

Syllabus PHYS 623 "Introduction to Quantum Mechanics II" Spring 2019

Web page of the course on ELMS/Canvas

Login site: <http://elms.umd.edu/>

Instructions: - Log in using your UMD Directory ID. If you are registered for the course, you will see the course Web space after login.
- Homework will be delivered via ELMS and must be submitted online via ELMS. Your scores will be posted there.
- Course announcements will be posted on ELMS, so you should check it regularly.

Outside link: <https://myelms.umd.edu/courses/1260532>

Course Information

Course title: **Introduction to Quantum Mechanics II**

Course number: **PHYS 623**, 3 credits

Course description: First and second semesters. A study of the Schroedinger equation, matrix formulations of quantum mechanics, approximation methods, scattering theory etc., and applications to solid state, atomic, and nuclear physics. Continuation of PHYS 622.

Course dates: Monday, January 28, 2019 through Tuesday, May 14, 2019

Location: Room 2108, [Chemical and Nuclear Engineering Building \(CHE 090\)](#)

Days and times: Monday and Wednesday 2 - 3:15 pm

Prerequisite(s): An undergraduate course of quantum mechanics

Instructor

Name: Victor M. Yakovenko, Professor of Physics

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Office hours: Monday and Wednesday 3:15 - 4 pm and by appointment

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Teaching Assistant

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Office location: Room 0220 in John S. Toll Physics Building (PHY 082)

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Office hours: By appointment

Textbooks

Required J. J. Sakurai and Jim Napolitano, [Modern Quantum Mechanics](#), 2nd edition Cambridge University Press, 2017, ISBN: 978-1-108-42241-3, 550 pages
Addison Wesley Pearson, 2011, ISBN 9780805382914, 550 pages
The goal is to cover Ch. 5 - 8 from this book

Recommended Franz Schwabl, [Quantum Mechanics](#), Springer, 4th edition, 2007, ISBN 978-3-540-71932-8, softcover, 425 pages, [freely available electronically from UMD library](#).

Recommended [Lecture Notes on Quantum Mechanics](#) by Prof. Robert Littlejohn at University of California, Berkeley (be sure to scroll down)

- Recommended NSF-supported [Quantum Mechanics Wiki](#) at Florida State University, a collections of various topics in quantum mechanics
- Recommended V. Galitski, B. Karnakov, V. Kogan, and V. Galitski Jr., [Exploring Quantum Mechanics](#), Oxford University Press, 2013, ISBN 9780199232727, softcover, 904 pages
An encyclopedic collection of problems in quantum mechanics with solutions, great for preparation to qualifying exam.

Goals, Homework, Exams, and Grades

- Course Goals: To cover the last four chapters from the book by Sakurai:
Ch. 5 Approximation Methods
Ch. 6 Scattering Theory
Ch. 7 Identical Particles
Ch. 8 Relativistic Quantum Mechanics
[Timeline of the course](#) will be updated weekly on ELMS. Solving homework problems is essential for the course and for preparation to qualifying exam.
- Homework: Homework assignments will be posted on ELMS weekly and will be due in one week. Homework **must be uploaded online** via ELMS only in **pdf** format as a **single file**. Other formats, such as doc, jpg, and photo shots of pages, are not acceptable. Homework can be typeset, e.g. using LaTeX or Word, or scanned from handwriting. Homework scores and solutions will be posted on ELMS. Late homework cannot be accepted after solution has been posted.
- Exams: There will be a midterm exam and a [final exam](#) on Monday, May 20, 1:30 - 3:30 pm. All exams are "open book": You may use the textbooks and your notes.
- Grades: The final grade will be based on your scores in exams (50%) and homework (50%). Your score within each category will be divided by the maximal possible score and added toward the overall score with the weights specified above. Then this overall score will be converted into letter grades with + and - steps.

Course Related Policies

- General: [Course Related Policies](#)
- Student Honor Council: The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://shc.umd.edu/>.

Created on January 27, 2019