Course Objectives
By participating in this course, students will be able to:

1) describe the development of the neuromuscular system.

2) demonstrate an understanding of how the nervous system and muscular system interact during the process of muscle contraction.

3) describe and explain basic principles of biochemistry, i.e. glycolysis, the krebs cycle, oxidative phosphorylation, as they relate to the neuromuscular system.

4) describe and explain basic principles of cell biology, i.e. organelles, compartmentalization, myofiber types, as they apply to the neuromuscular system.

5) demonstrate an understanding of selected biochemical and cellular acute responses to exercise.

6) demonstrate an understanding of selected biochemical and cellular adaptations to exercise training.

7) describe the biochemical processes involved in muscular fatigue.

8) demonstrate an understanding of effects of aging and disuse on neuromuscular system.

Required Textbook

Course Evaluation
Final grades will be based on the following:
   First exam = 30%
   Second exam = 30%
   Final exam (comprehensive) = 40%
Schedule for Lecture Topics

A) development and design of skeletal muscle
B) contractile process
C) innervation of muscle fibers
   1. recruitment patterns
   2. effects of exercise
D) muscle fiber types
   1. different classification schemes
   2. effects of exercise

EXAM 1

E) ATP metabolism (glycolysis, glycogenolysis, TCA cycle, β-oxidation) – chapters 3, 4
F) exercise induced adaptations of ATP metabolism – chapter 2
G) substrate utilization and effects of exercise – chapters 5, 6, 7

EXAM 2

H) lactate production and utilization
   1. fiber type differences
   2. effects of exercise

I) causes of fatigue
   1. neural
   2. neuromuscular
   3. local
   4. effects of exercise

J) effects of disuse on neuromuscular system

K) effects of aging on neuromuscular system

FINAL EXAM (comprehensive)