

Lecture Tuesday/Thursday 9:30 am - 10:45 am
Skirball Center for the Performing Arts, 566 LaGuardia Place

Lecturer Dr. Jayme Kim
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Office hours: TBA

Course Description

This course is an introduction to mechanics and thermodynamics. The course has lecture, laboratory, and homework components. Topics include position, velocity, acceleration, force, Newton's laws of motion, work, energy, torque, gravitation, fluid, oscillation, and thermodynamics. The course uses university level mathematics. The algebra, vectors, geometry, and trigonometry are absolutely essential.; calculus will be present in lecture and homework, but more sparingly on exams. A calculus-based textbook is used for the course. 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

The NYU Bookstore sells two items (either will do)

Halliday, Resnick, Walker 11th edition New WileyPLUS access: 9781119492009

Halliday, Resnick, Walker 11th edition New WileyPLUS access with print text: 9781119492023

You can also purchase at www.WileyPlus.com, and see their other options for purchasing a 6 month access.

In-class work: *Learning Catalytics*; go to learningcatalytics.com to purchase access.

Laboratory Experiment Descriptions can be found by going to http://physics.nyu.edu/~physlab/Lab_Main/ and clicking on General Physics I.

Assessments

Assessment	Weight	# of dropped
Reading Assignments (WileyPLUS)	4%	1 Lowest
Learning Catalytics	4%	1 Lowest
Homework Assignments (WileyPLUS)	12%	1 Lowest
Lab	20%	1 Lowest
Exam 1	10% Friday, September 24, 2:00 pm	NO EXAMS DROPPED
Exam 2	10% Friday, October 22, 2:00 pm	
Exam 3	10% Friday, November 19, 2:00 pm	
Final Exam	30% TBA	

- **No alternative examination dates (i.e. no make-up dates) will be offered.**
- **The final examination will be cumulative.**
- All exams will be in multiple-choice format.
- You will need to bring a calculator to all exams. You may not use a cell-phone, or any other communication device, during the exams.
- A formula sheet will be provided.

- If you are ill and cannot appear, a medical certificate is required within 48 hours of the examination date.
 - If you miss one or more midterm exams, the grade of the missed exams will be calculated based on the grades of other examinations.
 - If you miss the final exam, an incomplete will be assigned, and you are required to take the final examination the next time the course is given, on the date and at the time assigned for that semester.
- Students who are absent from a test during the semester without an excuse will receive a grade of zero on that test.

Course Grade

Your total numerical score, calculated from the components listed above, correspond to the following letter grades:

	Score $\geq 90 = A$	$90 > \text{Score} \geq 86 = A-$
$86 > \text{Score} \geq 82 = B+$	$82 > \text{Score} \geq 72 = B$	$72 > \text{Score} \geq 68 = B-$
$68 > \text{Score} \geq 64 = C+$	$64 > \text{Score} \geq 54 = C$	$54 > \text{Score} \geq 50 = C-$
$50 > \text{Score} \geq 40 = D$	$40 > \text{Score} = F$	

- **There is no extra credit in this course.**
- **There are no curves in this course.**
- The cutoffs for each letter grade *might be* lowered but they will not be raised.
- Lab grades will not be altered to fit a common average or standard deviation.
- Scores will be rounded to two decimal places at the end of the semester.

WileyPLUS

- Assignments will be delivered through the WileyPLUS platform. Please see NYU Classes, in the syllabus section, for the WileyPLUS course ID for PHYS-UA 11 in Fall 2021.
- Each module will have a reading assignment and a homework assignment.

Reading assignments

Reading assignments are assessed on the basis of your performance answering questions based on what you read. You have 3 attempts to answer each question. It is best to do the reading assignment for a given chapter, before the chapter is covered in lecture. You are responsible for material in the reading assignments, which may not be every section within a chapter.

Homework assignments

Homework assignments assess your skill in doing extended, quantitative physics problems. Most problems have links to hints and sample problems to assist you. You can also consult the Students Solutions Manual, within WileyPLUS, for further assistance and to check your work. You have 6 attempts to answer each homework question.

Adaptive practices

WileyPLUS also includes an adaptive practice system. Adaptive practices are designed to build and test your proficiency in course material. These are optional, and it is recommended to work on after completing homework assignments to test your general understanding. However, questions are provided by WileyPLUS system, and contents of questions could be different from lecture materials.

Learning Catalytics

In-class work – Requires a laptop, tablet or smartphone; every lecture includes questions that must be answered during the class. There is ample research that shows students get more out of an active lecture environment.

- **It is important that you use your NYU NetID for your Student ID on Learning Catalytics in order for your grades to be correctly assigned to you.** Your NetID is printed on the back of your NYUCard. (It is a sequence of characters in front of the “@” symbol of your university email account.) To add your NetID to your profile, please see the instruction on https://help.pearsoncmg.com/learning_catalytics/student/en/Topics/lc_student_ids.htm.

Laboratory and Recitation

You will attend laboratory weekly.

- The laboratory grade is based on an average over all labs.
- Any laboratory missed without a doctor’s note or prior arrangement with the instructor counts as a zero.
- 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.
- Each lab session includes a recitation component. Your lab instructor will review problems at the beginning of each session.

Regarding labs and recitations please note:

- In order to get a grade, a lab report must be submitted. It’s not enough to just do the experiment or working on the worksheet.
- **The minimum number of labs a student must complete in order to get a grade is 6. An excused lab will not be considered as a completed lab.**
- **There are no make-up sessions for laboratories.**
- You should bring a calculator to laboratory/recitation.

Policies

1. Learning Catalytics Policies

- (a) **You must use your NYU NetID for your Student ID on Learning Catalytics.**
- (b) The grades of Learning Catalytics of the first two lectures will not count towards the course grade.
- (c) The lowest 6 Learning Catalytics scores are dropped.
- (d) Policy (1c) is in lieu of requests to be excused due to illness, wi-fi issues, travel issues, or any other reason that prevents you from participating.
- (e) Questions are scored both on participation (75%), and on correctness (25%).
- (f) Questions are chosen under the assumption that you have read the assigned sections before attending class.

2. WileyPLUS Policies

- (a) The grade of the first Reading assignment will not count towards the course grade.
- (b) The grade of the last Homework assignment will not count towards the course grade.
- (c) **Late reading and homework assignments will be subjected to 10% deduction of grade per day.**
- (d) Grading Policy - see on WileyPLUS for details.

3. Laboratory Policies

- (a) **In order to get a grade, a lab report must be submitted. It's not enough to just do the experiment.**
- (b) 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.
- (c) Any lab missed without a doctor's note or prior arrangement with the instructor counts as a zero.
- (d) You may not attend a laboratory section you are not registered for.
- (e) **The minimum number of labs a student must complete in order to get a grade is 6. An excused lab will not be considered as a completed lab.**
- (f) 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 the next time the course is offered, space permitting.

4. Exam Replacement Policy

- (a) The grade on the final exam will replace the lowest of the three scores earned on earlier exams, provided that your final exam score is higher (on a percentage basis).
- (b) This policy only applies to exams taken, not missed exams.

5. Missed Midterm Exam Policy

- (a) 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 will be assigned at the end of the semester. An incomplete will not be assigned. There are no make-up exams.
- (b) 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.
- (c) Students who are absent from a test without documentation will receive a grade of zero on that test.
- (d) If you miss one or more than one of the midterm exams and have medical documentation then the grade of the missed exam(s) will be calculated from grades of other midterm exam(s) and the final exam. An incomplete will not be assigned.

Missed exams grades:

In the following,

- Exam A (B, C) is the percentage grade of exam A (B, C), where $A (B, C) \in \{1, 2, 3\}$, and

- Final Exam is the percentage grade of the final exam.
 - i. Missing Exam A (missing one midterm exam):
 $(\text{Exam A}) = 0.2 \times (\text{Exam B}) + 0.2 \times (\text{Exam C}) + 0.6 \times (\text{Final Exam})$
 - ii. Missing Exam A and Exam B (missing two midterm exams):
 $(\text{Exam A}) = (\text{Exam B}) = 0.25 \times (\text{Exam C}) + 0.75 \times (\text{Final Exam})$
 - iii. Missing three midterm exams:
 $(\text{Exam A}) = (\text{Exam B}) = (\text{Exam C}) = (\text{Final Exam})$
- (e) The exam replacement policy still applies for students who miss an exam(s) and provide appropriate medical documentation(s). In this case, the exam replacement policy will be applied *after* calculating the grade of the missed exam(s) based on the grades of other examinations.

6. Missed Final Exam Policy

- (a) If you miss the final exam due to illness and you provide acceptable documentation, your grade will be an incomplete (I).
- (b) 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.
- (c) If you miss an exam due to medical reasons, give your medical documentation to the instructor.

Optional Help

1. *Free peer tutoring, Study Slams, group reviews, workshops, and more!!*

University Learning Center

<https://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!***

Course Schedule

Date	Lectures	Laboratory	Due Dates
R Sep 02	Module 1	No labs	R1
T Sep 07	Module 1	No labs for the week of Sep 6	
R Sep 09	Module 2		R2
T Sep 14	Module 2	Lab 0: Introduction and policy review	H1
R Sep 16	Module 3		R3
T Sep 21	Module 3	Lab 1: Motion 1	H2
R Sep 23	Module 4		R4
F Sep 24	Exam 1 (Module 1, 2, 3)		
T Sep 28	Module 4	Lab 2: Motion 2	H3
R Sep 30	Module 5		R5
T Oct 05	Module 6	Lab 3: Newton's Second Law	R6, H4
R Oct 07	Module 6		
T Oct 12	No class: Monday Schedule	No labs for the week of Oct 11	H5
R Oct 14	Module 7		R7, H6
T Oct 19	Module 7	Lab 4: Work-energy Theorem	
R Oct 21	TBD		
F Oct 22	Exam 2 (Module 4, 5, 6)		
T Oct 26	Module 8	Lab 5: Conservation of Energy	R8, H7
R Oct 28	Module 8		
T Nov 2	Module 9	Lab 6: Collision in One Dimension	R9
R Nov 4	Module 9		H8
T Nov 9	Module 10	Lab 7: Ballistic Pendulum	R10
R Nov 11	Module 10		H9
T Nov 16	Module 11	Lab 8: Centripetal Force	R11
R Nov 18	Module 12		R12, H10
F Nov 19	Exam 3 (Module 7, 8, 9, 10)		
T Nov 23	Module 12	No labs for the week of Nov 22	H11
R Nov 25	No class: Thanksgiving Recess		
T Nov 30	Module 13	Lab 9: Human Arm	R13, H12
R Dec 02	Module 13		
T Dec 07	Module 14	No labs for the week of Dec 6	R14
R Dec 09	Module 14		H13
T Dec 14	TBD	No labs for the week of Dec 13	
TBD	Final Exam (CUMULATIVE)		

† Assignment Due Dates

- “R” refers to a reading assignment, and “H” refers to a homework assignment. For example, R1 is Reading 1, and H1 is Homework 1.
- All assignments are due by 11:59 pm (EDT). For example, Homework 1 is due by Tuesday, September 14 at 11:59 pm.

Textbook Reading

Modules	Textbook Reading
Module 1: Motion Along a Straight Line	2.1, 2.2, 2.3 , 2.4, 2.5, 2.6
Module 2: Vectors	3.1, 3.2, 3.3
Module 3: Motion in Higher Dimensions	4.1, 4.2, 4.3 , 4.4, 4.5 4.6 , 4.7
Module 4: Force and Motion - I	5.1, 5.2, 5.3
Module 5: Force and Motion - II	6.1, 6.3
Module 6: Work-energy Theorem	7.1, 7.2 , 7.3, 7.4, 7.5, 7.6
Module 7: Conservation of Energy	8.1, 8.2 , 8.3, 8.4, 8.5
Module 8: Conservation of Linear Momentum	9.1, 9.2, 9.3 , 9.4, 9.5 , 9.6, 9.7, (9.8)
Module 9: Rotation - I	10.1 , 10.2, 10.3, 10.4 , (10.5), 10.6 , 10.7, 10.8
Module 10: Rotation - II	11.1, 11.2 , 11.3, 11.4, 11.5 , 11.6, 11.7, 11.8
Module 11: Equilibrium	12.1, 12.2
Module 12: Oscillation	15.1, 15.2 , 15.3, 15.4, (15.5), (15.6)
Module 13: Gravitation	13.1, 13.2 , 13.3, (13.4), 13.5, 13.6 , 13.7
Module 14: Fluids	14.1 , 14.2, 14.3, 14.4, 14.5, 14.6 , 14.7

*Textbook Readings

- The number in front of a period refers to a chapter, and the number following the period refers to a section. For example, 2.1 refers to section 1 of chapter 2.
- It is strongly recommended to read boldfaced sections prior to lectures.
- The sections in parentheses are optional: contents of those sections *may or may not* be discussed in lectures, which will provide sufficient information to prepare exams.