

**ENHANCE STUDENTS' UNDERSTANDING VIA
PRE-READING ASSIGNMENTS
AND
PRESENTATIONS**

SCHOLARSHIP OF EXCELLENCE IN TEACHING, 2019 COHORT

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Human Physiology

- ▶ Is complex and challenging.
- ▶ Covering all the chapters in class takes time... Leading to lack of time.



Overview

- ▶ **Pre-Reading Assignments and Presentations.**

- ▶ Why did I do it?
- ▶ How did I do it?
- ▶ What is the end result?



Why did I do it?

Problems

- ▶ Students often find it difficult to understand complex concepts of the Human Physiology.
- ▶ There is no time to cover all the major concepts.
- ▶ Students do not engage with each other and learn from one another.



Goals

- ▶ 1. Help students be motivated and **build confidence** as a result of **pre-exposure** to the content.
- ▶ 2. Teach them **how to study independently** at their own pace.
- ▶ 3. Have them gain experience in **collaborative work**, and
- ▶ 4. Gain more lecture time... hopefully!

But Why Pre-Reading Assignment?

Goals 1 and 2

To give the students the motivation to come to class to deal with more complex material.

To create self-regulated learners (Ramadass & Zimmerman, 2011)

To give students some controlled and limited experience on their own.

Jose' Antonio Bowen, Edward Watson,
Teaching Naked Techniques

But Why Group Presentation?

- ▶ Build confidence
- ▶ Reciprocal Learning
- ▶ Collaborative and Cooperative effort

Elizabeth Barkley, Clair Howell Major, Patria Cross,

Collaborative Learning Techniques

Goals 1, 2 and 3





How did I do it?

Pre-Class Assignments

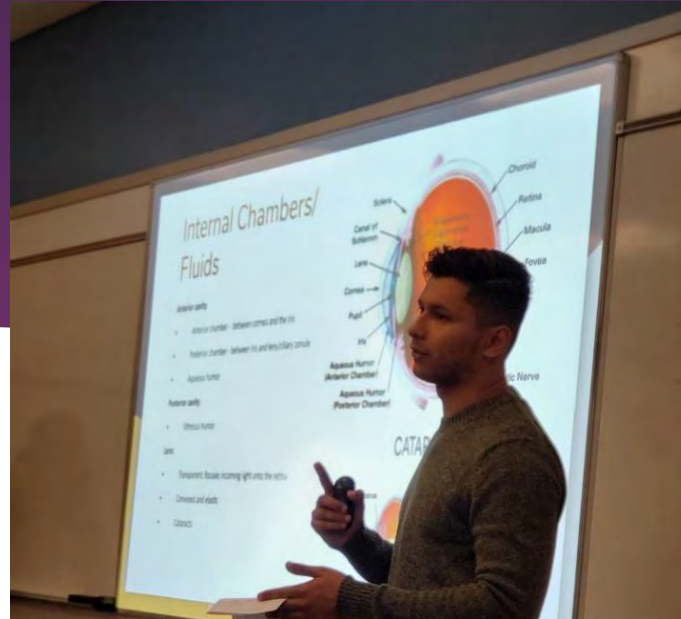
Presenters – are assigned a topic to pre-read and present.

- Overview of the content is discussed before presentation.
- Each student prepares 2 slides for presentation.
- Each student prepares 2 MC questions with answers.
- I collect all the questions from the group (with the answers) a day before the presentation.
- The group brings copies of the 12 questions on the day of presentation (they get to pick a color of paper).

Non-Presenters (the rest of the class)

- I assigned short answer questions on the same topic.
- They pre-read and write their responses as a homework.

Presentation

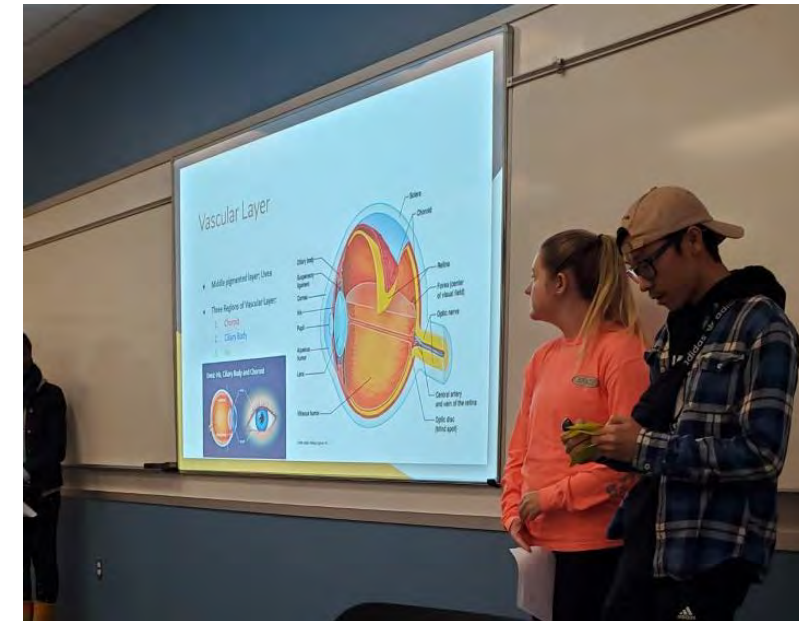


Presenters

- ▶ Take turns to present the slides they prepared (6 points).
- ▶ Total time: 10-15 minutes
- ▶ Q&A time: 5 minutes

Non-presenters

- ▶ Submit their written homework assignment at the beginning of class, completion & accuracy is checked, not graded.
- ▶ Take the 12 questions at the end of presentation (6 points)



Examples of Written Assignments.

Chapter 4 Integumentary system

Short answer type questions

1. Identify the types of tissues that the Epidermis and Dermis are made of.
The epidermis is made of epithelial tissue that is avascular while the dermis is made of connective tissue that is vascular.
2. List the 4 different types of skin cells and briefly state their function.
 1. Keratinocytes - produce Keratin to give skin its protection.
 2. dendritic - activate immune system in deep epidermis
 3. melanocytes - produce melanin to give skin its pigment
 4. tactile - sensory receptors for touch.
3. State the functions of Keratin and Melanin.
Keratin adheres cells to each other to form protective layer and proteins inside cell attach to desmosomes on surface. Melanin provides protection against skin damage from sun and melanocytes increase production in response to sun exposure.
4. List and support different functions of the skin.
 1. protection - skin is a chemical barrier, physical barrier, and biological barrier against microorganisms, abrasions, temp extremes, and harmful chemicals.
 2. cutaneous sensory receptors - exteroceptors respond to stimuli such as temp or touch and nerve endings sense pain
 3. metabolic functions - skin can synthesize vitamin D for calcium absorption in intestine, skin makes collagenase to aid preventing wrinkles.
 4. excretion - skin secretes limited amounts of nitrogenous waste such as urine and sweat causes water loss.
 5. blood reservoir - skin vessels constrict to provide blood to other organs, skin can hold 5% of body's blood.

UNIT II Pre-reading Review Questions

1. The structural unit of compact bones is called osteon.
2. What do we call the protein secreted by osteoblasts?
Osteoblasts secrete osteoid (unmineralized bone matrix).
3. Name the main function of osteoclasts.
The main function of osteoclasts is bone resorption; the breakdown of bone.
4. What makes most of the inorganic component of bones?
Hydroxyapatites (mineral salts) make most of the inorganic component of bones.
5. Around week 9 of prenatal development, Endochondral ossification starts from a preformed hyaline cartilage.
6. PTH activates what kind of bone cell?
PTH activates osteoclasts to resorb bone.
7. What stimulates the production of PTH?
Low blood calcium levels stimulates the production of PTH.
8. State Wolf's Law.
Bones grow/remodel in response to demands placed on them.

Did Students Benefit from Pre-Reading Assignments and Group Presentations?

- ▶ End of the semester in class survey
- ▶ Anonymous
- ▶ All 24 students responded



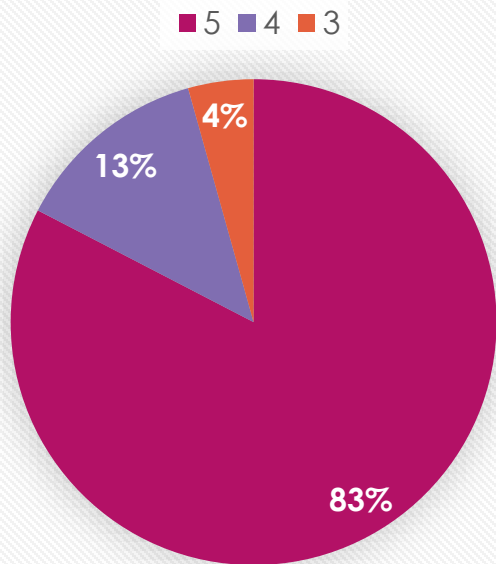
What is End The Result?

Students' Survey

The Pre-class assignments have helped me improve my confidence in class.

(1-strongly disagree, 5-strongly agree)

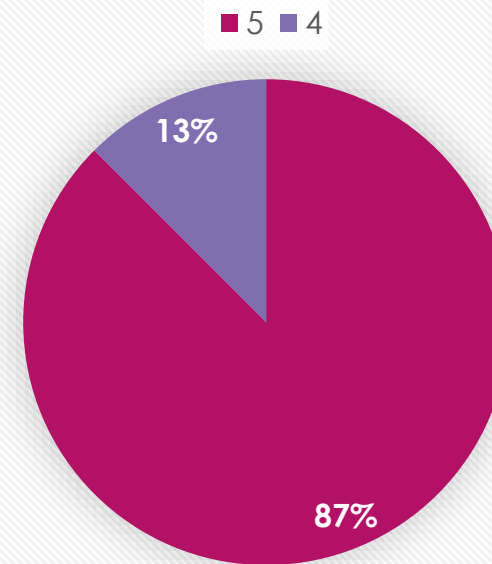
GOAL 1



I had to review notes to prepare for the assignments which had helped me study the content independently.

(1-strongly disagree, 5-strongly agree)

GOAL 2

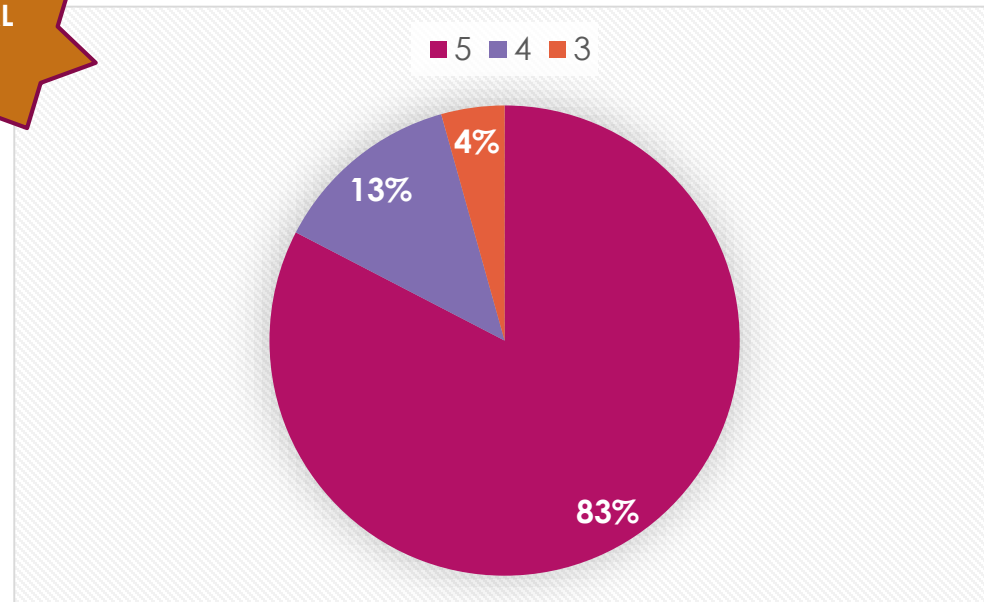


Students' Survey

The presentation helped me improve my collaborative skills with my peers.

(1-strongly disagree, 5-strongly agree)

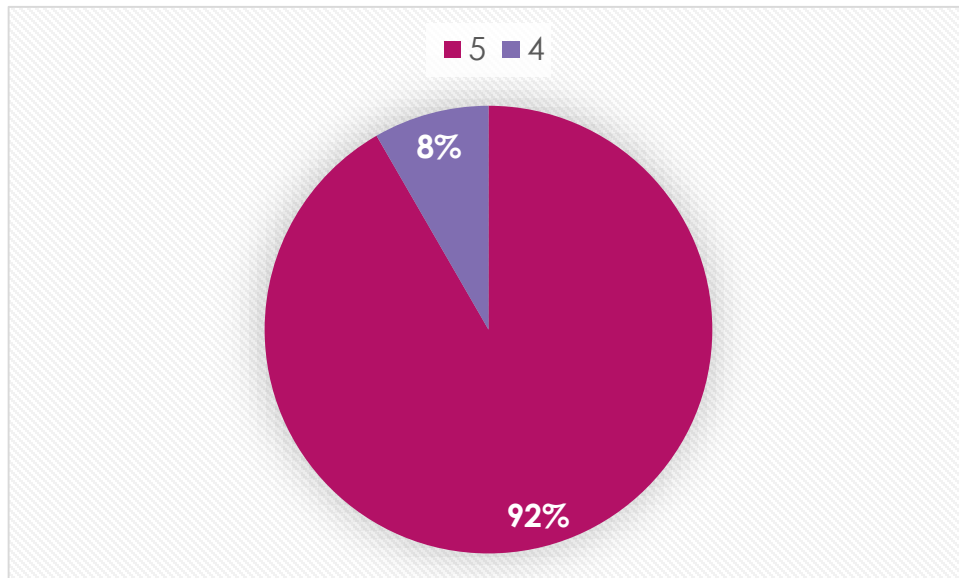
GOAL
3



Students' Survey

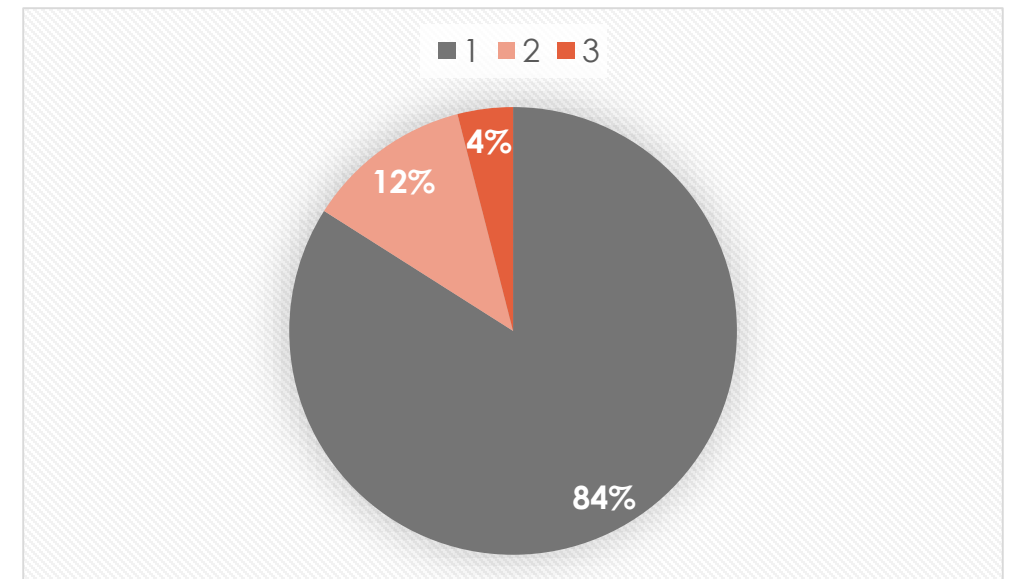
I would like to continue doing pre-reading and presentations.

(1-strongly disagree, 5-strongly agree)

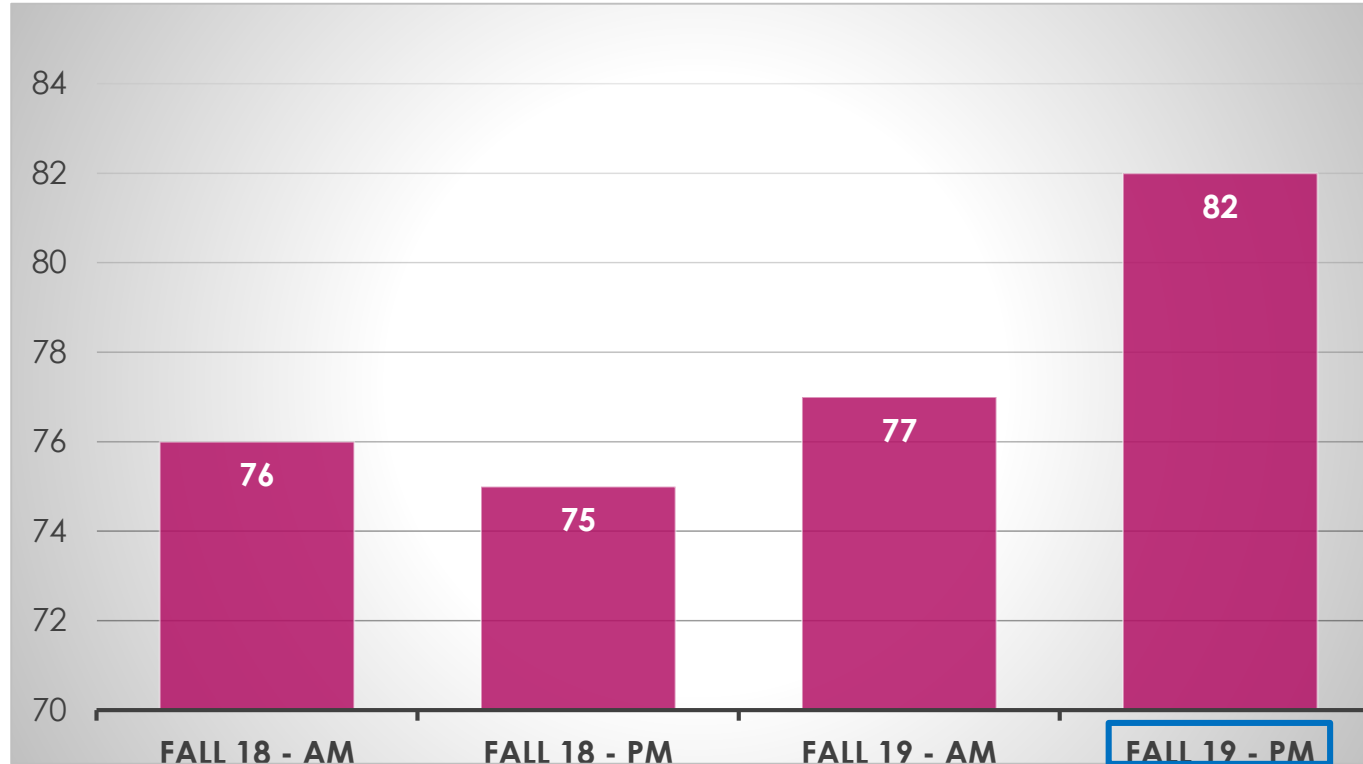


The group presentations were a total waste of my time.

(1-strongly disagree, 5-strongly agree)

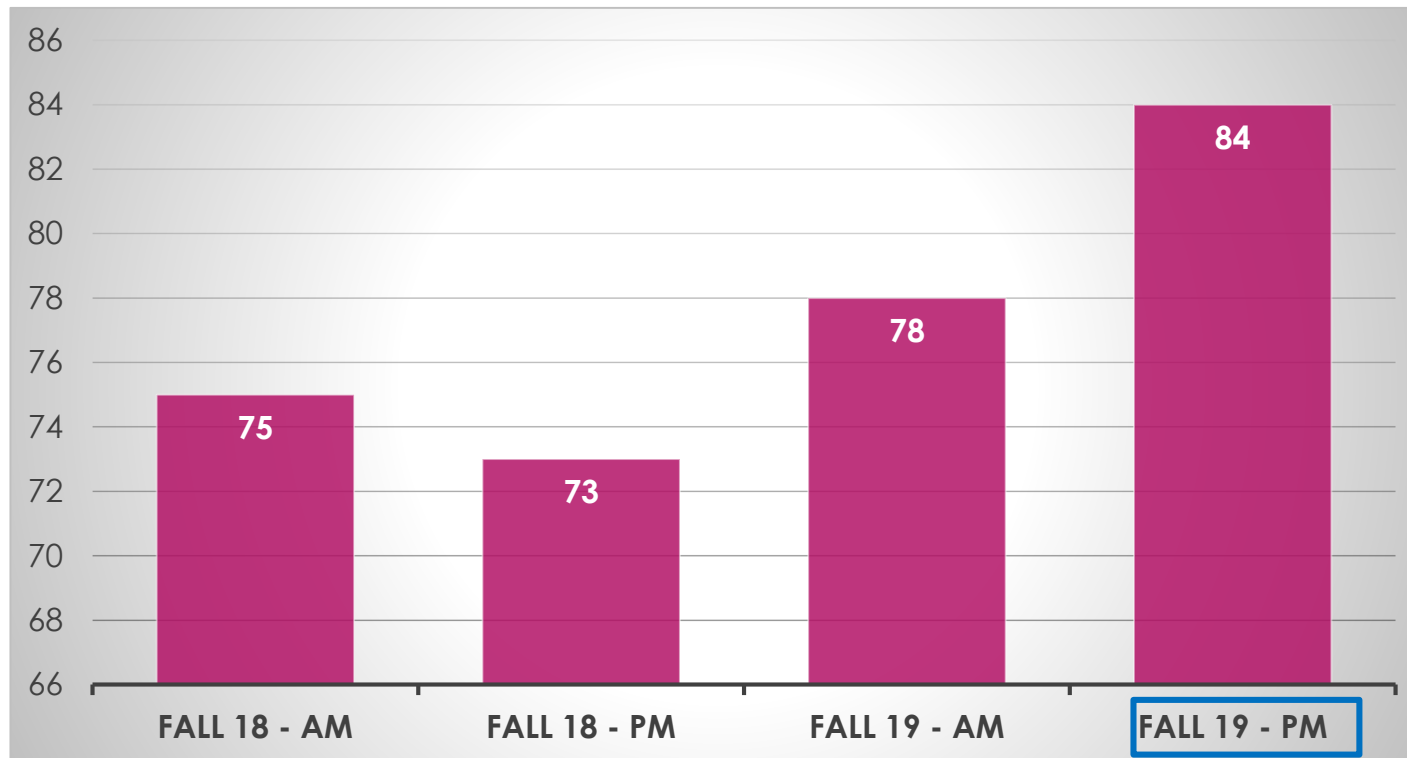


Any Change with Midterm Grades?



Comparing Midterm Grades

Any Change with Final Grades ?



Comparing Final Grades



Future considerations

- ▶ Implement pre-reading assignments in both BIOL 212 sections.
- ▶ Implement other techniques/technologies like Digital Story Telling as part of the presentation.

SET and Implementation of my Strategy...

- ▶ I think I have enhanced my teaching.
- ▶ I have gained some lecture time.
- ▶ I know students have benefited from the strategy.



Thank You