Rough Outline of Quantum Course

Slide Deck Summaries

0 – Introduction

1 – Background (logic, complex numbers, linear algebra)

2 – Reversible computations

3 – Computational complexity

4 – Physics (polarization, double slit, quantum games)

5 – Modelling quantum systems (beam splitter)

6 – Quantum representation, Bloch sphere, Pauli matrices, Hadamard, arbitrary rotations

7 – EV bomb

8 – Universal gates

9 – Tensor products, uniform superposition, entanglement, no cloning

10 – Teleportation

11 – Key distribution

12 – CHSH, Mermin Peres

20 – Quantum algos intro

21 - Deutsch

qa – Quantum advantage, complexity

Problem Set Summaries

0 – Review problems

1 – Quantum games

2 – Pauli gates

3 – Tensor products, entanglement

4 – Teleportation, entanglement

5 – Key distribution?, CHSH?

Qiskit Assignment Summaries

0 – Intro to Qiskit

1 – Pauli matrices (to-do)

2 – EV bomb

3 -

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| Week | Topic | Lectures | Assignments | Done |
| 1 | Background review | 0, 1 | P0 |  |
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