



NATIONAL INSTITUTE OF PHYSICS
College of Science, University of the Philippines Diliman
1st Semester, AY 2016-2017



Course Number: **Physics 10**
 Course Title: Physics and Astronomy for Pedestrians*
 Course Description: An introduction to different aspects of physics and astronomy from its emergence up to its current developments.
 Prerequisite: None
 Credits: 3.0 units

**A “walk-through” course for people who enjoy physics and astronomy but want to be spared of the tedious details.*

Course Objectives:

- 1) Introduce concepts from various sub-disciplines of physics and astronomy to students, and develop an appreciation of the position of mankind in the universe.
- 2) Update the student with the latest developments in physics and astronomy.
- 3) Refine the student’s understanding of the role of physics and its sub-disciplines in technological innovations and in the advancement of other fields in the natural and social sciences. The latter, in turn, influences other human activities, transforming processes by which humans interact.
- 4) Acquaint the student with the current state of physics & astronomy education and research in the Philippines.
- 5) Enable the student to understand the character and functions of science and technology, and develop an appreciation of the key role of science and technology in national development.

Suggested Readings:

- 1) *Seven ideas that shook the universe* 2nd edition by Nathan Spielberg and Bryon D. Anderson
- 2) *The God Particle: If the universe is the answer, what is the question?* by Leon Lederman

Lecture Topics and Exam Schedule

Meeting #	Topic	Faculty
0	Course content and class organization	Faculty-In-Charge (FIC)
1	1.1 Initial remarks on Science and Physics	FIC*
2	1.1 Physics and Society 1	Prof Saloma**
3	1.2 How did we come to realize that the Earth is not the center of the universe?	FIC
4		
5		
6	1.3 The universe as a mechanism: Newton’s laws of motion, gravity, conservation laws and entropy	FIC
7		
8		
9	Review of topics and open forum	FIC
First Long Exam (1.5 hrs)		FIC
10	2.1 Ways of thinking about light; establishment of light speed	FIC
11		
12	2.2 Electromagnetism and optics : Blue skies, red sunsets, rainbows, and other optical spectacles; light as a wave; light as a quanta	FIC
13		
14		
15	2.3 Special and general relativity; big bang; black holes; dark matter; the fate of the universe	FIC
16		
17		
18	Review of topics and open forum	FIC
Second Long Exam (1.5 hrs)		FIC
19	3.1 Special topics on Theoretical Physics	Special Topics Speaker
20	3.2 Special topics on Optics	Prof. Almoro
21		Prof. Soriano

Meeting #	Topic	Faculty
22	3.3 Special topics on Materials Physics	Prof. Sarmago
23	3.4 Special topics on Astronomy	Special Topics Speaker
24		
25		
26	3.5 Special topics on Complexity Science	Special Topics Speaker
27		
28	3.6 Physics and Society 2	Prof Saloma**
29	3.6 Physics and Society 3	
30	Review of topics and open forum	FIC
31	Integration period	FIC
Third Long Exam (1.5 hrs)		FIC
Finals week: Make up exams		FIC

* FIC = Faculty-In-Charge, It is important to remember the name of your FIC and the section.

** The schedule of Prof. Saloma's talk will be spread over the whole semester.

Course Policies

- NIP Policies.** NIP strictly enforces the 'No UP ID, no entry' policy. Please wear your UP ID at all times when inside the NIP Building. The corridors, entry and exit points of the NIP Building are under CCTV surveillance.
- Code of Conduct.** Provisions in the Student Code of Conduct 2012 shall apply. Any form of cheating in examinations or any act of dishonesty in relation to studies, such as plagiarism, shall be subject to disciplinary action.
- Taking pictures, recording audio or video during class.** Students should ask explicit permission from the speaker whether taking photos and/or recording audio or video are allowed or not.
- Absences.** Students who incur **six (6) or more absences** without officially dropping the course shall be given a failing grade (5.0) in accordance with the University Rules on absences. *If the majority of the absences are excused, a student shall not be given a grade of "5" upon being thus dropped (often referred to as "forced drop"); but if majority of absences of the absences are not excused, the student shall be given a grade of "5" upon being thus dropped. Time lost by late enrollment shall be considered time lost by absence. [Faculty Manual §11.9]*
- Quizzes and Other Requirements.** Quizzes may be given every meeting. Homework and other assignments may be given.
- Written Long Exams.** There will be three (3) long examinations of **equal weights**.
 - Failure to take the Examinations.** A student who fails to take two (2) long examinations due to *unexcused* absences shall automatically incur a grade of "5" unless he/she drops the subject. Excuse slips for missed exams should be presented not later than **two (2) meeting days after the examination**. In case of a valid excuse for an exam, make-up may be given.
 - Make Up Exam during the finals week.** Only *one excused long exam* may be replaced by the Make Up Exam. Other missed long exams (excused or not) shall be given zero scores and the resulting calculated grade shall be the basis for the final Point Grade.
 - Corrections.** Long exam results shall be returned only for perusal and corrections. They shall stay with the faculty-in-charge. Results of the exams shall be posted (and may also be discussed after the exam) and students are expected to consult with the respective professors regarding questions in the examinations. Questions about exams shall be entertained only within one week after scores have been posted.
- Computation of Grades.** Grades will be computed from:

75%	Average of All Long Exams
25%	Quizzes, Class Participation and other Requirements

The transmutation table is shown below.

Class Standing	Point Grade
90 to 100%	1.0
85 to below 90%	1.25
80 to below 85%	1.5
75 to below 80%	1.75
70 to below 75%	2.0
65 to below 70%	2.25
60 to below 65%	2.5
55 to below 60%	2.75
50 to below 55%	3.0
45 to below 50%	4.0
Below 45%	5.0

Important dates**

Dropping:	27 Oct (Fri)
LOA application:	11 Nov (Fri)
End of classes:	05 Dec (Mon)
Integration period:	06 Dec (Tue)
Final examinations:	07 (Wed) to 14 (Wed) Dec
Lantern Parade	16 Dec (Fri)
Christmas Break	17 Dec (Sat) to 04 Jan (Wed)
Grades submission:	22 Dec (Thu)

** See upd.edu.ph for latest version of the Academic Calendar