COURSE: Nutr 4420/6420
Nutrition and Fitness

CREDITS: 3

PREREQUISITES: Nutr1020 and Nutr 2320

CLASS SCHEDULE: Tu, Th @ 9am – 11:45 pm, Aug 28 through Oct 19, 2017
SB 238 and SB 133(Biochemistry Lab) on Lab days

PROFESSOR:
Rodney A. Hansen, Ph.D.
Professor of Nutrition
Office: 408 Swenson Building
(801) 626-7748
rhansen@weber.edu
Office Hours: 11:30am-12 Monday through Friday
or by appointment.

PRIMARY REFERENCE:


Other Texts used in the Course:


Worksheets and Laboratories are available online at http://online.weber.edu

Additional materials will be made available online at http://online.weber.edu or distributed in class

OVERALL COURSE DIRECTION:
Course content is divided into five modules that address fitness and nutrition. These five modules include: fitness, nutrition, body composition, metabolism/energy production, and obesity. Aging will also be addressed in each of the modules. Nutrition research protocols and ethics will also be presented throughout the course.

Fitness evaluations or exercise testing will be conducted on aerobic competency, strength, and flexibility. There will be extensive body composition/bone density testing and food diary evaluations, diet analysis and diet prescriptions will be made.
During the course, you will focus on writing the term paper dealing with interpreting your fitness/physical activity, food intake/diet composition and body composition.

**COURSE OBJECTIVES:**
Upon completion of Nutr 4420, students will have demonstrated their:
1) Ability to implement, interpret and describe the different methods of body composition determination for Lean Body Mass, Fat Mass, and Bone Tissue
2) Ability to implement, measure, and apply different methods of flexibility, aerobic and anaerobic fitness assessments
3) Ability to perform a diet analysis for nutrients, and design a diet that addresses nutrition optimal for fitness
4) Ability to write a term paper addressing a subject’s Body Composition, Physical Fitness, and Diet in a technical or scientific format
5) Ability to identify and describe key biochemical precursors, products and enzymes of bioenergetics as they relate to nutrition, aging, and physical performance
6) Ability to describe and define key theories of obesity and be able to implement tools of intervention on society obesity and weight management
7) Ability to identify and describe theories and interventions of aging

**REQUIREMENTS:**
There will be four take-home exams (assessments) and one in class exam (the final).

Ten point quizzes will be given at the start of almost every class. *Quizzes cannot be made up.*

CITI certification [http://www.weber.edu/COE/NIH.html](http://www.weber.edu/COE/NIH.html), and Diet project, worksheets or Laboratories will be completed.

There will be an assimilation paper required for the course. It will be at least five pages in length and no more than ten pages (12 point, double-spaced). The content of the paper will address dietary, body composition, and exercise changes that are necessary in the context of fitness and nutrition for you. The paper must be referenced with at least six articles from professional periodicals, three web based sites, three popular literature and a minimum of three books. Other resources may be used. The detailed description will be given in class with a grade rubric.

**EVALUATION:**
Grades will be based on the exams, quizzes, the worksheet/Laboratory assignments, and the written paper:

<table>
<thead>
<tr>
<th>Item</th>
<th>Points</th>
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<tbody>
<tr>
<td>Exam # 1 (PA)</td>
<td>80</td>
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<tr>
<td>Exam # 2 (Nut)</td>
<td>80</td>
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<tr>
<td>Exam # 3 (BC)</td>
<td>80</td>
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<td>Exam #4 (Met and En)</td>
<td>80</td>
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<tr>
<td>Exam #5 (Obesity)</td>
<td>80</td>
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<tr>
<td>Quizzes/Attendance (about 10)</td>
<td>200</td>
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<tr>
<td>Work Sheets and Labs:</td>
<td>200</td>
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<tr>
<td>Paper:</td>
<td>200</td>
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<td>Total:</td>
<td>1000</td>
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Students taking Nutr 6420 will be required to complete a paper. This paper will be at least six pages and will be a literature review of a potential research topic addressing nutrition and fitness. You will meet with the instructor on the first day of class to determine the topic.

**Worksheets and Labs 200 points total**
- Calorie Burn and Physical Activity 10 points
- Physical Fitness Laboratory 50 points
- Diet Project 50 points
- Body Composition Laboratory 50 points
- Bench Methods Laboratory 10 points
- CITI Certification [http://www.weber.edu/COE/NIH.html](http://www.weber.edu/COE/NIH.html) 30 points
Paper 200 points total

Outline 10 points
Introduction 10 points
Tables 10 points
Main Body 10 points
Conclusion 10 points
References 10 points
Final paper 140 points

Grades are determined by WSU guidelines:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>93%</td>
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<tr>
<td>A-</td>
<td>90%</td>
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<tr>
<td>B+</td>
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<td>C+</td>
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<td>C</td>
<td>77%</td>
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<tr>
<td>B</td>
<td>75%</td>
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<td>C-</td>
<td>70%</td>
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<td>D+</td>
<td>67%</td>
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<tr>
<td>D</td>
<td>65%</td>
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<tr>
<td>D-</td>
<td>60%</td>
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COURSE FEE: This course has a fee attached. Course fees are established in order to benefit the students in this course and may, among other things, be used to cover the costs of equipment replacement and maintenance, consumable materials, licensure examinations, or to meet specific regulatory requirements. The course fee expenditure for this specific course covers the use of resting energy expenditure and various body composition analyses as well as the acquisition, replacement, and maintenance of such equipment.

STUDENT CODE: Students enrolled in this class will adhere to the Department of Athletic Training and Nutrition (ATN). Student Conduct Policy available online at http://www.weber.edu/ATN.

ACADEMIC HONESTY AND DISHONESTY:
Students should follow the “student code” regarding academic honesty. It is unacceptable to give student’s information about exam questions and their answers or correct answers on assignments. Any individual caught cheating on examinations and assignments; such as plagiarizing or copying another person’s homework will receive an automatic “E” for their final grade. In addition, a letter will go into the student’s file documenting the crime.

CAMPUS CLOSURE: In the event that the WSU campus is closed for face to face classes, the class will continue to meet at WSU Online http://online.weber.edu.

STUDENTS WITH DISABILITIES:
Students with Disabilities: "Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in room 181 of the Student Services Center. SSD can also arrange to provide course materials (including the syllabus) in alternative formats if necessary." For more information contact SSD at 801-626-6413, ssd@weber.edu, or http://departments.weber.edu/ssd/.

TENTATIVE COURSE OUTLINE:

**Week One**
8/29 Mod 1 Fitness: Overview of the Course, The Paper: Instruction on writing paper and applying data from Body Composition and Fitness/Activity Labs, and Diet Project; Krause Chapter 2: Energy, Appendix 28 (Cal/hr expend) M, K, & K : Appendix B (cals/min), F (3 day activity log)

8/31 Mod 1 Fitness: Benefits of Exercise, Principles of Exercise
Take Home Exam #1 is open

**Week Two**
9/5 Mod 1 Fitness: Benefits of Exercise, Fitness Recommendations, REE, RQ, RER and “Fat Burn Zone” Fallacy
9/7
Mod 1 Fitness: Lab in Assessment of Aerobic and Resistive Fitness- (Step test, Walk or Run), Flexibility Fitness Testing: modified sit and reach, shoulder rotation, bench press max, Bench press endurance, grip, abdominal crunches, ankle flex, ankle flexion, Leg press Wear assessment clothing
Calorie Burn and Physical Activity Worksheets Due

Week Three
9/12
Mod 2 Nutrition: Protein
Krause Chapters 23
M, K, & K Chapters 1, 2, 3, 7, 8, 9
Paleonutrition
Krause Chapter 3,
M, K, & K Chapter 10
Take Home Exam #1 is due
Physical Fitness Laboratory Due

9/14
Mod 2 Nutrition: Carbohydrates
Krause Chapters 3, Appendix 43 (Glycemic Index), 41 (Fiber)
M, K, & K Chapters 1, 2, 3, 7, 8, 9
Carbohydrates and Lipids
Krause Chapters 3, Appendix 40 (Essen fats)
M, K, & K Chapters 1, 2, 3, 7, 8, 9

Week Four
9/19
Mod 2 Nutrition: Lipids, in class work on Diet Project
Krause Chapters 3, Appendix 40 (Essen fats)
M, K, & K Chapters 1, 2, 3, 7, 8, 9
n-3 fatty acids
Krause Chapter 23
M, K, & K Chapters 1, 2, 3, 7, 8, 9
Diet Project is Due
Take Home Exam #2 is open

9/21
Mod 2 Nutrition: Hydration and Water, Hyponutriemia,
Krause Chapter 4, Appendix 42 (Fluid and Hydration)
M, K, & K Chapter 10
Mod 3 Body Composition: Methods of Body Composition Assessment
Krause Appendices: 21 (Frame Size), 23 (BMI), 24 (4 skin fold), 26 (Arm Anthropometry)
M, K, & K Chapter 13, Appendix D (circum body camp), E (body comp of diff sports)

Week Five
9/26
Mod 3 Body Composition: Lab in Body Composition Assessments, Bod Pod
Wear assessment clothing
Take Home Exam #2 is due

9/28
Mod 3 Body Composition: Lab in Body Composition Assessments, Underwater weighing w/ FEV1 and VC
Wear assessment clothing
Take Home Exam #3 is open
Week Six
10/3 Mod 3 Body Composition: Review Methods of Body Composition Assessments, Discuss essential and stored fat
Mod 4 Metabolism/Energy Production: Metabolism
Krause Chapter 2: Energy
M, K, & K Chapters 4, 5
Outline is Due
Body Composition Laboratory is Due

10/5 Mod 4 Metabolism/Energy Production: Energy Pathways and Exercise
Krause Chapter 23
M, K, & K Chapters 4, 5
Krause Chapter 10
M, K, & K Chapters 4, 5
Mod 4 Metabolism/Energy Production: Aging, Exercise and Cardiovascular Health, Oxidative Stress and Antioxidants, Calculation of physical age
Introduction is due
Take Home Exam #3 is due

Week Seven
10/10 Mod 4 Metabolism/Energy Production: Lab (tentative)
Bench Methods Laboratory due at end of class
Krause Chapter 2
M, K, & K Chapters 4, 5
Mod 5 Obesity: Introduction to Obesity, Obesity Epidemic, Hidden Calories in Restaurant Food, Portion Size, Nutrigenomics and Obesity
Krause Chapter 21
M, K, & K Chapter 14
Conclusion is due, References are due
Tables are due
Take Home Exam #4 due

10/12 Mod 5 Obesity: Medical treatments of Obesity and potential effects, Ansel Keyes and the Minnesota Starvation Study,
Krause Chapter 21, 22
M, K, & K Chapter 14, 15
Mod 5 Obesity: JP Flatt Hypothesis, High Fructose Corn Syrup
M, K, & K Chapter 6 (emphasis on RQ and RER for JP Flatt)
Main body (unfinished) is due
Evidence of CITI Certification is due http://www.weber.edu/COE/NIH.html

Week Eight
10/17 Mod 5 Obesity: Built Environment, Obesogenic Environment, Socioeconomic Impact of Obesity, Adult Obesity, American Society and obesity epidemic, Obesity Crisis in America
Bring Calculators with Power Function or Laptop with Excel
Entire paper is due

10/19 Mod 5 Obesity: Exam 5