

Physics 1022 - Syllabus

Introduction to General Physics II

Fall semester 2014

INSTRUCTOR:

Prof. Nikolaos Sparveris
Office: Barton Hall, Room BA 405
Office hours: Tuesday and Thursday 10:50 – 11:50

TEXTBOOK:

College Physics, 9th Edition, by Serway and Vuille with Enhanced WebAssign published by Cengage. Homework will be assigned and assignments will be posted on the website <http://www.webassign.net>

The **bundle**, which includes the **textbook** and the **access code for WebAssign** are also available from the Temple University bookstore.

Students have the option of registering the **Access Code Number** printed on the code card purchased at the bookstore, bundled with new textbooks, or paying online.

The material that will be covered in this course is Part 4 (Electricity and Magnetism), Part 5 (Light and Optics) and Part 6 (Modern Physics) corresponding to **Volume 2** of the textbook (**College Physics, 9th Edition, by Serway and Vuille** , chapters 15 to 30).

The students have the option to buy a bundle with the full textbook + webassign access code or only the 2nd Volume of the textbook + webassign access code:

1) *Serway/Vuille Bundle: **Text** + Enhanced WebAssign Homework and eBook LOE Printed Access Card for Multi Term Math and Science, 1111876053*

2) *Serway/Vuille Bundle: **Text, Vol 2** + Enhanced WebAssign Multi-Term LOE Printed Access Card for Physics 9781133804246*

Students will need to enroll themselves in WebAssign for their section of the PHYS 1022 (sections 001, 002 or 003) using the corresponding class key:

Section	Class Key
PHYS 1022, section 001	temple 9017 0587
PHYS 1022, section 002	temple 8910 6034
PHYS 1022, section 003	temple 6732 1070

The section for each student corresponds to the recitation section that a student has registered:

Section 001: recitation on Tuesday 11:00-11:50

Section 002: recitation on Thursday 11:00-11:50

Section 003: recitation on Wednesday 12:00-12:50

If a student enrolls to a different section than the one officially registered for, the homework points will be lost and will not be added to the final grade.

If you encounter problems please contact textbook vendor student support:

http://www.webassign.net/user_support/student/

LECTURE:

Tuesday and Thursday, 9:30 am – 10:50 am , Science Ed and Research Ctr 0110B

RECITATION:

Instructor: Elena Borovitskaya

Office: Barton Hall, BA 228

Office Hours: For office hours contact Prof. Borovitskaya (elenab@temple.edu)

Section 001: Tuesday, 11:00-11:50, Barton Hall Classrooms 00400

Section 002: Thursday, 11:00-11:50, Barton Hall Classrooms 00400

Section 003: Wednesday, 12:00-12:50, Barton Hall Classrooms 00400

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, December 8.

HOMEWORK:

The WebAssign homework will account for 15% of the final grade. Homework will be assigned on a regular basis and the assignments will be posted on the website <http://www.webassign.net>. **Extensions to problem 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.**

Students can login in at: <https://www.webassign.net/login.html>

Students will need to enroll themselves in WebAssign for their section of the PHYS 1022 (sections 001, 002 or 003) using the corresponding class key:

Section	Class Key
PHYS 1022, section 001	temple 9017 0587
PHYS 1022, section 002	temple 8910 6034
PHYS 1022, section 003	temple 6732 1070

If a student enrolls to a different section than the one officially registered for, the homework points will be lost and will not be added to the final grade.

If you encounter problems please contact textbook vendor student support:

http://www.webassign.net/user_support/student/

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 1022 will have FINAL EXAMS scheduled on **Thursday December 11, 2014, 8:00-10:00.**

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 and modern physics. 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, electric flux, Gauss’s law, applications)

- **Electrical Energy and Capacitance** (electric potential, potential energy, potentials and charge conductors, capacitance, capacitors, applications)
- **Current and resistance** (electric current, current and voltage in circuits, resistance, resistivity, Ohm's law, temperature variation of resistance, electrical energy and power, superconductors)
- **Direct-Current circuits** (sources of emf, resistors in series and in parallel, Kirchoff's rules, RC circuits)
- **Magnetism** (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, Ampere's law, magnetic force between parallel conductors, magnetic fields of solenoids)
- **Induced voltages and Inductance** (Induced emf and magnetic flux, Faraday's law of induction, Lenz's law, motional emf, generators, self-inductance, RL circuits, energy stored in a magnetic field)
- **AC circuits and Electromagnetic Waves** (resistors/capacitors/inductors in an AC circuit, RLC circuit, power in an AC circuit, resonance in a series RLC circuit, the transformer, Maxwell's predictions and Hertz's confirmation, production of EM waves by an antenna, properties of EM waves, the spectrum of EM waves, the Doppler effect of EM waves)
- **Reflection and refraction of light** (reflection, refraction, dispersion and prisms, the rainbow, Huygen's principle, total internal reflection)
- **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, polarization of light waves)
- **Optical Instruments** (the camera, eye, magnifier, microscope, telescope)
- **Relativity** (the speed of light, Einstein's principle of relativity, consequences of special relativity, relativistic momentum, relative velocity, equivalence of mass and energy, general relativity)
- **Quantum Physics** (Blackbody radiation, Planck's hypothesis, photoelectric effect, x-rays, Compton effect, the dual nature of light and matter, the wave function, the uncertainty principle)

- **Atomic Physics** (early models of the atom, atomic spectra, the Bohr model, the hydrogen atom, exclusion principle and the periodic table, atomic transitions, lasers)
- **Nuclear Physics** (properties of Nuclei, binding energy, radioactivity, the decay process, nuclear reactions ,medical applications)
- **Nuclear Energy** (fission, fusion)

OTHER INFO:

First class: Tuesday, August 26, 2014
Last day to drop: Monday, September 8, 2014
Last day to withdraw: Tuesday, October 21, 2014

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