

General Physics I (171.101) Spring 2015

1. Overview:

General Physics I (171.101) is the first part of a two-semester sequence in general physics at the undergraduate freshman level. The sequence covers mechanics, waves, electricity and magnetism, optics, and atomic physics. The first part covered in this semester includes mechanics, oscillations and waves. Co-requisites include AS.110.108-AS.110.109, AS.173.111-AS.173.112.

2. Lecture Schedule:

Instructor: Prof. Andrei Gritsan

Lectures: 11:00–11:50am, Mon/Wed/Fri, Bloomberg 272

Office hours: Mon. 1:30–2:30pm, Fri. 3:30–4:30pm (exceptions communicated to class)

Bloomberg 433, email: gritsan@jhu.edu

3. Section Schedule:

Section 1: Thu. 8:00–8:50am, Bloomberg 464

TA: Allen Scheie (ascheie1@jhu.edu)

office hours: Bloomberg 349, Mon. 1:00–2:00pm, Tue. 1:45–3:45pm

{undergrad TA: Lauren Vignaly (lvignal1@jhu.edu)}

Section 2: Thu. 9:00–9:50am, Bloomberg 464

head TA: Sean Cantrell (scantre2@jhu.edu)

office hours: Bloomberg 4th floor lounge, Tue. 1:30–2:30pm, Wed. 1:30–3:30pm

{undergrad TA: Lauren Vignaly}

Section 3: Thu. 10:30–11:20am, Bloomberg 478 (north-east, on the left as you enter)

TA: Hongbin Chen (hchen103@jhu.edu)

office hours: Bloomberg 465, Mon. 1:00–2:00pm, Wed. 1:00–3:00pm

{undergrad TA: Josh Barza (jbarza1@jhu.edu) & Bridget Ratcliffe (bratcli2@jh.edu)}

Section 4: Thu. 10:30–11:20am, Bloomberg 478 (south-west, on the right as you enter)

TA: Anthony Cordisco (acordis2@jhu.edu)

office hours: Bloomberg 467, Tue. 3:00–4:00pm, Wed. 1:30–3:30pm

{undergrad TAs: Dardan Borovci (dborovc1@jhu.edu) & Bridget Ratcliffe}

Section 5: Thu. 12–12:50pm, Bloomberg 478 (north-east, on the left as you enter)

TA: Chris Martin (cmarti75@jhu.edu)

office hours: Bloomberg 471, Mon. 2:00–3:30pm, Wed. 3:00–4:30pm

{undergrad TA: Josh Barza}

Section 6: Thu. 12–12:50pmm, Bloomberg 478 (south-west, on the right as you enter)

TA: Shu Zhang (szhang67@jhu.edu)

office hours: Bloomberg 357, Mon. 4:30–5:30pm, Wed. 2:00–4:00pm

{undergrad TA: Dardan Borovci}

Note: on three weeks with midterm exams all sections meet at 8:00–8:50am in the rooms specified separately. There will be midterm exams during that time instead of discussion sections. The regular discussion sections will not happen on those weeks.

4. Exams:

Midterm exam 1 (Chapters 1–4, HW1–3): Thu. February 19, 8:00–8:50am

Midterm exam 2 (Chapters 5–9, HW4–6): Thu. March 12, 8:00–8:50am

Midterm exam 3 (Chapters 10–12, HW7–9): Thu. April 09, 8:00–8:50am

Final exam (Chapters 1–17, HW1–13): Tue. May 12, 9am–noon

Section 1: Bloomberg 172

Section 2: Bloomberg 276

Section 3: Bloomberg 176

Section 4: Bloomberg 168 (final exam only, room 274 for midterm exams)

Section 5: Bloomberg 278

Section 6: Bloomberg 361

Allowed material: 3" x 5" white index card with formulas, both sides

name written on the card, staple to your blue book at the end of your exam

midterm exam: 1 card allowed; final exam: 4 cards (can reuse 3 from midterms)

numerical problems: calculator briefly when needed, smart phones in **airplane mode**

keep returned graded work until the end of the course

5. Homework:

HW0 (practice only: Chapter 1): due Wed. Jan.28, 11:00pm

HW1 (Chapter 2): due Wed. Feb.04, 11:00pm

HW2 (Chapters 3–4): due Wed. Feb.11, 11:00pm

HW3 (Chapter 4): due Wed. Feb.18, 11:00pm

HW4 (Chapters 5–6): due Wed. Feb.25, 11:00pm

HW5 (Chapters 7–8): due Wed. Mar.04, 11:00pm

HW6 (Chapter 9): due Wed. Mar.11, 11:00pm

HW7 (Chapter 10): due Wed. Mar.25, 11:00pm

HW8 (Chapter 11): due Wed. Apr.01, 11:00pm

HW9 (Chapter 12): due Wed. Apr.08, 11:00pm

HW10 (Chapter 13–14): due Wed. Apr.15, 11:00pm

HW11 (Chapters 14–15): due Wed. Apr.22, 11:00pm

HW12 (Chapters 15–16): due Wed. Apr.29, 11:00pm

HW13 (Chapter 17): due Fri. May 01, 11:00pm

All homework assignments are distributed and collected online through WileyPLUS:

<http://edugen.wileyplus.com/edugen/class/cls436552/>

Certain rules apply:

- absolutely no late homework, solutions are available after the due date / time
- each student has a unique answer to enter, all work should be done individually
- five (5) attempts are given, 50% penalty after three (3) attempts
- hints are given after the first and second try
- one lowest-score homework will be dropped, HW0 does not count in the final score
- technical issues with WileyPLUS should be resolved in the first week of classes
- rules may change with a one-week notice if decided by the instructor

6. Schedule Overview and Topics Covered:

	Mon	Wed	Fri
1	Jan.26, 2015 Chapter 1 Intro and units	Jan.28 HW0 (practice) Chapter 2 1D motion	Jan.30 Chapter 2 1D motion
2	Feb.02 Chapter 3 Vectors	Feb.04 HW1 Chapter 3 Vectors	Feb.06 Chapter 4 3D motion
3	Feb.9 Chapter 4 3D motion	Feb.11 HW2 Chapter 5 Newton's laws	Feb.13 Chapter 5 Newton's laws
4	Feb.16 Chapter 6 Newton's laws	Feb.18 HW3, Feb.19 exam Chapter 6 Newton's laws	Feb.20 Chapter 7 Kinetic energy
5	Feb.23 Chapter 7 Work	Feb.25 HW4 Chapter 8 Potential energy	Feb.27 Chapter 8 Conservation of energy
6	Mar.02 Chapter 9 Center of mass	Mar.04 HW5 Chapter 9 Linear momentum	Mar.06 Chapter 9 Conservation of linear momentum
7	Mar.09 Chapter 9 Collisions	Mar.11 HW6, Mar.12 exam Chapter 10 Rotation	Mar.13 Chapter 10 Rotation
8	Mar.16 no class	Mar.18 – spring break – no class	Mar.20 no class
9	Mar.23 Chapter 10 Rotation	Mar.25 HW7 Chapter 11 Torque	Mar.27 Chapter 11 Angular momentum
10	Mar.30 Chapter 12 Equilibrium	Apr.01 HW8 Chapter 12 Statics	Apr.03 Chapter 13 Gravity
11	Apr.06 Chapter 13 Gravity	Apr.08 HW9, Apr.09 exam Chapter 13 Gravity	Apr.10 Chapter 14 Fluids: Hydrostatics
12	Apr.13 Chapter 14 Fluids: Hydrodynamics	Apr.15 HW10 Chapter 15 Oscillations	Apr.17 Chapter 15 Oscillations
13	Apr.20 Chapter 16 Waves on strings	Apr.22 HW11 Chapter 16 Waves on strings	Apr.24 Chapter 16 Waves on strings
14	Apr.27 Chapter 17 Sound waves	Apr.29 HW12 Chapter 17 Music	May.01 HW13 Chapter 17 Beats and doppler effect
15	May 4–5 – reading period –	May 6–14 – exam period –	
16	May 11 – exam period –	May 12, 9am-12(noon) FINAL EXAM	

7. Required Textbook:

Textbook: "Fundamentals of Physics, Volume 1 (Chapter 1 - 20)," 10th edition

Authors: David Halliday, Robert Resnick, Jearl Walker

Publisher: Wiley

Access to WileyPLUS can be purchased with this textbook

Important: read material prior to discussion of a certain Chapter in lecture class or section. Effectiveness of your participation in both class and section will depend on your reading and understanding the material in the book. As a result, your readiness for the homework and exam assignments will greatly depend on this.

8. Grade Policy:

- (1) 10% class participation (lecture & pre-lecture quiz)
- (2) 10% activity in discussion sections
- (3) 15% homework assignments
- (4) 30% midterm exams
- (5) 35% final exam

Track your scores online on Blackboard: <https://blackboard.jhu.edu/>

Point conversion to letter grade will be similar to previous years, to be adjusted to exam difficulty.

Details on participation scores:

- (1) participation in lectures: in-class voting system called Clickers
see <http://www.cer.jhu.edu/clickers.html>
percentage of answered questions per lecture (right or wrong)
pre-lecture quiz on WileyPLUS: may start later (score combined with Clickers)
rules may change with a one-week notice if decided by the instructor
- (2) activity in discussion sections: attendance (collected work pages) and TA bonus

Missed work:

- (1) three lowest score lecture days will be dropped, first day dropped
- (2) one discussion section score will be dropped
- (3) one lowest homework score will be dropped, HW0 dropped
- (4) one (out of three) lowest midterm exam score will be dropped
- (5) must absolutely come to the final exam

With the above rules, up to one missed week (e.g. due to illness) during regular class period will not affect your final score. However, you are expected to participate in all activities unless there is a major life event or illness. In case more work is missed beyond specified above due to a life event or illness, written documentation for all missed work is required in order to request special accounting for the missed work. Make-up arrangements for the final exam are possible only in the case of extreme situation which prevented a student to take the exam, written documentation from the Counseling Center or Health Center is required (a letter only stating that a student visited the Center is not sufficient without specifying an event eligible for the missed work).

9. Resources:

Course website:

<http://www.pha.jhu.edu/~gritsan/2015.171.101/>

Textbook: primary source of knowledge in this course, practice problems.

Couple with online resource WileyPLUS.

WileyPLUS: <http://edugen.wileyplus.com/edugen/class/cls436552/>

Homework assignments and solutions; other supplemental material from the publisher

Blackboard: <https://blackboard.jhu.edu/>

track scores; supplemental material posted by the TAs and Instructor (exam solutions)

ISIS (Integrated Student Information System): <https://isis.jhu.edu/>

Registration and scheduling, email lists used by TA and Instructor.

Clickers:

<http://www.cer.jhu.edu/clickers.html>

TA and Instructor office hours, review sessions:

- first consult with TA in your Section
- help is possible from TA in another Section, head TA, Instructor
- special office hours and review sections before the exams, announced separately

Faculty-Student Interaction Program

- there may be an option to meet with the Instructor for lunch
- depends on interest and availability, limited participation of small groups of students

JHU Physics and Astronomy Department Academic support for General Physics:

Tutoring room: daily Monday–Friday, 5:00pm–7:00pm, Bloomberg 261

JHU Academic support: <http://academicsupport.jhu.edu/>

- PILOT Learning
- Study Consulting
- Learning Den Tutoring

PILOT Learning Program - Peer Led Team Learning. Students are organized into study teams consisting of 6-10 members who meet weekly to work problem-sets together. A trained student leader acts as captain and facilitates the meetings.

The Study Consulting Program employs and trains seniors and graduate students to work as study consultants. They meet individually with each of their assigned students one hour per week, or more if necessary; this is a program designed to help students help themselves.

Learning Den - Small Group Tutoring. Small groups consist of a maximum of six students from the same course headed by one tutor.

10. Feedback:

Checkpoints will be used periodically throughout the semester when a temporary score is calculated using the work performed up to that point. The formula for this calculation will be different from the final score, for example first or lowest scores will not be generally dropped. This is used for information only and will not affect the final score.

Students are encouraged to provide feedback to the instructor and TAs about their experience in the course at any point in the semester.

11. Special arrangements:

Any student with a disability who may need accommodations in this class must obtain an accommodation letter from Student Disability Services, 385 Garland, (410) 516-4720, studentdisabilityservices@jhu.edu

If you believe you require any other special arrangements (due to religious, personal, or any other situation), contact the Instructor immediately.

12. Academic Integrity:

The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, cheating with Clickers, cheating on homework, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition.

In addition, the specific ethics guidelines for this course are:

- Homework is your individual assignment and direct use of work by others either from your class or outside is not allowed.
- Collaboration is encouraged in the section problem solving and outside of class for discussion of ideas, but not allowed in solving specific home assignments and during the exam.
- Clickers should always be used only by the registered owners. Voting for your friends is a violation of the JHU Ethics policy, akin to cheating on a test or having someone else do assignments for you.

Report any violations you witness to the Instructor. You may consult the associate dean of student affairs and/or the chairman of the Ethics Board beforehand. For more information, visit <http://ethics.jhu.edu>