

Physics 2022 - Syllabus

General Physics II

Spring semester 2015

INSTRUCTOR:

Prof. Nikolaos Sparveris

Office: SERC, office 418

Office hours: Tuesday and Thursday 13:50 – 14:40

TEACHING COORDINATOR:

Prof. Michael Paolone

Office: SERC, office 451

Office Hours: For office hours contact Prof. Paolone (2022sp15@temple.edu) or visit <https://phys.cst.temple.edu/physics-help.html>.

The Teaching Coordinator is a new role introduced recently as a part of a pilot program of the Physics Department to implement a centralized teaching support.

The Teaching Coordinator for PHYS 2022 is Prof. Michael Paolone (2022sp15@temple.edu). The Teaching Coordinator is in charge of a wide range of responsibilities, but from the students point of view the most important is the following:

- **The Teaching Coordinator will be the contact person for PHYS 2022. All student emails (questions, requests, etc) have to be sent to the Teaching Coordinator (and NOT to the lecture or the recitation instructor).**
- **The Teaching Coordinator will be in charge of the homework assignments for PHYS 2022, and he will be managing the WebAssign platform for homework assignments.**

STUDENT EMAILS & QUESTIONS:

All student emails, questions, and requests are addressed by the Teaching Coordinator Prof. Michael Paolone (2022sp15@temple.edu).

For more information please visit: <https://phys.cst.temple.edu/physics-help.html>.

Emails that are sent to any other faculty email address will not be able to be addressed.

TEXTBOOK:

Principles of Physics: A Calculus based text , 5th Edition, by Serway and Jewett with Enhanced WebAssign published by Cengage. Apart from the **textbook** the students will need an **access code number for WebAssign**.

Signing up to WebAssign:

The Teaching Coordinator will post an announcement with instructions in regard to signing up to the WebAssign homework platform.

Questions related to WebAssign will be addressed by the Teaching Coordinator (2022sp15@temple.edu).

LECTURE:

Tuesday and Thursday, 12:30 pm – 13:50 pm , BEURY Hall 166

RECITATION:

Instructor: Hong Tang

Office: Barton Hall, A 12

Office Hours: For office hours contact Prof. Hong Tang (hongtang@temple.edu)

The PHYS 2022 course has 5 recitation sections (sections 001, 002, 003, 004, and 008). All 5 sections are lectured by Prof. Tang.

LABORATORY:

Laboratory attendance is mandatory. Make sure you arrive in time.

Laboratory sessions have been coordinated with topics of the lectures. For each lab students must write individually a formal report, which should include the following items:

1. Title, date and names of group participants with the students name underlined.
2. Statement of the topics that were investigated
3. Brief description of the experiment listing any special precautions
4. List all devices used in the experiment

5. Picture or drawing of the experimental setup (if possible)
6. Tables with the recorded data including units
7. Graphs, sketches and figures when applicable
8. Calculations and results with units included if applicable
9. Answers to the question in the manual
10. Conclusions

The contribution of the average of all lab grades is 15% towards the final course grade. No make-up labs are permitted due to the fact that the lab equipment is changed every week. The lab report is due one week after the lab was completed. Lab reports submitted later than the due date will receive reduced credit of 10% drop for each day past the deadline. The mailboxes of the TA's will not be available outside business hours.

All grades with calculated grade average must be submitted to the course instructor before the end of classes Monday, April 27.

HOMEWORK:

The PHYS 2022 homework will be managed and coordinated by the Teaching Coordinator.

Signing up to WebAssign:

The Teaching Coordinator will post an announcement with instructions in regard to signing up to the WebAssign homework platform.

The WebAssign homework will account for 15% of the final grade.

Extensions to problems assignments will not be given. Check due dates for each assignment. **Extension to homework assignment will not be given for any reason unless there is a serious DOCUMENTED medical emergency that can justify such an extension.**

Questions related to WebAssign will be addressed by the Teaching Coordinator (2022sp15@temple.edu).

Different Homework assignments may include a different number of problems/points. The final homework grade (at the end of the semester) is not calculated through the mean average of the homework assignments. The final homework grade is calculated through the total score of all homework problems/points scored from all the homework assignments.

EXAMS:

Midterm: There will be one midterm. The date of the Midterm will be announced.

Final Exams: Physics 2022 will have FINAL EXAMS scheduled on **Thursday April 30, 2015, 10:30-12:30.**

No electronic devices or programmable calculators or books will be allowed during the exam. Bring your student ID to the exam and keep it visible for the proctor to check against the roster during the exam.

A MAKE-UP EXAM WILL NOT BE ALLOWED unless there is a DOCUMENTED MEDICAL EMERGENCY. Students who miss the exam and do not make alternative arrangements with me before I turn in the grades will get a failing grade for this exam.

FINAL GRADE:

Credit towards the final grade in this course consists of:

- **WebAssign Homework** **15%**
- **Midterm Exam** **35%**
- **Labs** **15%**
- **Final Exam** **35%**

INCOMPLETE:

Only extreme hardship cases will be considered for an “incomplete” grade and will be given only when the completed portion of a student’s work in the course is of passing quality (see Student Handbook for details).

COURSE CONTENT:

The topics of this physics course include electricity, magnetism, optics, atomic and nuclear physics. Biological applications will be discussed where appropriate. The main objective of the course is to provide students with a clear and logical presentation of some of the basic concepts and principles in physics, develop quantitative problem solving skills and critical thinking.

This course will include the following chapters, each one corresponding (approximately) to an academic week (2 lectures). The midterm will take place halfway in the semester; the exact date for the midterm will be announced.

- **Electric forces and electric fields** (electric charges, insulators and conductors, Coulomb's law, electric field, motion of charged particles in a uniform electric field, electric flux, Gauss's law, applications)
- **Electric potential and capacitance** (electric potential, potential energy, potentials and charge conductors, capacitance, capacitors, applications)
- **Current and direct current circuits** (electric current, current and voltage in circuits, resistance, resistivity, Ohm's law, temperature variation of resistance, sources of emf, resistors in series and parallel, Kirchoff's Rules)
- **Magnetic forces and magnetic fields** (Magnets, magnetic fields, magnetic force on a current-carrying conductor, torque on a current loop, electric motors, motion of a charged particle in a magnetic field, magnetic field of a long straight wire, Biot-Savart law, Ampere's law, magnetic force between parallel conductors, magnetic fields of solenoids)
- **Faraday's law and induction** (Faraday's law of induction, motional emf, Lenz's law, induced emfs, inductance, RL circuits, energy stored in a magnetic field)
- **Electromagnetic waves** (Displacement current, Maxwell's equations and Hertz's discoveries, EM waves, energy carried by EM waves, spectrum of EM waves, polarization of light waves)
- **Reflection and refraction of light** (reflection, refraction, dispersion and prisms, the rainbow, Huygen's principle, total internal reflection)
- **Image formation – mirrors and lenses** (flat mirrors, concave and convex mirrors, images formed by refraction, thin lenses)
- **Wave optics** (interference, Young's Double slit experiment, change of phase due to reflection, diffraction)
- **Atomic Physics** (early models of the atom, atomic spectra, the hydrogen atom, quantum numbers, exclusion principle and the periodic table)
- **Nuclear Physics** (properties of Nuclei, binding energy, radioactivity, the decay process, nuclear reactions ,medical applications, fission, fusion)

OTHER INFO:

First class: Tuesday, January 13, 2015
Last day to drop: Monday, January 26, 2015
Last day to withdraw: Tuesday, March 17, 2015

Any student who has need for accommodation based on the impact of a disability should contact me to discuss the situation as soon as possible. Contact Disabilities Resources and Services at 215-204-1280 in 100 Ritten Hall Annex to coordinate reasonable accommodations for students with documented disabilities.

Academic freedom means that freedom to teach and freedom to learn are inseparable facets. The University has adopted a policy on Student and Faculty Academic Rights and Responsibilities (Policy # 03.70.02) which can be accessed via the following link: http://policies.temple.edu/getdoc.asp?policy_no=03.70.02