Boston University Study Abroad Dresden Engineering Program at Technische Universität Dresden

Spring 2017 Modern Physics (PY 313)

Lecturer	Dipl.-Phys. Sebastian Wahrmund (Drop-ins, calls, appointments, e-mail welcome anytime)
Discussion	M. Sc. Nico Madysa (Drop-ins, calls, appointments, e-mail welcome anytime)

Pre-Lab and Laboratory

TA	Max Märker
	(Drop-ins, calls, appointments, e-mail welcome anytime)

Time	
Pre-Lab	Mon. even weeks (see pre-lab schedule)
Lab	Tue. even weeks (see lab schedule)

Lab Location		
Millikan experiment	MV	REC/D114
Photoelectric effect	HB	REC/D308
Electron diffraction	EB	REC/D307
Atomic spectra	AS	REC/D308
Frank-Hertz exp.	FH	REC/D109

Course Material

Textbook: Thornton, Rex "Modern Physics", Fourth Edition, Brooks/Cole-Thomson Learning

Laboratory: Modern Physics lab packet (to be distributed), a bound notebook with square grid pages for lab reports

Opal Webpage: 2017 Modern Physics
(https://bildungsportal.sachsen.de/opal/auth/RepositoryEntry/13541310471/CourseNode/9372173014062373)

Course Requirements

This course is devoted to the basic quantum mechanical concepts and phenomena required for a fundamental understanding of the world around us: atoms, molecules, electromagnetic waves, the structure and properties of materials. These phenomena and concepts are far from everyday experience and require thorough studying in order to be grasped fully. It is highly advisable to read the assigned text both before and after active participation in the lectures (listening attentively, taking notes, and asking questions). The assignments in this course should not be the starting point of your real work. Advance preparation, reading and lecture attendance are required.

Assignments

A list of assigned problems is part of the course schedule. Assignments for week will be discussed on next following discussion session. The deadline will be also listed on the assignments. You should be prepared to present your solution on the blackboard and the presentation will be graded.

Discussion sessions start in the second week of classes. You are strongly encouraged to ask questions during the discussion sessions to improve your understanding of Modern Physics. Attendance at all scheduled discussion sessions is compulsory.

Laboratory

Attendance at all scheduled laboratories is compulsory. You are expected to participate in the pre-lab, read the instructions and complete any pre-lab assignments before you arrive at the lab. Use a bound lab book with a square grid on each page to record all data, observations, interim analyses, unusual procedures, and difficulties encountered. You must have the teaching assistant sign your work before you leave the lab. You are expected to prepare your report at home and submit it at the next regularly scheduled lab at the latest.

If you missed a lab, you must present a documented reason (e.g. illness) in order to make up for it. Arrange an appointment with the TA. Note that only one lab can be made up for.

What the report should include:

1. A brief summary of the purpose of the experiment and the experimental approach taken;
2. Well-organized tables of the raw data that you obtained and intermediate results derived from it, including appropriate graphs;
3. A clear statement of your final results with an assessment of the factors affecting their accuracy;
4. Answers to all questions asked in the lab packet;
5. A brief discussion of what you personally learned from doing the experiment.

We do not accept reports submitted electronically; however, printed reports can be pasted into your note book.

Academic Conduct

All work during exams or quizzes must be your own unaided effort. The assignments that you submit must be your own final product, although discussion of strategies and numerical results with others is acceptable. Each member of a lab group must take her/his own notes, answer any questions in her/his own words, and write her/his own summarizing essay. In all other cases, active cooperation and peer teaching among students is strongly encouraged.

Assessment

Your grade will be based on your total score consisting of the following components with the indicated weighting:

Midterm Exam	20%	May, 22th instead of lecture (chapters 1 - 5)
Final Exam	30%	July, 10th instead of lecture (cumulative with focus on chapters 6 - 10)
Assignments and Quizzes	20%	based on all assignments and discussion sessions
Laboratories	30%	based on all experiments