

Syllabus - Quantum Theory Seminar - Spring 2011

Details

Meets Monday or Tuesday, 1:15-4:15 PM

Science Center, Room 113 - Physics Seminar Room

Professor John Boccio, Science Center 127, x-8259

Textbook

Quantum Mechanics

Mathematical Structure and Physical Structure - John Boccio

Available to students in seminar as PDF files

Quantum Mechanics - Nouredine Zettili

John Wiley Publishers

ISBN: 978-0-470-026-79-3

Other Textbook References - On Table in Boccio Office

Quantum Mechanics - Abers

Quantum Mechanics - Dirac

Quantum Mechanics - Townsend

Quantum Mechanics - Baym

Quantum Mechanics - Merzbacher

Quantum Mechanics - Landau and Lifshitz

Quantum Mechanics - Greiner

Quantum Mechanics - Liboff

Quantum Mechanics - Messiah

Quantum Mechanics - Schwabl

Quantum Mechanics - White

Quantum Mechanics - Schiff

Quantum Theory - Park

Quantum Theory - Hannabus

Quantum Theory - Peres

Quantum Physics - Winter

Intermediate Quantum Mechanics - Bethe and Jackiw

Foundations and Interpretation of Quantum Mechanics - Auletta

Mathematical Foundations of Quantum Mechanics - von Neumann

Foundations of Quantum Mechanics - Bell

Probability Theory - Jaynes

Probability, Statistics and Truth - von Mises

Philosophic Foundations of Quantum Mechanics - Reichenbach

Website

<http://chaos.swarthmore.edu/courses/Physics113.2011/index.html>

Schedule

Week #01

Readings: Boccio: Chapters 4,5 ; Zettili: Chapter 2

Topics

1. Mathematics of Quantum Mechanics
2. Probability

Week #02

Readings: Boccio: Chapters 4,5 ; Zettili: Chapter 2

Topics

1. Mathematics of Quantum Mechanics
2. Probability

Week #03

Readings: Boccio: Chapter 6 ; Zettili: Chapter 3

Topics

1. Formulation of Quantum Mechanics

Week #04

Readings: Boccio: Chapter 6 ; Zettili: Chapter 3

Topics

1. Formulation of Quantum Mechanics

Week #05

Readings: Boccio: Chapters 7,8 ; Zettili: Chapter 4

Topics

1. Photon Polarization, K-mesons and Stern-Gerlach

Week #06

Readings: Boccio: Chapters 7,8 ; Zettili: Chapter 4

Topics

1. Schrodinger Equation and 1-Dimensional Systems

Week #07

Readings: Boccio: Chapter 9 ; Zettili: Chapters 5,7

Topics

1. Angular Momentum and Spin

Week #08

Readings: Boccio: Chapter 9 ; Zettili: Chapters 5,7

Topics

1. Angular Momentum and Spin

Week #09

Readings: Boccio: Chapter 9 ; Zettili: Chapter 6

Topics

1. 2- and 3-Dimensional Systems

Week #10

Readings: Boccio: Chapter 10 ; Zettili: Chapter 9

Topics

1. Time-independent Perturbation Theory

Week #11

Readings: Boccio: Chapter 10 ; Zettili: Chapter 9

Topics

1. Time-independent Perturbation Theory

Week #12

Readings: Boccio: Chapter 11 ; Zettili: Chapter 10

Topics

1. Time-Dependent Perturbation Theory

Week #13

Readings: Boccio: Chapters 12,13,18 ; Zettili: Chapter 8

Topics

1. Identical Particles, Multielectron Atoms and Molecules

Week #14

Readings: Boccio: Chapters 13,17,18 ; Zettili: Chapter 11

Topics

1. Scattering Theory and Quantum Measurement