General Physics I

Class code
PHYS-UA 9011 - 001

Instructor Details
Dr Katharine S Whitehead
Office hour 2-3pm Thursdays,
Room 207 4/5 Bedford Sq

Dr Stan Zochowski
Office hour – by appointment
Room Dept of Physics, UCL.

Class Details
General Physics I Fall 2013
Lecture - Thursdays 15:00 – 18:00 with a break
Recitation – Mondays 12:15-13:15 - There will be a recitation class in the first week

Locations to be confirmed.

Prerequisites
MATH-UA 121 Calculus I

Class Description
This course begins a two-semester introduction to physics (lecture and recitation) intended primarily for pre-professional students and for those majoring in a science other than physics.
Class time is comprised of 2 ½ hours per week of lectures, plus a 1 hour recitation and a 2 hour Laboratory session each week.

Desired Outcomes
Students will learn about kinematics and dynamics of particles; force, momentum, work, and energy; gravitation; circular, angular, and harmonic motion; mechanical and thermal properties of solids, liquids and gases.

Assessment Components
10 Problem sets 20%
Laboratory evaluations 30%
Term exams 25% (based on best two of three exams)
Final exam 25%

All coursework must be completed and submitted to a passable standard (40%).
Failure to submit or fulfil any required course component results in failure of the class.
Assessment Expectations

**Grade A:** Demonstration of knowledge and understanding of the topics covered in the course, including an ability to apply this to solving problems.

**Grade B:** Demonstration of knowledge and understanding of most of the topics covered in the course, with ability to apply this knowledge to solving problems.

**Grade C:** Demonstration of familiarity and some understanding of most of the topics covered in the course, together with ability to solve some problems based on these topics.

**Grade D:** Demonstration of familiarity with most of the topics covered in the course, and at least a modest ability to solve some problems based on these topics.

**Grade F:** Failure to demonstrate familiarity with most of the topics covered in the course, and little ability to solve problems based on them.

Grade conversion

NYU in London uses the following scale of numerical equivalents to letter grades:

A=94-100
A-=90-93
B+=87-89
B=84-86
B-=80-83
C+=77-79
C=74-76
C-=70-73
D+=67-69
D=65-66
F=below 65

Where no specific numerical equivalent is assigned to a letter grade by the class teacher, the mid point of the range will be used in calculating the final class grade (except in the A range, where 95.5 will be used).

Grading Policy

NYU in London aims to have grading standards and results in all its courses similar to those that prevail at Washington Square.

Attendance Policy

NYUL has a strict policy about course attendance. **No unexcused absences are permitted.** While students should contact their class teachers to catch up on missed work, you should NOT approach them for excused absences.

Excused absences will usually only be considered for serious, unavoidable reasons such as personal ill-health or illness in the immediate family. Trivial or non-essential reasons for absence will not be considered.

Excused absences can only be considered if they are reported in accordance with guidelines which follow, and can only be obtained from the appropriate member of NYUL's staff.
Please note that you will need to ensure that no make-up classes – or required excursions - have been organised before making any travel plans for the semester. See also section 11.1 - Make up days.

Absence reporting for an absence due to illness

1. On the first day of absence due to illness you should report the details of your symptoms by e-mailing absences@nyu.ac.uk including details of: class(es) missed; professor; class time; and whether any work was due including exams. Or call free (from landline) 0800 316 0469 (option 2) to report your absences on the phone.

2. Generally a doctor’s note will be required to ensure you have sought treatment for the illness. Contact the Gower Street Health Centre on 0207 636 7628 to make an appointment, or use HTH general practitioners if you cannot get an appointment expeditiously at Gower Street.

3. At the end of your period of absence, you will need to complete an absence form online at http://bit.ly/NuCl5K. You will need to log in to NYU Home to access the form.

4. Finally you must arrange an appointment to speak to Nigel Freeman or Donna Drummond-Smart on your first day back at class. You must have completed the absence form before making your appointment.

Supporting documentation relating to absences must be submitted within one week of your return to class.

Absence requests for non-illness reasons

Absence requests for non-illness reasons must be discussed with the Academic Office prior to the date(s) in question – no excused absences for reasons other than illness can be applied retrospectively. Please come in and see us in Room 308, 6 Bedford Square, or e-mail us at academics@nyu.ac.uk.

Further information regarding absences

Each unexcused absence will be penalized by deducting 3% from the student’s final course mark. Students are responsible for making up any work missed due to absence.

Unexcused absences from exams are not permitted and will result in failure of the exam. If you are granted an excused absence from an examination (with authorisation, as above), your lecturer will decide how you will make-up the assessment component, if at all (by make-up examination, extra coursework, viva voce (oral examination), or an increased weighting on an alternate assessment component, etc.).

NYUL also expects students to arrive to class promptly (both at the beginning and after any breaks) and to remain for the duration of the class. If timely attendance becomes a problem it is the prerogative of each instructor to deduct a mark or marks from the final grade of each late arrival and each early departure.

Please note that for classes involving a field trip or other external visit, transportation difficulties are never grounds for an excused absence. It is the student’s responsibility to arrive at an agreed meeting point in a punctual and timely fashion.

Please refer to the Student Handbook for full details of the policies relating to attendance. A copy is in your apartment and has been shared with you on Google Docs.
Late Submission of Work

Written work due in class must be submitted during the class time to the professor. Late work should be submitted in person to a member of NYU London staff in the Academic Office (Room 308, 6 Bedford Square) during office hours (Mon – Fri, 10:30 – 17:30). Please also send an electronic copy to academics@nyu.ac.uk for submission to Turnitin.

Work submitted within 5 weekdays after the submission time without an agreed extension receives a penalty of 10 points on the 100 point scale.

Written work submitted more than 5 weekdays after the submission date without an agreed extension fails and is given a zero.

Please note end of semester essays must be submitted on time.

Plagiarism Policy

Plagiarism: the presentation of another piece of work or words, ideas, judgements, images or data, in whole or in part, as though they were originally created by you for the assignment, whether intentionally or unintentionally, constitutes an act of plagiarism.

Please refer to the Student Handbook for full details of the plagiarism policy.

All students must submit an electronic copy of each piece of their written work to www.turnitin.com and hand in a printed copy with the digital receipt to their professor. Late submission of work rules apply to both the paper and electronic submission and failure to submit either copy of your work will result in automatic failure in the assignment and possible failure in the class.

Electronic Submission

The Turnitin database will be searched for the purpose of comparison with other students’ work or with other pre-existing writing or publications, and other academic institutions may also search it.

In order for you to be able to submit your work onto the Turnitin website, you will need to set up an account:

1) Go onto the Turnitin website http://www.turnitin.com
2) Click ‘Create Account’ in the top right hand corner
3) Select user type of ‘student’
4) Enter your class ID & Turnitin class enrolment password (these will be e-mailed to you after the drop/add period, or contact academics@nyu.ac.uk if you have misplaced these).
5) Follow the online instructions to create your profile.

To submit your work for class, you will then need to:

1) Log in to the Turnitin website
2) Enter your class by clicking on the class name
3) Next to the piece of work you are submitting (please confirm the due date), click on the ‘submit’ icon
4) Enter the title of your piece of work
5) Browse for the file to upload from wherever you have saved it (USB drive, etc.), please ensure your work is in Word or PDF format, and click ‘submit’
6) Click ‘yes, submit’ to confirm you have selected the correct paper (or ‘no, go back’ to retry)
7) You will then have submitted your essay onto the Turnitin website.
8) Please print your digital receipt and attach this to the hard copy of your paper before you submit it to your professor (this digital receipt appears on the web site, immediately after you submit your paper and is also sent to your e-mail address). Please also note that when a paper is submitted to Turnitin all formatting, images, graphics, graphs, charts, and drawings are removed from the paper so that the program can read it accurately. Please do not print the paper in this form to submit to your lecturers, as it is obviously pretty difficult to read! You can still access the exact file you uploaded by clicking on the ‘file’ icon in the ‘content’ column.

Please also see the Late Submission of Work policy, above.

Students must retain an electronic copy of their work for one month after their grades are posted online on Albert and must supply an electronic copy of their work if requested to do so by NYU in London. **Not submitting a copy of a piece of work upon request will result in automatic failure in the assignment and possible failure in the class.** NYU in London may submit in an electronic form the work of any student to a database for use in the detection of plagiarism, without further prior notification to the student.

Penalties for confirmed cases of plagiarism are set out in the Student Handbook.

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**Required Text(s)**

Any good basic university physics text.


**Supplemental Texts(s) (not required to purchase as copies are in NYU-L Library)**


**Internet Research Guidelines**

[www.hyperphysics.phy-astr.gsu.edu](http://www.hyperphysics.phy-astr.gsu.edu) for bite-sized step by step information [scienceworld.wolfram.com](http://scienceworld.wolfram.com) for physics and maths assistance

**Additional Required Equipment**

Scientific calculator

**Session 1**

[05-09-13] Measurement. Vectors, Motion Along a Straight Line, 2 amd 3-d motion

Homework – 8 questions due 12/09/13 in lecture

**Session 2**


Homework – 8 questions due 19/09/13 in lecture
Session 3
Translational Momentum  Extended Systems

Session 4
FIRST EXAM on topics from Sessions 1-3.
[26-09-13]

Session 5
Kinetic Energy and Work.
[03-10-13]  Homework – 8 questions due 10/10/2013 in lecture

Session 6
[10-10-13]  Homework – 8 questions due in 17/10/2013

Session 7
Rotation. Complex Rotations.
[17-10-13]  Homework – 8 questions due 31/10/13 in lecture

Session 8
SECOND EXAM on topics from sessions 5-7
[24-10-13]

Session 9
Equilibrium and Elasticity, Gravitation
[31-10-13]  Homework – 8 questions due 14/11/2013 in lecture

FALL BREAK

Session 10
Fluids. Oscillations.

Session 11
Transverse Mechanical Waves. Sound waves

Session 12
THIRD EXAM on topics from Sessions 8-11.
[21-11-13]
**Session 13**
Thermal Expansion, Calorimetry and the Thermal Properties of Matter
1st Law of thermodynamics and Thermodynamic processes
[28-11-13]
Homework – 8 questions due in 05/12/2012

**Session 14**
Heat Engines 2nd Law of Thermodynamics
[05-12-13]
No assignment

**Session 15**
FINAL EXAM - test on all topics covered during this course
[12-12-13]

**Classroom Etiquette**
Toilet breaks should be taken before or after class or during class breaks.
Food & drink, including gum, are not to be consumed in class.
Mobile phones should be set on silent and should not be used in class except for emergencies.
Laptops are not allowed in this class.
Please kindly dispose of rubbish in the bins provided.

**Required Co-curricular Activities**
None

**Suggested Co-curricular Activities**
Students may like to visit:-
The Science Museum, South Kensington
The Royal Observatory, Greenwich Park
Public Lectures on Science at the Institute of Physics:- http://www.iop.org/

**Your Instructor**
Research interests:
Light emitting liquid crystalline polymers and small molecules for display applications.
PhD in Physics from University of Sheffield followed by 5 year as research associate at Imperial College.

Sample papers:
An alignable fluorene thienothiophene copolymer with deep-blue electroluminescent emission at 410 nm
Highly polarized blue electroluminescence from homogeneously aligned films of poly(9,9-dioctylfluorene) Whitehead, KS; Grell, M; Bradley, DDC, et al. APP PHY LETT Volume: 76 Issue: 20 pp: 2946-2948 MAY 15 2000


Interplay of physical structure and photophysics for a liquid crystalline polyfluorene Grell, M; Bradley, DDC; Ungar, G, et al. MACROMOLECULES Volume: 32 Issue: 18 pp 5810-5817 SEP 7 1999

"Liquid Crystalline Semiconductors: Materials, Properties and Applications", edited by Richard J. Bushby, Stephen M. Kelly and Mary O’Neill (Chapter 5 – Charge transport in reactive mesogens and Liquid crystal polymer networks – T.Kreouzis and K.S. Whitehead