bicarbonate as an ergogenic aid. List drugs and related dietary supplements used to stimulate muscle building. Describe their effect on exercise performance and potential health risks. Explain the theories of how 	William's Text Readings: Chapters 13, Ergogenic Aids Supplemental Required Reading: 1 file on the Ergogenic Aids — Counseling the Athlete — located under "Resources, Week 7, Required Reading" Website: http://youtube.com/watch ?v=68xTHL zqtE	Forum #7a Forum #7b Assignment #4: Putting Your Knowledge into Action	

Week	<u>Topic</u>	Learning Objectives	<u>Readings</u>	<u>Assignment</u>
		ginseng may enhance performance. 10. Discuss the drugs and supplements identified in your textbook as banned from sports. 11. Describe the four different levels of dietary supplement recommendations as related to their efficacy, safety and permissibility.		
8	Are We What We Eat?Summing It All Up	 Describe what should be on your plate to optimize performance. Explain the nutrients these foods contain. List of the pros and cons of including supplements on your plate. 	William's Text Readings: None Supplemental Required Reading: ACSM and ADA position paper on nutrition and athletic performance. This can be found under "Resources, Week 8, Required Reading."	Forum #8 Final Quiz

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Policies

Please see the <u>Student Handbook</u> to reference all University policies. Quick links to frequently asked question about policies are listed below.

Drop/Withdrawal Policy
Plagiarism Policy
Extension Process and Policy
Disability Accommodations

Writing Expectations

All written submissions should be submitted in a font and page set-up that is readable and neat. It is recommended that you adhere to a consistent format, which is described below.

- Typewritten in double-spaced format with a readable style and font and submitted as a
 Word Document inside the electronic classroom (unless classroom access is not possible
 and other arrangements have been approved by the professor).
- Arial 11 or 12-point font or Times New Roman 11 or 12-point styles are recommended.
- Page margins Top, Bottom, Left Side and Right Side = 1 inch, with reasonable accommodation made for special situations and online submission variances.

Citation and Reference Style

Attention Please: You should follow the <u>APA Style Manual</u>, 6th Edition as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Style Manual, 6th Edition.

Late Assignments

You are expected to submit your classroom assignments by the posted due date and to complete the course according to the published class schedule. As adults, students, and working professionals I understand you must manage competing demands on your time. Should you need additional time to complete an assignment please contact me before the due date so we can discuss the situation and determine an acceptable resolution. Routine submission of late assignments is unacceptable and may result in points deducted from your final course grade.

Netiquette

Online universities promote the advance of knowledge through positive and constructive debate--both inside and outside the classroom. Discussions on the Internet, however, can occasionally degenerate into needless insults and "flaming." Such activity and the loss of good manners are not acceptable in a university setting--basic academic rules of good behavior and proper "Netiquette" must persist. Remember that you are in a place for the fun and excitement of learning that does not include descent to personal attacks, or student attempts to stifle the discussion of others.

 Technology Limitations: While you should feel free to explore the full-range of creative composition in your formal papers, keep e-mail layouts simple. The Educator classroom may not fully support MIME or HTML encoded messages, which means that bold face, italics, underlining, and a variety of color-coding or other visual effects will not translate in your e-mail messages.

• **Humor Note:** Despite the best of intentions, jokes and--especially--satire can easily get lost or taken seriously. If you feel the need for humor, you may wish to add "emoticons" to help alert your readers: ;-), :), ©

Disclaimer Statement

Course content may vary from the outline to meet the needs of this particular group.

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Online Library

The Online Library is available to enrolled students and faculty from inside the electronic campus. This is your starting point for access to online books, subscription periodicals, and Web resources that are designed to support your classes and generally not available through search engines on the open Web. In addition, the Online Library provides access to special learning resources, which the University has contracted to assist with your studies. Questions can be directed to librarian@apus.edu.

- Charles Town Library and Inter Library Loan: The University maintains a special library
 with a limited number of supporting volumes, collection of our professors' publication,
 and services to search and borrow research books and articles from other libraries.
- **Electronic Books:** You can use the online library to uncover and download over 50,000 titles, which have been scanned and made available in electronic format.
- **Electronic Journals:** The University provides access to over 12,000 journals, which are available in electronic form and only through limited subscription services.
- Tutor.com: Students have access to 10 free hours of tutoring service per year.

 Tutor.com is an award-winning online homework help and learning service that connects students to a certified tutor for one-on-one help Get help with homework, studying, projects, essay writing, and test prep in every subject, including algebra, statistics, chemistry, physics, social studies, and English. There are thousands of academic and career services resources—worksheets, practice problems, videos in every subject, as well as financial literacy tips. They are available 24/7 so you can access them whenever you need extra help. Tutor.com can be accessed through the Online Library Tutorial Center link.

Request a Library Guide for your course (http://apus.libguides.com/index.php)
The AMU/APU Library Guides provide access to collections of trusted sites on the Open Web and licensed resources on the Deep Web. These are specially tailored for academic research at APUS:

- Program Portals contain topical and methodological resources to help launch general research in the degree program. To locate, search by department name or navigate by school.
- Course Lib-Guides narrow the focus to relevant resources for the corresponding course. To locate, search by class code (e.g., SOCI111) or class name.

If a guide you need isn't available yet, let us know by emailing the APUS Library: librarian@apus.edu

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Selected Bibliography

Encyclopedia of Human Nutrition (Second Edition), Benjamin Caballero, Lindsay Allen, Andrew Prentice, 2005, Elsevier Ltd. ISBN: 978-0-12-226694-2