

**STATE UNIVERSITY OF NEW YORK  
COLLEGE OF TECHNOLOGY  
CANTON, NEW YORK**



**COURSE OUTLINE**

**HEFI 402 – Strength and Conditioning**

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**SCHOOL OF SCIENCE, HEALTH, AND CRIMINAL JUSTICE  
Health and Fitness Promotion  
Revised December 2017**

## **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:

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

K. **TEXTS:**

Essentials of Strength Training and Conditioning, Baechle, T.R., Earle, R.W., 2<sup>nd</sup> Ed., Human Kinetics, IL, 2000.

L. **REFERENCES:**

ACSM's Guidelines for Exercise Testing and Prescription 7th Ed., ACSM 2006.

- 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. Biomechanics 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**