

# 9. Biomechanics and Locomotion

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## Pre-class materials

**i** Read ahead

**Before class, you can prepare by reading the following materials:**

1. Tuesday we will finish Muscle Discussion and move on to biomechanics and locomotion
2. Thursday we will continue locomotion.
3. Lab this week is on [\[human EMG\]](#)! Pay attention to refining your prelab.

## Announcements/Reminders

- Halloween Extra Credit - come dressed up, stop by lab on Tuesday (or Monday)
- Design 2 Rewrite due Friday by midnight into the “Final” folder. [\[turn in\]](#)
- Do discussion TEAMMATES eval, released each Thursay, due by Monday.
- Getting to the end, folks!

## Week 10 Discussion Groups

Group	Partner 1	Partner 2	Partner 3
1	Mohamad	James	Vivian
2	Hao	Abby	Kylee
3	Adam	Ilan	Sean
4	Ashton	Christian	Veronica

## Tuesday

- Finish Muscle Discussion [[discussion](#)] [[slide deck 2](#)]

## Muscle Design podcast

<https://youtu.be/XPgHg2lmc5M>

- Begin Biomechanics and Locomotion [[discussion](#)] [[slide deck 1](#)]

## Thursday

- Biomechanics and Locomotion [[discussion](#)] [[slide deck 1](#)]
  - Support vs. Locomotion
  - Material properties and functional design
    - \* stress and strain
    - \* posture
  - Muscle architecture
  - Lever arms and gear ratios
- Terrestrial Locomotion [[discussion](#)] [[slide deck 2](#)]
  - Cursorial adaptations
  - Trends in posture
  - Limb cycles and gaits (kinematics)
  - Ground reaction forces and joint forces (biomechanics)
  - Conservation of energy in running, walking jumping

<https://youtu.be/YlyaASmy-1E>

## Coming up Next Week

- Homework 5 Muscles & Biomechanics due Thursday 11/07 [[schedule](#)]

**i** Reminders and materials