**ES 335 Exam #2 Study Guide**

* **Force** 
  + Fundamental equation, units
  + Vector representation
    - Point of application
    - Direction
    - Line of action
    - Magnitude
* For the following forces be able to explain, accurately represent vector (e.g. point of application, direction), understand & explain variables of equation
  + Weight force
  + Friction
  + Muscle force
  + Drag force
  + Reaction forces
    - Ground reaction force
    - Joint reaction force
* How do we determine if movement will or will not occur?
* Be able to break forces into their component vectors and understand the importance of the component vectors.
  + Forces acting on a slope
  + Muscle force
* Pressure
* Understand the difference between mass and weight
* **Torque**
  + Fundamental equation, units
  + Understand moment arm and be able to use trig to calculate the magnitude of the moment arm
* Joint torque and torque created by weight
  + Motive vs. resistive torque
  + Be able to determine which direction rotation will occur
  + Be able to diagram muscle torque and the resistive torque (torque created by weight)
  + Contraction types
  + Understand that moment arms change throughout the ROM
* **Balance & Posture**
* Define stability, balance, posture
* Stability strategies
  + Proactive/reactive
  + Fixed support/change in support
* Role of BOS
* Effective BOS
* Be able to diagram stability
* Describe in terms of torque how to improve stability
* Dynamic stability
* Postural torque—be able to diagram and understand compensatory torque