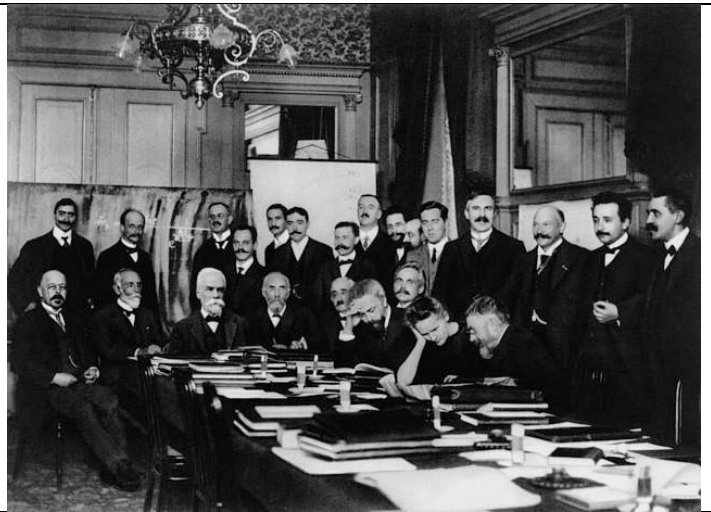


**Modern Physics, Physics 251
and 252
Fall 2014**

Department of Physics and
Astronomy, Stony Brook
University

This is a photo from the "First
Solvay Conference" (Brussels,
1911). Modern physics was
about to begin.



Lectures (Javits 103; Tu-Th 1-2:20 pm)

Prof. Philip Allen, email: philip.allen@stonybrook.edu
Office: B-146 Physics (on the bridge to Math tower)
Office hours: Tuesday 2:30-4pm; Wednesday 4-5:30pm

Recitation Sessions:

R01: Prof. Philip Allen
R02 and R03: Prof. Joanna Kiryluk, email: Joanna.Kiryluk (at) stonybrook.edu
Office C-109 Physics; office hour Wed. 1-2.

Laboratory TAs:

L01 and L02: Yao Ma, Office C-118 Physics, office hour Wed. 1:30-2:30
L03 and L04: Rui Liu, Office A-109 Physics, office hour Wed. 1:30-2:30

• **1. DESCRIPTION**

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- This course will provide a survey of 20th century theories in physics - including special relativity and quantum mechanics - and their impact on most areas of physics. It introduces the special theory of relativity, the concepts of quantum and wave-particle duality, Schroedinger's wave equation, and other fundamentals of quantum theory as they apply to nuclei, atoms, molecules, and solids. The Laboratory component, PHY 252, must be taken concurrently, since the grade for PHY 251 and PHY 252 will be combined. PHY 251 has three hours of lectures and one hour of recitation per week. There are two hours of laboratory per week.

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• **2. TEXT BOOKS**

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A. required

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R. Eisberg and R. Resnick, "Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles" (2nd Edition).

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- **B. recommended for reference**
- L. Lyons, "A Practical Guide to Data Analysis for Physical Science Students".
- A.P. French, "Special Relativity (The M.I.T. Introductory Physics Series)".

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- **3. NOTES AND EXTRA MATERIAL**

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- **4. TIME AND PLACE**

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- **1st Lecture is on Tuesday Aug. 26, 1pm** (Javits room 103)
- **1st Recitation Session: R02 and R03: Wednesday Sept. 3; R01: Monday Sept. 8**
- **1st Lab is on Monday Sept. 8**
- **(labs and recitation sessions are not held in the first week of classes)**

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- PHY251 LEC 01 TUTH 1.00-2.20pm

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- 12/15 (Monday), 5:30-8pm FINAL exam

- 10/02 (Thursday) 1st Midterm Exam

- 11/06 (Thursday) 2nd Midterm Exam

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- PHY251 REC R01: M 12:00-12:53PM PHYSICS P128

- PHY251 REC R02: W 12:00-12:53PM PHYSICS P128

- PHY251 REC R03: W 2:30- 3:23PM PHYSICS P128

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- PHY252 LAB L01: M 01:00-02:50PM PHYSICS A133

- PHY252 LAB L02: M 03:30-05:20PM PHYSICS A133

- PHY252 LAB L03: M 05:30-07:20PM PHYSICS A133

- PHY252 LAB L04: M 07:30-09:20PM PHYSICS A133

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- **5. LAB REPORTS**

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- 1 week to turn it in. If there is no lab on the Monday in question, hand in the lab report to Prof. Allen in lecture on Tuesday (the week after doing the lab.)

- **All reports must be turned in. No credit for late reports.** Any (serious!) excuses (medical or otherwise) are to be documented and discussed with the instructor in a timely manner. Students must prepare their own reports. Copies will be disqualified.

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- **6. HOMEWORK**

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- every week, one week to turn it in. **No credit for late homework.** Any (serious!) excuses (medical or otherwise) are to be documented and discussed with the instructor in a timely manner. Homeworks must be turned in by the date and time on the assignment, typically during a lecture period. If you cannot make the lecture, you can bring your assignment to the instructor's office before the due date/time. Students are encouraged to work together, but the write up should be their own (copies will be disqualified).

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- **7. EXAMS AND QUIZZES**

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- There will be two midterm exams and a final exam (final exam covers the whole course material). Midterm exams will be given during the regular lecture hours.
- Quizzes: 10 min long, every week or two during the recitation session.

- **8. GRADING**

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- PHY 252 (The Lab) is a separate course from PHY 251, but students earn a common grade in PHY 251 and PHY 252. PHY 252 is required and must be taken concurrently with PHY 251.
- Common PHY251 and PHY252 final grade: 30% midterm exams (equally weighted), 30% final exam, 8% quizzes, 12% homework, 20% lab All scores are NORMALIZED. Example of how to calculate your weighted average (dummy record): ([pdf](#))

- **In order to pass the course you need at least grade C. Grade C- or lower means you will have to repeat the course; this is Physics Department / University rule.**

- **9. GRADERS:**

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- Midterm1, Midterm2, Final - P. B. Allen
- Quizzes: recitation instructor
- Homework: Staff
- Lab reports: L01 L02 – Yao Ma; L03 L04 – Rui Liu

- **10. RELIGIOUS HOLIDAYS**

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- If the schedule of homeworks, exams or other assignments is in conflict with your religion's Holidays, please let me know in an email by the end of the first week of instructions and I will do my best to accommodate your needs. Please note that I cannot make changes in the course schedule after the first week of classes. No consideration will be made if someone approaches me in this matter at a time close to the due date or the exam date.

- **10. AMERICANS WITH DISABILITY ACT**

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- If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

- **11. UNIVERSITY ACADEMIC INTEGRITY STATEMENT**

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- Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at: <http://www.stonybrook.edu/uaa/academicjudiciary/>

- **12. CRITICAL INCIDENT MANAGEMENT**

- Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

- Last Updated: 9/17/2014