Homework Problems

The value of a college education is not the learning of many facts but the training of the mind to think.
—Albert Einstein

Homework problems are organized by chapter:

- 1 - First Steps
- 2 - Walking
- 3 - Running
- 4 - Muscle Biology and Force
- 5 - Muscle Architecture and Dynamics
- 6 - Musculoskeletal Geometry
- 7 - Quantifying Movement
- 8 - Inverse Dynamics
- 9 - Muscle Force Optimization
- 10 - Muscle-Driven Simulation
- 11 - Muscle-Driven Walking
- 12 - Muscle-Driven Running
- 13 - Moving Forward

Some problems are designed to be done by hand (); others require a computer () or use OpenSim (). The amount of time required has been estimated for some problems:

- = Less than 15 minutes
- = Between 15 and 30 minutes
- = More than 30 minutes

Some problems have been grouped into Problem Sets for assigning as homework:

**Stanford University**

- ME/BIOE 281 Homework 1
- ME/BIOE 281 Homework 2
- ME/BIOE 281 Homework 3

**University of Ottawa**

- F19 Assignment 1 (MCG 5138-H / BMG 5110-F / MCG 4190-H)
- F19 Assignment 2 (MCG 5138-H / BMG 5110-F / MCG 4190-H)
- F19 Assignment 3 (MCG 5138-H / BMG 5110-F / MCG 4190-H)
- F19 Assignment 4 (MCG 5138-H / BMG 5110-F / MCG 4190-H)