1 Symmetry, invariance, degeneracy, and conservation laws.

*Ref. Zettili §3.7.* (Also Sakurai §§1.5, 1.6, 4.1; Schiff Ch. 7)

2 Quantum theory of angular momentum.

*Ref. Zettili Chapters 5, 7.* (Also Sakurai Ch. 3; Schiff Ch. 7)

3 Mixed states and the density operator.

*Ref. Zettili §3.6* (Also Sakurai §3.4.)

4 Identical particles and quantum statistics.

*Ref. Zettili Chapter 8.* (Also Sakurai Ch. 6; Griffiths Ch. 5)

5 Elements of atomic structure physics.

*Ref. Zettili Chs. 8, 9.* (Also Sakurai Ch. 6; Liboff Ch. 12; Woodgate Chs. 5-7.)

6 Approximation methods.

*Ref. Zettili §§9.3, 9.4.* (Also Sakurai §5.4; Griffiths Chs. 7,8)

7 Semiclassical radiation theory.

*Ref. Zettili §10.5.* (Also Sakurai §§5.7, 5.8; Schiff Ch. 11; Liboff Ch. 13; Griffiths Ch. 9)

8 Scattering theory.

*Ref. Zettili Chapter 11.* (Also Sakurai Ch. 7; Schiff Ch. 8; Liboff Ch. 14)

9 The Dirac equation and quantized fields.

(Ref. Shankar §§18.4-18.5 and Ch. 19; Schiff Ch. 14; Liboff Ch. 15)