

SCHEDULE FOR SUPA PHYSICS- SUMMER INSTITUTE (2021)

This Summer institute aims to acquaint you with expectations for the SUPA physics course. We try to anticipate problems that might arise. One of my goals in our college course and SUPA is to let students (and faculty) know that physics is a vibrant and exciting field and that some of this excitement can be shared with first time students. Another goal is to share some relevant thoughts on physics education research.

Monday

- 1- Introductions, Share experiences and transition from HS to College physics. Expectations
- 2- Review curriculum, Textbook, Difference between HS and College physics, sample exams, HW, Lab, Best Lab?
- 3- Introduction to Education research ("Five Easy Lessons" by Knight)

Tuesday

- 1- Library orientation
- 2- Sharing resources (PHET, Kahn academy, "Physics as Human Adventure", active learning, flipped classroom), best ideas.
- 3- Discussion of "5 Easy Lessons" by Knight (Addison Wesley, 2004) (text provided.) Review work on Physics education research. Implementation of these ideas in specific lecture topics e.g. electric potential, thermal physics
- 4- From Freshman Physics to Frontiers of Physics. My visits to your classroom. Discussion of Modern Physics directly relatable to first year physics (e.g. Gravity and Cosmology, Dark Matter, Gravitational lensing, equivalence Principle and Black Holes, Gravity Waves....) Break up into teams to find a topic and begin preparation of lesson.

Wednesday

- 1- Registration session
- 2- Teachers presentation of lessons based on Knight's approach
- 3- Sample lesson on Gravity Waves or other recent research topics
- 4- Progress on sample lesson From Freshman Physics to Frontiers of Physics

Thursday

- 1- Short introduction to my research
- 2- Best Ideas, labs special topics, hardest material

3- Start presentations.

Friday

1- Further presentation of lesson if needed

2- Wrap-up