

**Course Meeting Schedule**

Lecture: Tuesday, Thursday, 9:30 – 10:45 A.M.

Location: remote

**Instructor**

Prof. Burton Budick

Office: Physics Department, 726 Broadway, Room 859

Office Hours: See NYU Classes

**Administration**

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**Course Description**

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This course is an introduction to mechanics and thermodynamics. The course has lecture, laboratory, homework, and in-class participation components. Topics include position, velocity, acceleration, force, Newton's laws of motion, gravitation, work, energy, torque and mechanical waves. The course uses high school algebra, geometry and trigonometry, vectors, and some calculus. A calculus-based textbook is used for the course. Calculus will be present in lecture and homework, but more sparingly on exams. The algebra, vectors, geometry, and trig are absolutely essential. If some time has elapsed since your last math course, or you feel a lack of confidence in this area, you are strongly urged to study math intensively before we get too deeply into the physics course. Problem-solving in the course involves both quantitative and conceptual reasoning.

**Required Materials**

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## 1. Course Package:

- e-book version of the course text, *Fundamentals of Physics*, 11th edition by Halliday, Resnick and Walker,
- WileyPlus is used for the homework assignments, and has additional learning resources, such as simulations and videos.

*All assignments on WileyPlus, are computer-graded. Please bring your laptop or tablet to every class. Smartphones should also be compatible with the system.*

A separate document on NYU Classes gives instructions on how to obtain required materials.

3. *Laboratory Experiment Descriptions* can be found by going to [http://physics.nyu.edu/~physlab/GenPhysI\\_PhysII/genphys1.html](http://physics.nyu.edu/~physlab/GenPhysI_PhysII/genphys1.html).

## **Laboratory Sessions**

Laboratory sessions meet weekly remotely, or in rooms 222 or 224 of Meyer Hall, located at 4 Washington Place. The list of experiments is on the last page. The laboratory grade will be based on an average over all labs, but the lowest lab grade will be dropped before the average is calculated.

Lab experiment descriptions must be read before attending each experiment. It is important to bring a calculator and your laboratory experiment description to the laboratory sessions. Your laboratory instructor will provide more information regarding the policy for handing in lab reports.

## **Exam Schedule, Assessment Weightings and Letter Grade**

There will be three examinations during the semester and one cumulative final examination. All examinations are in multiple-choice format. Both quantitative and conceptual questions will appear on the examinations, as this reflects the content of the course. A formula sheet will be provided with the exam. You will need to bring a calculator to all exams.

Exams will be based on the homework, readings, and lectures. The best way to prepare for the exams is to review the WileyPlus assignments, assigned readings and textbook problem sets.

<b>Assessment</b>	<b>Percentage</b>	<b># Dropped</b>
<i>WileyPlus</i> assignments – Weekly	10%	1 Lowest
Lab	20%	1 Lowest
Exam 1: Th. Feb 23, 9:15 – 10:45 am	15%	Lowest Exam Dropped
Exam 2: Th. March 18, 9:15 – 10:45 am	15%	Lowest Exam Dropped
Exam 3: Th. April 20, 9:15 – 10:45 am	15%	Lowest Exam Dropped
Final Exam (Cumulative) ????, 12:00-1:50 pm	25%	

**No alternative examination dates (i.e. no make-up dates) will be offered.**

**Exams 1, 2 and 3 occur during the regularly scheduled class time.**

Note the following policies:

- Lab grades will be altered to fit a common average or standard deviation.

## **Grading**

The course will not be graded on a curve. Rather there will be pre-assigned cut-offs like

Above 90	85-90	80-85	75-80	70-75	65-70	60-65	55-60
A	A-	B+	B	B-	C+	C	C-

## **Policies**

### **WileyPlus Policies**

1. Grading Policy - see on WileyPlus for details.
2. Late Policy – work submitted after the deadline is subject to a late penalty; see WileyPlus for details.
3. No extensions will be granted.

### **Laboratory Policies**

1. To get a grade, a lab report must be submitted. It's not enough to just do the experiment.
2. A lab report cannot be submitted for an experiment if you were absent from the lab session; in other words, you cannot take someone else's data and submit a lab report for an experiment you never did.
3. Any lab missed without a doctor's note or prior arrangement with the instructor counts as a zero.
4. There are no make-up sessions for missed laboratories.
5. You may not attend a laboratory section you are not registered for.
6. If you miss more than two lab experiments or fail to hand in more than two reports, your grade for the course will be an F or an I (assuming you are passing the other components of the course and that you provide medical documentation to explain your absence). To make up the lab requirement, you will have to complete the entire set of labs, not just the ones you missed. This can be done in the following summer session or in the next academic year, space permitting.

### **Missed Midterm Exam Policy**

1. If you are excused from one of the midterm exams, due to a documented medical or other reason, the other two exams and the final exam will count for more, and a letter grade assigned at the end of the semester. An incomplete will not be assigned. There are no make-up exams.
2. If you are ill and cannot appear, you must produce verifiable documentation from a physician, with physician's letterhead, that explaining that you were too ill to attend the examination. This note should be sent **via email**.
3. Students who are absent from a test without documentation will receive a grade of zero on that test.

### **Missed Final Exam Policy**

1. If you miss the final exam due to illness and you provide acceptable documentation, your grade will be an incomplete (I).
2. You are then required to take the final examination the next time the course is given, on the date and at the time assigned for that semester.
3. If you miss an exam due to medical reasons, send your medical documentation to the professor.

### **Optional Help**

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1. *Free physics review sessions by upper-level undergraduate physics majors* in the Physics Department. The sessions run Monday through Friday, at many different times during the day. Sessions begin the second week of class and a schedule will be posted to NYU Classes the first week of classes. The physics majors will be able to help you with the course concepts, readings and problems. This is a great place to go for help. You can go to as many sessions as you wish. Ideally, you should go on a weekly basis and prepare questions in advance.

2. *Free peer tutoring, Study Slams, group reviews, workshops, and more!!*  
University Learning Center  
[www.nyu.edu/ulc](http://www.nyu.edu/ulc)  
ULC@Academic Resource Center, 18 Washington Place, Lower Level  
ULC@UHall, 110 East 14th Street, top of stairs by UHall Commons

*Achieve Excellence!*

## Schedule of Class Topics

<b>Date</b>	<b>Lecture Topic</b>	<b>Ch.</b>	<b>Weekly Laboratory</b>
R Jan 28	Motion Along a Straight Line	2	No Labs (all week)
T Feb 2	Motion Along a Straight Line	2	
R Feb 4	Vectors	3	0. Policy Review
T Feb 9	Motion in Two and Three Dimensions	4	
R Feb 11	Motion in Two and Three Dimensions	4	1. Motion 1
T Feb 16	Force and Motion - I	5	
R Feb 18	Force and Motion – I / Force and Motion - II	5 / 6	2. Motion 2
T Feb 23	<b>Exam 1 (2, 3, 4)</b>		
R Feb 25	<b>Kinetic Energy and Work</b>	7	3. Equilibrium of a Particle
T March 2	Potential Energy and Conservation of Energy	8	
R March 4	<b>Center of Mass and Linear Momentum</b>	9	4. Newton's Second Law
T March 9	<b>Center of Mass and Linear Momentum</b>	9	
R March 11	Rotation Moments of inertia	10	5. Work-Energy
T March 16	Angular momentum, Rotational equilibrium	11	
R March 18	<b>Exam 2 (5, 6, 7, 8, 9)</b>	10	6. Conservation of Energy
T March 30	Angular momentum, Rotational equilibrium	11, 12	
R April 1	Gravitation	13	7. Collisions in One Dimension
T April 6	Gravitation	13	
R April 8	Fluids	14	8. Ballistic Pendulum
T April 13	Fluids	14	
R April 15	Oscillations	15	9. Centripetal Force
T April 20	<b>Exam 3 (10, 11, 12, 13, 14)</b>	15	
R April 22	Oscillations	18	10. The Human Arm
T April 27	<b>Thermodynamics</b>	18	
R April 29	<b>Thermodynamics</b>		11. Oscillations of a String
T May 4	<b>Thermodynamics</b>	19	
R May 6	<b>Thermodynamics</b>	20	