COURSE OUTLINE

HEFI 402 – Strength and Conditioning

Prepared By: Janet L. Parcell Mitchell, PT, DPT, ATC, CSCS
              Deb Molnar
HEFI 402 – Strength and Conditioning

A. **TITLE:** Strength and Conditioning

B. **COURSE NUMBER:** HEFI 402

C. **CREDIT HOURS:** 3

D. **WRITING INTENSIVE COURSE:** No

E. **COURSE LENGTH:** 15 weeks

F. **SEMESTER(S) OFFERED:** Fall

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
   2 hours of lecture
   2 hours of lab

H. **CATALOG DESCRIPTION:**
   This course serves to provide students with advanced knowledge and skills to design and implement safe and effective strength and conditioning programs specifically for an athletic population. An in-depth study of resistance training is included, along with specialized topics such as bioenergetics, endocrine response to resistance exercise, and use of performance-enhancing substances. Aerobic and anaerobic exercise prescription for the athlete is discussed in detail. This course provides specific preparation for the student who wants to pursue certification as a Strength and Conditioning Specialist (CSCS) through the NSCA.

I. **PRE-REQUISITES/CO-COURSES:** Pre-requisite: HEFI 303

J. **GOALS (STUDENT LEARNING OUTCOMES):**
   By the end of this course, the student will be able to:

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<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<tr>
<td>a. Recommend ways to minimize injury risk during resistance training.</td>
<td>3. Prof. Competence</td>
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<td>b. Analyze sports movements and recommend sport specific exercise prescription.</td>
<td>2. Crit. Thinking</td>
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<td></td>
<td>3. Prof. Competence</td>
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<td>c. Develop training programs that demonstrate understanding of metabolic and</td>
<td>2. Crit. Thinking</td>
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<td>endocrine responses to exercise.</td>
<td>3. Prof. Competence</td>
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<td>d. Design appropriate anaerobic and aerobic training programs that optimize</td>
<td>2. Crit. Thinking</td>
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<td>athletic performance.</td>
<td>3. Prof. Competence</td>
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<td>e. Evaluate validity and reliability of various tests used to assess athletic</td>
<td>2. Crit. Thinking</td>
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<td>performance.</td>
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<td>f. Select and administer appropriate tests to help establish training program</td>
<td>2. Crit. Thinking</td>
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<tr>
<td>objectives.</td>
<td>3. Prof. Competence</td>
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K. **TEXTS:**

L. **REFERENCES:**

L. **EQUIPMENT:** Technology enhanced classroom

N. **GRADING METHOD:** A – F.

O. **MEASUREMENT CRITERIA/METHODS:**
   - Quizzes
   - Written homework assignments
   - Lab skills
   - Strength and Conditioning program development project

P. **DETAILED COURSE OUTLINE:**

I. **Exercise Science Principles**
   A. Bioemechanics of Resistance exercise
   B. Tissue Adaptation to Physical Activity

II. **Bioenergetics**
   A. Energy systems
   B. Fatigue and Recovery
   C. Metabolic specificity of training

III. **Endocrine Response to Resistance Exercise**
   A. Synthesis, Storage, Secretion of Hormones
   B. Resistance exercise and hormonal increases
   C. Adaptations in the Endocrine System
   D. Anabolic and Adrenal Hormone Response to Exercise

IV. **Performance-Enhancing Substances**
   A. Types of Performance-enhancing substances
   B. Anabolic steroids
   C. Drug testing
   D. Dietary supplements

IV. **Testing and Evaluation**
   A. Validity and Reliability
   B. Selection and administration
   C. Parameters of Athletic performance
   D. Specific testing protocols

V. **Anaerobic Exercise Prescription**
   A. Sport-specific resistance training
   B. Plyometric training
   C. Speed and Agility training

VI. **Aerobic Exercise Prescription for the Athlete**
   A. Sport-specific aerobic endurance training
   B. Special Issues in aerobic training
   C. Periodization

VII. **Facility Management**
   A. Facility layout and scheduling
   B. Facility policies and procedures
   C. Facility maintenance and risk management

Q. **LABORATORY OUTLINE:**

I. Bodyweight Exercises
II. Kettlebell Exercises
III. Dumbbell Exercises
IV. Medicine Ball Exercises
V. TRX Exercises
VI. Barbell Exercises
VII. Battling Ropes
VIII. Other Non-Traditional Exercises
   A. Tires
   B. Sandbags
   C. Mace