PHYS 1403 outline Summer 2019- Physics for Educators

**Course Outline-** subject to modification, if needed

Each week, you read 2 to 3 chapters of Hewitt text (Conceptual Physics- often used in high school), along with my notes or supplemental explanations through videos or other sources, and complete **online homework** through Sapling Learning (you may re-try problems missed for a slight grade reduction, but generally students score 80-100% on homework if they try it). You also have either **virtual or do-at-home labs** each week, and a **Discussion Board** post and possible response to others. The **projects** (4) are due every two weeks, and should be fun and educational- you choose from 8 topics, mostly about space program, and some are books or movies- be sure to look at project list to be able to have access to materials when needed (The Martian, Apollo 13, a science museum, etc.) I am open to variations on the projects if you have a good idea, or if certain materials are not available to you. Some are traditional: PowerPoint history of space program, investigation of nuclear weapons, etc. The **Scientist Report** is to be sure we all have a sense of WHO developed the science we know- each person chooses a historical scientist, and prepares a 3-page report on his (or her) life and contributions, and posts a summary of this in Discussion Board for everyone to read. The **two exams** will be proctored, usually taken at a WBU campus or a testing center, or with another approved proctor.

Most people who take this course do very well, generally A’s and B’s, but you just need to keep up with the material. It is not hard. I look forward to working with you, and I try to respond quickly to requests and questions. I want you to feel good about teaching science to kids- It’s fun! - Dr. Adamson

Week 1

About science

Newton’s First Law

Week 2

Linear motion,

Newton’s Second Law

Newton’s Third law

***Project 1 due start of week 3***

Week 3

Momentum

Energy

Simple Machines

Week 4

Gravity

Projectile and Satellite Motion

***Project 2 due start of week 5***

Week 5

Solids

Liquids

Gases

Week 6

*Midterm exam- proctored*

Temperature, Heat and expansion

Heat Transfer

Change of Phase

***Project 3 due start of week 7***

Week 7

Thermodynamics

Vibrations and Waves

Sound

Week 8

*Scientist Report* *due*

Electrostatics

Electric Current

Magnetism

***Project 4 due start of week 9***

Week 9

Electromagnetic Induction

Properties of Light

Color

Week 10

Reflection and Refraction

Light Waves

Light Emission

Week 11- *proctored final* Final due: Sat, midnight CDT (or may be taken during week 10)