**PEP 300 Spring 2009 Exam # 3 Study Guide**

**Format:**

Approximately 75 points

Content will be comprehensive, covering concepts from the first two exams as well as the new material.

Questions are mostly short answer, with the identification and brief description of specific topics being the primary question format

**New Material:**

Primary function of the shoulder complex, including factors affecting joint ROM and stability

Joints associated with the knee complex

Function of the patella

Advantages/disadvantages

Factors that positively and negatively affect patellar tracking

Function of pelvic girdle

Be able to explain the muscular interaction that occurs between the pelvis and femur during flexion/extension of the hips

* + i.e., force coupling at the hips
  + how they cause joint actions at the hips
  + how they stabilize the hips, lower back, etc.
  + the interaction of the 4 “core” components (abs, low back, quads, and hams.)

Be comfortable with the various tissue properties discussed in class

Strength, stiffness, extensibility, ect.

You should be able to demonstrate graphical knowledge of these properties

**Old Material:**

Gait kinematics – understand the basic factors contributing to effective and efficient gait patterns (the key will be up soon)

Understand in detail the 3 biomechanical factors contributing to force production

* + Muscle architecture
  + Force length relationship
  + Force velocity relationship

Be able to identify and list the function of the accessory joint structures we discussed in class

Be comfortable analyzing a specific joint action

* + FMG - Agonist/antagonist relationship
  + FMG developing force
  + Muscle actions occurring
  + Joint actions occurring

Examples and causes of muscle synergy occurring throughout the ROM

Function and mechanisms of Musculoskeletal system

Joint structures and function

* + Material from lecture – classifications, examples
  + Material from lab – functional classification (uni, bi, tri) and allowable actions

Factor affecting joint range of motion and interpretation of ROM (quant and qual)

Movement analyses based upon plane and axes of rotation

Vector Algebra

A couple of noteworthy points:

1) the exam content is not limited exclusively to those concepts discussed on this guide, although this should give you a pretty good start on things.

2) any of the concepts covered on the previous exams is liable to be represented on the final. So if you are comfortable with the previous content, focus your effort on the new material.

I should be in the office or the lab all week so feel free to stop by if you have any questions or would like to look at previous exams. Good luck and happy studying!