

Master Physics Teacher Certificate *Modern Physics*

Text: **Ideas of Modern Physics** by Simon Dalley

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Objectives: Upon successful completion of this course, students will be able to:

- * Explain how the concepts and findings of Modern Physics shape our world
- * Analyze and interpret quantitative data in the context of Modern Physics
- * Identify Ideas of Modern Physics within the appropriate State standards

Date		Pre-class reading and quizzes
Read Chapter 1 (pref. whole textbook) before the course begins		
Sa Jul 9 9:00 -12:30	CLASSICAL PHYSICS 1) Space, Time, Motion 2) Gravity 3) Electromagnetism 4) Light Pre-test & LAB - Measurement Error	Chapter 2
M Jul 11 8:00 -3:00	SPECIAL RELATIVITY 1) Space, Time, Motion, Revisited 2) Paradoxes 3) $E = mc^2$ 4) Space-Time LABS - Speed of Light, Space & Time Dilation	Chapter 3
T Jul 12 8:00 - 3:00	GENERAL RELATIVITY 1) Equivalence Principle 2) Time Dilation & Light Bending 3) Curved Space-Time 4) Universe LABS - Weak Equivalence Principle, Age of Universe	Chapter 4
W Jul 13 8:00 - 3:00	QUANTUM MECHANICS 1) Wave-Particle Light 2) Probability & Uncertainty 3) Matter Waves 4) Schrodinger' s Cat LABS - Laser Diffraction, Magnetic Accelerator	Chapter 5
Th Jul 14 8:00 - 3:00	ATOMS 1) Structure 2) Quantized Energy 3) The Nucleus 4) Condensed Matter LABS - Hydrogen Spectrum, Radioactivity	Chapter 6
F Jul 15 8:00 - 3:00	SYNTHESIS 1) Space-Time Revisited 2) Particles & Force-Fields 3) The Standard Model 4) Mysteries Post-test & LABS - Particle Detectors, Particle Fever (documentary)	Chapter 7