

## Syllabus - Quantum Theory Seminar - Spring 2013

### Details

Meets Wednesday, 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

### Website

<http://chaos.swarthmore.edu/courses/Physics113.2012/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