MTH499/599 Syllabus

Professor Fine
LArts-396E, 910-6905
dfine@umassd.edu

Spring 2010

Principles of Quantum Mechanics (2nd ed.) R. Shankar

Week of 1/25:

Introduction
Classical mechanics
Quantum mechanics
Add/Drop/Audit deadline is Friday

Week of 2/1:

Vector spaces: Axioms & examples
Linear independence & bases
Components

Week of 2/8:

Inner product spaces
Norms, orthonormal bases

Week of 2/15:

Presidents' Day
Tuesday follows Monday schedule
Dual spaces
Subspaces

Week of 2/22:

Linear operators
Matrix elements
Active & passive transformations
Friday is last day to file Pass/Fail

Week of 3/1:

Eigenvalues & eigenvectors
Coupled harmonic oscillators

Week of 3/8:

Functions of operators
Quantum mechanics: The postulates
Midterm exam

Week of 3/15:

Spring break

Week of 3/22:

Monday is mid-semester
The free quantum particle
Particle in a box

Week of 3/29:

Step potentials
The double slit
Some general properties

Week of 4/5:

The classical limit
The harmonic oscillator
Friday is last day to withdraw

Week of 4/12:

The Heisenberg uncertainty principle

Week of 4/19:

Patriots' Day
Quantum symmetries

Week of 4/26:

Path integrals

Week of 5/3:

Two-particle states
Bosons & fermions
Higher dimensions

Week of 5/10:

Last class is Monday
Final exams begin Wednesday