Physics for Pre-health – Fostering Student Motivation

JENCY SUNDARARAJAN
UNIVERSITY OF VIRGINIA
Why Motivate?

Desire to learn and achieve

Valuable educational goal

Commitment to life-long learning
How to Motivate?

Clear goals and expectations

Constructive criticism and feedback

Know your students

Be enthusiastic

Give them control

Sense of belonging

Define characteristics that impact motivation

Four Factors of Learning Motivation - Inclusion, attitude, meaning, and competence

Learning Options and Environments - Formal, informal, and social learning; action learning, performance support

Engaging the Adult Learner - Making the connection, methods that support in all environments

Interactive/collaborative activities
My courses – Fall 2023

- Active learning format
- 3 sections of 99 students each
- 11 tables of 9 students each
- Work in groups of three

4 Teaching Assistants (1 GTA and 3 UTAs)
What is your motivation to take this class?

(1st day of class)
Class Format

Pre-lecture:

1. Reading Assignments
2. Chapter Power Point
3. Textbook Demo videos
4. Instructor Pre-lecture video
You are required to **read each week's course content** before coming to lecture. Which of the following resources do you go through?

*Mid-semester survey: ~150 students*
Class Format

In-class activities:

1. Poll everywhere quizzes
2. Demos – student participation
3. Questions and discussion
4. Mini-lecture/Problem solving
5. Group work
Which activity/resource do you think is **most beneficial** in learning/understanding the material?
Class Format

Post lecture:

1. Weekly report
2. Weekly homework (8 multi-section problems)
3. Weekly Quiz (multiple choice)
Comments on Assignments

I like all the assignments except the End Of Lecture quizzes because the 50-minute class time does not provide enough time to answer the questions needed for the EOLs.

While the workload in this course is intensive, it keeps students studying and ensures proper understanding of each concept.

I think all the assignments are beneficial to my understanding of the content.

Sometimes it's just a lot of work to do and can be time consuming even though it is helpful. The equations part of the weekly summary report is the one I find the least beneficial when comparing the time it takes.
One factor that helps you stay motivated in this course.

Course Structure/materials

Working in Groups

Class Environment

Help from TAs/Instructor

Desire to survive

Pre-med

Pre-lecture videos

Spreadsheet

MCAT

Homework assignments

Good Grade

Good Grade
I really like the group work structure of the class because we get to learn from each other and put our brains to work understanding and solving the problems.

Definitely the homework assignments keep me constantly learning.

I like that the course structure keeps things moving and I really like the support I get from working with my peers and from the TAs as well. The class environment is positive which makes me feel better about things.

Structured learning objectives and material that is due routinely through week

Enthusiasm of the professor and help from TAs

I love the worksheets and structure of the course. It helps me structure my learning in a way that allows me to easily review concepts and put them into practice.

Working in groups helps me stay motivated and when I get confused it is always nice to be able to ask one of my group members for help.

While the workload is a lot, it definitely is helpful to spend some part of every day working on physics because when it is time to take the exam I have consistently worked with the material which makes me feel more motivated and confident.

My group, actually! We all really want to do well in this class and it gives me the encouragement to also work just as hard.
Summary – Fostering student motivation

Creating a **classroom environment**, a safe space for the students to participate without hesitation and judgement, as they share knowledge in a democratic setting where each one of them senses a responsibility to contribute to learning.

**Student collaboration** is the key factor in my classroom, as they become active participants and engage in extensive discussions, leading to a better understanding of the subject matter and a dynamic learning experience.

**Course structure and materials** that emphasizes on the importance of learning a concept by providing examples of direct applications in their respective field.

**Energy and passion of the Instructor/TAs** motivates the students to get excited to learn and helps them to stay curious.

As a teacher, it is important for me to teach in a way that **respects and cares for the souls of my students.**