PS 5100/6100 – APPLICATIONS OF QUANTUM MECHANICS - SPRING Semester 2008

TIME: 11:00am to 12:15pm Tuesday and Thursday in room 209 Allison

TEXT: L.D. Landau and E.M. Lifshitz "Quantum Mechanics (Non-Relativistic Theory)", *any edition*, Chapters V-VIII, X, XV, XVII.

INSTRUCTOR: Prof. Dr. Eugene Oks, 215 Allison, oks@physics.auburn.edu

OFFICE HOURS: 3pm to 4:30pm Tuesday and Thursday, or by appointment.

The objective of the course is to present/explain the concepts and applications of quantum mechanics. There will be two 1/2-hour quizzes (maximum - 12 points), one 1-hour test (maximum - 26 points), and the final exam (maximum- 40 points). The final exam might be cumulative. The quizzes, the test, and the final exam will be conducted in the "open-book/open-notes" fashion. Homeworks are not graded, but will be analyzed; they are crucial to success. For activity in class - in presenting and analyzing homeworks – you can earn up to 10 points over the semester.

Course Contents.

1. Motion in a centrally symmetric field.
2. Perturbation theory.
3. The quasi-classical case.
4. Spin.
5. The atom.
6. Motion in a magnetic field.
7. Elements of the theory of elastic collisions.

Schedule of tests.

Quizz 1: Th., Jan 31.

Quizz 2: Th., Feb. 28.

Test: Tu., Apr 1.

FINAL EXAM: We., May 7, 2pm-4:30pm