

Physics 6330
General Plan for Spring 2011
D. G. Ellis

SUBJECT TO REVISION

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)