Fall 2015
WEBER STATE UNIVERSITY
Department of Athletic Training and Nutrition

COURSE: Nutr 4420/6420
Nutrition and Fitness
CREDITS: 3
PREREQUISITES: Nutr1020 and Nutr 2320
CLASS SCHEDULE: Tu, Th @ 9:00am – 10:15 am
SB 238 and SB 133 (Biochemistry Lab) on Lab days
PROFESSOR: Rodney A. Hansen, Ph.D.
Associate Professor of Nutrition
Office: 408 Swenson Building
(801) 626-7748
rhansen@weber.edu
Office Hours: 11am-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

Students will also need a food scale.

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.

NIH certification, and Six Worksheets or Laboratories will be completed.

There will be an assimilation paper required for the course. It will be at least seven 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 current books (published after 2007). 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>Exam</th>
<th>Points</th>
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<tbody>
<tr>
<td>Exam # 1 (PA)</td>
<td>80 points (take home)</td>
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<tr>
<td>Exam # 2 (Nut)</td>
<td>80 points (take home)</td>
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<tr>
<td>Exam # 3 (BC)</td>
<td>80 points (take home)</td>
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<tr>
<td>Exam #4 (Met and En)</td>
<td>80 points (take home)</td>
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<tr>
<td>Exam #5 (Obesity)</td>
<td>80 points (Final in class during finals week)</td>
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<tr>
<td>Quizzes/Attendance (about 15)</td>
<td>200 points</td>
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<tr>
<td>Work Sheets and Labs:</td>
<td>200 points</td>
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<tr>
<td>Paper:</td>
<td>200 points</td>
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<tr>
<td>Total:</td>
<td>1000 points</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 20 points
- Physical Fitness Laboratory 40 points
- Physical Activity and Food/Eating Habits 20 points
- Diet Project 50 points
- Body Composition Laboratory 40 points
- Bench Methods Laboratory 10 points
- NIH Certification 20 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 on WSU guidelines:

93 % A  80 % B-
90 % A-  77 % C+  67 % D+
87 % B+  75 % C  65 % D
85 % B  70 % C-  60 % D-

STUDENT CODE: Students enrolled in this class will adhere to the Department of Health Promotion and Human Performance (HPHP). Student Conduct Policy available online at http://www.weber.edu/HPHP.

ACADEMIC HONESTY AND DISHONESTY: Students enrolled in this class will adhere to the Athletic Training and Nutrition (ATN) Student Conduct Policy available online at http://www.weber.edu/atn/ATN_Student_Code.html. 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
9/1 Mod 1 Fitness: Overview of the Course, Benefits of Exercise
Krause Chapter 2: Energy
M, K,& K : Appendix B (cals/min) , F (3 day activity log)

9/3 Mod 1 Fitness: Lab- Measure REE (Tentative depending on Tim’s schedule) AND Benefits of Exercise, Principles of Exercise
Krause Appendix 28 (Cal/hr expend)
Take Home Exam #1 is open
Week Two
9/8  Mod 1 Fitness: *Lab* Measure REE (Tentative depending on Tim’s schedule) AND Fitness Recommendations, REE, RQ, RER and “Fat Burn Zone” Fallacy
*Calorie Burn and Physical Activity Worksheets Due*

9/10  Mod 1 Fitness: *Lab* in Aerobic Fitness Testing (Step test, Walk or Run), Flexibility Fitness Testing: modified sit and reach, shoulder rotation, bench press max
*Wear assessment clothing*

Week Three
9/15  Mod 1 Fitness: *Lab* in Resistive Fitness Testing:
Bench press endurance, grip, abdominal crunches, ankle flex, Kin Kom, ankle flexion, Leg press
*Wear assessment clothing*
Take Home Exam #1 is due

9/17  *Lab* Measure REE (Tentative depending on Tim’s schedule) AND The Paper:
Instruction on writing paper and applying data from Body Composition and Fitness/Activity Labs, and Diet Project; Behavior Change
*Physical Fitness Laboratory Due*

Week Four
9/22  Mod 2 Nutrition: Protein
*Krause Chapters 23
M, K,& K Chapters 1,2,3,7,8,9*

9/24  Mod 2 Nutrition: Paleonutrition
*Krause Chapter 3,
M, K,& K Chapter 10*

Week Five
9/29  Mod 2 Nutrition: Carbohydrates
*Krause Chapters 3, Appendix 43 (Glycemic Index), 41 (Fiber)
M, K,& K Chapters 1,2,3,7,8,9*

10/1  Mod 2 Nutrition: Carbohydrates and Lipids
*Krause Chapters 3, Appendix 40 (Essen fats)
M, K,& K Chapters 1,2,3,7,8,9*
*Physical Activity and Food/Eating Habits Due*

Week Six
10/6  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*

10/8  Mod 2 Nutrition: 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**
Week Seven
10/13  **Mod 2 Nutrition: Hydration and Water, Hyponutriemia, Krause Chapter 4, Appendix 42 (Fluid and Hydration)**  
*M, K,& K Chapter 10*

10/15  **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 Eight
10/20  **Mod 3 Body Composition: Lab** in Body Composition Assessments, Bod Pod  
*Wear assessment clothing*  
*Take Home Exam #2 is due*

10/22  **Mod 3 Body Composition: Lab** in Body Composition Assessments, Underwater weighing w/ FEV1 and VC

Week Nine
10/27  **Mod 3 Body Composition: Lab** in Body Composition Assessments  
*Wear assessment clothing*  
*Take Home Exam #3 is open*

10/29  **Mod 3 Body Composition**: Review Methods of Body Composition Assessments, Discuss essential and stored fat  
*Body Composition Laboratory is Due*

Week Ten
11/3  **Mod 4 Metabolism/Energy Production: Metabolism**  
*Krause Chapter 2: Energy*  
*M, K,& K Chapters 4,5*  
*Outline is Due*

11/5  **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*

Week Eleven
11/10  **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*
11/12 Mod 4 Metabolism/Energy Production: Lab (Bench methods in Room 33)
Bench Methods Laboratory due at end of class
Krause Chapter 2
M, K, & K Chapters 4, 5
Tables are due
Take Home Exam #4 is open

Week Twelve
11/17 Mod 5 Obesity: Introduction to Obesity, Obesity Epidemic, Hidden Calories in
Restaurant Food, Portion Size,
Krause Chapter 21
M, K, & K Chapter 14
Conclusion is due, References are due

11/19 Mod 5 Obesity: Medical treatments of Obesity and potential effects, Childhood Obesity,
Krause Chapter 21, 22
M, K, & K Chapter 14, 15

Week Thirteen
11/24 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

11/26 Eat Turkey

Week Fourteen
12/1 Mod 5 Obesity: Ansel Keyes and the Minnesota Starvation Study
Copy of NIH Certification is due
Take Home Exam #4 due

12/4 Mod 5 Obesity: Intuitive Eating (guest speaker and tentative), Nutrigenomics and Obesity

Week Fifteen
12/8 Mod 5 Obesity: Built Environment, Obesogenic Environment

12/10 Mod 5 Obesity: 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

Week Sixteen (Final Exam Week)
Final Exam (#5) as scheduled in SB 238