Course name	Physics 139B, Quantum Mechanics II
Meeting place, time	ISB 165, TuTh 2–3:45PM
Instructor	G.-H. (Sam) Gweon
Office hours	Mo 12–2 PM, ThFr 1–2 PM, OBA
Instructor coordinates	ISB 249, gweon@ucsc.edu, http://griffin.ucsc.edu
Textbook	*Introduction to Quantum Mechanics (2nd ed.)* David Griffiths
References	*Introductory Quantum Mechanics*, Liboff *Quantum Physics*, Gasiorowicz *Quantum Mechanics*, Sakurai *Principles of Quantum Mechanics*, Dirac
Course website	http://griffin.ucsc.edu/teaching/current

Course objectives Review and strengthen your knowledge of the formalism of quantum mechanics. Become familiar with various approximation schemes and be able to carry out calculations to compare with experimental quantities. Become freely capable of using the concept of symmetry, and, sometimes, the concept of topology, in solving quantum mechanical problems.

Evaluation This course will be evaluated based on the homework (about 30 %), the quiz (about 10 %), the midterm (about 30 %) and the final (about 30 %). It is quite likely that the final exam will be an open book exam. However, the midterm will be a closed book exam, with some notes allowed.

Course website The course website, noted above, host syllabus, lecture notes, assignments, and a discussion forum. It is a central place for this course. Please make the best use of it.

Emergency If highly unusual personal circumstances arise to prevent you from participating in core course activities, you should communicate with me as soon as you can, so that you will get the best consideration for makeup opportunities.

Get all help you can get. This course will not be the easiest course to follow, since lots of contents that you learned from other courses will be put to use. At this advanced level, talking about physics becomes more and more important for an effective means to help your learning. So, feel free to talk out loud. Get all help you can get from me, your buddies, and yourself, by not being afraid to ask during class, during office hours, during on-line sessions, and at any time that works for you.

However... you should never help, or be helped by, your friends during an exam or a quiz. You should never copy your friend's homework solution. Likewise, you should never engage in other activities that breach the academic integrity. To ensure fairness, I will be monitoring for possible activities that breach the academic integrity. If confirmed to be involved in such an activity, you will fail this course.

Lecture plan The following table is a rough plan for lectures. Changes are likely to occur as the course progresses.

Lectures, while based on the textbook, may sometimes differ greatly from, and supersede, it.

Lec	Week	Date	Subject
1	1	9 / 26	Review of QM formalism
2	2	10 / 1	Review of QM formalism
3	2	10 / 3	Time independent perturbation
4	3	10 / 8	Time independent perturbation
5	3	10 / 10	Time independent perturbation
6	4	10 / 15	Symmetry
7	4	10 / 17	Symmetry, Hydrogen-like atom
8	5	10 / 22	Hydrogen-like atom
9	5	10 / 24	The variational principle
10	6	10 / 29	The WKB approximation
11	6	10 / 31	The WKB approximation
12	7	11 / 5	Midterm
13	7	11 / 7	Time dependent perturbation
14	8	11 / 12	Time dependent perturbation
15	8	11 / 14	Light and matter
16	9	11 / 19	Emission and absorption
17	9	11 / 21	Scattering
18	10	11 / 26	Scattering
19	11	12 / 3	Scattering
20	11	12 / 5	Adiabatic theorem, Berry phase
		12 / 10	Final exam (8-11AM)

Last but not least, your comments on all aspects of the course are welcome at any time – feel free to let me know them! Remember: this course is *for your learning*.