

Introduction to Quantum Computing

Lecturer: Xiaodi Wu

Reading Assignment: Course Website; KLM 1.1-1.2, 2.1-2.6.

Welcome to CMSC/PHYS 457: Introduction to Quantum Computing

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&

Happy New Year!

Teaching Team

Instructor

- ▶ Instructor: Prof. Xiaodi Wu
- ▶ Contact: AVW 3257, xwu@cs.umd.edu
- ▶ Research: Quantum Information and Computation
- ▶ Joint Center for Quantum Information and Computer Science (QuICS)

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TA

- ▶ Shouvanik Chakrabarti, shouv@cs.umd.edu

Why Quantum Computing?

- ▶ patiently waiting for your input
- ▶

Quantum Computing

Tentative topics

- ▶ quantum mechanics of qubits; quantum circuits; quantum protocols;

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- ▶ quantum error correction and fault tolerance;
- ▶ selective quantum research frontiers.

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- ▶ CMSC 457 emphasizes more on the basics and conceptual understanding.

More logistics

Office Hours

- ▶ Wu: Tu Th 11:00am - 12:00 pm at AVW 3257, or by appointments.
- ▶ Chakrabarti: M W F 3:00pm - 4:00 pm at AVW 4101.

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- ▶ Course Policy.
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Please let me know ASAP if

- ▶ you cannot submit assignments electronically.
- ▶ time conflicts of exams.
- ▶ concerns about the difficulty of the course.
- ▶ anything that you wanted to discuss

Reading Assignments

Refresh linear algebra with Dirac notations

- ▶ KLM 2.1 - 2.6.
- ▶ A cheatsheet on our website.
- ▶ Optional exercise also on our website.