



## Physics 85100: Physics of Semiconductors – Selected Topics (Prof. Kai Shum)

### Reference books:

- 1) **The Physics of Semiconductors**, Kevin F. Brennan/Georgia Institute of Technology
- 2) **The Physics of Semiconductors**, B. Sapoval and C. Hermann/ Ecole Polytechnique/France

Date	Topic #	Topics
08/26/11	1	Semiconductor overview
09/02	2	Quantum mechanics
09/09	3	Equilibrium statistical mechanics
09/16	4	Electronic states in semiconductors
09/23	5	Counting electrons and holes
09/30		No Friday class
10/04	6	Computer simulation – electronic states (wave-functions and energy levels), electron (hole) densities, electric field, band diagram → report 1
10/07		No Friday class
10/14	7	Phonons and electron-phonon interaction
10/21	8	Electron mobility
10/28	9	Lab 1: Hall effect → report 2
11/04	10	Photons in semiconductors
11/11	11	p-n junction physics and engineering
11/18	12	Semiconductor devices: transistors, LEDs, Lasers, modulators, tunneling-diodes, and CCDs
11/25		College closed
12/02	13	Lab 2: Photoluminescence and electroluminescence → report 3
12/09	14	Report presentation
12/16	15	<b>Final Exam</b>
12/22/11		End of fall term
<b>Grade Evaluation</b>		<b>1) Be present (10%); 2) submit 3 reports (30%); 3) take final (60%)</b>