Introduction to Quantum Mechanics, Spring 2013: Syllabus

Highly tentative and preliminary...

- Review of the harmonic oscillator, Stone von-Neumann theorem

- Fermionic oscillators, Clifford algebras and spinors

- Supersymmetric quantum mechanics

- Path integrals

- Field quantization, non-relativistic examples

- Representations of the Euclidean group

- Special relativity, representations of the Poincaré group, relativistic wave equations

    - Klein-Gordon equation
    - Dirac equation

- Gauge symmetry and coupling to electromagnetic fields

- Quantization of the electromagnetic field

- An introduction to non-abelian gauge fields and the Standard Model