

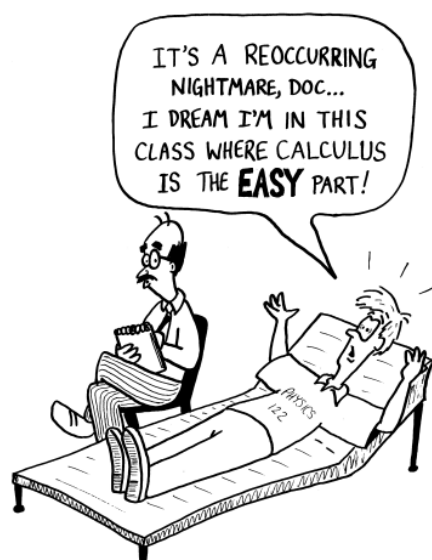
**PHYS-101: FUNDAMENTALS OF PHYSICS I**  
**Fall Quarter 2010/2011: 09/20/2010—12/05/2010**

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**Course Objective:** The course *Fundamentals of Physics I* deals with basic understanding of laws of classical mechanics and covers Newton's laws of motion, inertial and non-inertial frames of motion, linear versus circular motion, friction, energy, work, conservative versus non-conservative forces, and conservation laws.

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**Course Requirements:** *DO NOT BE AFRAID OF THE CALCULUS!*




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**Course Director and Lecturer: Prof. Brigita Urbanc**

E-mail: [brigita@drexel.edu](mailto:brigita@drexel.edu)

Phone: (215) 895-2726

Office: Disque Hall 909 (12-909)

Course Website: For Weekly Updates Check:

[www.physics.drexel.edu/~brigita/COURSES/PHYS-101\\_2010-2011](http://www.physics.drexel.edu/~brigita/COURSES/PHYS-101_2010-2011)

Lectures: Mon & Wed 10:00am—10:50am (DISQUE-108)

[Note: first lecture (Mon, 20 September 2010); last lecture (Wed, 1 December 2010)]

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**Recitation TAs: Danny Pan & Erica Smith**

E-mails: [dcp37@drexel.edu](mailto:dcp37@drexel.edu) & [ess55@drexel.edu](mailto:ess55@drexel.edu)

Recitations/Discussions:

001 Wed & Fri 2:00PM—2:50PM CURTIS 454 Erica Smith

002 Wed & Fri 3:00PM—3:50PM RANDEL 328B Erica Smith

003 Wed & Fri 9:00AM—9:50AM CURTIS 455 Danny Pan

004 Wed & Fri 4:00PM—4:50PM CURTIS 455 Danny Pan

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**Lab Director: Prof. Joseph Trout**

E-mails: joseph.jude.trout@drexel.edu, st92l7c3@drexel.edu

**Lab TAs: Pooja Kapoor & Parvez Daruwalla**

E-mails: psk24@drexel.edu & phd27@drexel.edu

**Lab Sessions in DISQUE 820A**

060 Tue 9:00AM—10:50AM

061 Tue 11:00AM—12:50PM

062 Tue 1:00PM—2:50PM

063 Tue 9:00AM—10:50AM

064 Tue 11:00AM—12:50PM

065 Tue 1:00PM—2:50PM

**Important:** A detailed week-by-week lab schedule is posted on the course website at [www.physics.drexel.edu/~brigita/COURSES/PHYS-101\\_2010-2011](http://www.physics.drexel.edu/~brigita/COURSES/PHYS-101_2010-2011).

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**Help/Office hours:** Address all questions and scheduling issues related to (a) labs to Prof. Joseph Trout (b) homework and recitations to Danny Pan & Erica Smith; and (c) lectures & exams to Prof. Brigita Urbanc. Please, contact all instructors using e-mail.

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**Course Material:**

- Course Textbook:

Young & Freedman

University Physics, 12th Edition

Pearson/Addison Wesley, 2007

ISBN-10: 080532187X; ISBN-13: 978-0805321876

- Lab Description:

Download the pdf file of each lab from the course website, ([www.physics.drexel.edu/~brigita/COURSES/PHYS-101\\_2010-2011](http://www.physics.drexel.edu/~brigita/COURSES/PHYS-101_2010-2011)), print it out, and bring the hard copy to the lab session

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**Lectures:**

- (a) Read the relevant chapter(s) from the course textbook **before** each lecture.
- (b) 100% lecture attendance is required. Failure to attend the lectures will result in reduction of your final grade at instructor's discretion.
- (c) All cell phones and other distracting electronic devices should be turned off during the lecture.
- (d) Active participation in the classroom is expected and encouraged.

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**Labs:**

- (a) Attendance at all scheduled labs is required. Failure to attend and complete the labs will result in a non-completed course grade at the instructor's discretion. If you must miss a lab for legitimate reasons (i.e. illness, etc.), please inform your lab instructor and Dr. Trout ([joseph.trout@drexel.edu](mailto:joseph.trout@drexel.edu)) as soon as you know. Time is allotted at the end of the quarter for students to make up labs missed for *legitimate* reasons, and make-up labs will be granted to students at the discretion of the lab director. In week none an announcement will be made in lecture with instructions on how to schedule a make-up lab during week nine or ten. There are no make-up labs for make-up labs.
- (b) Lab grades will be computed as follows:

(i) **Prelabs** : 20%

Prelabs for each lab are to be completed and submitted *before* the start of each lab session. Prelabs submitted after the first 20 minutes of the lab session will not receive more than half credit.

(ii) **Experiment** : 70%

You are expected to read the lab instructions before you arrive at the lab. Any lab member that appears to be unfamiliar with the lab material (i.e. expecting the lab instructor or other group members to complete the entire lab) will lose points. Each group must submit a copy of the data collected with all members signing it before leaving the lab. Each student should also keep a copy of the experimental data for use in his/her lab report. Lab material is available on the course web site ([www.physics.drexel.edu/~brigita/COURSES/PHYS-101\\_2010-2011](http://www.physics.drexel.edu/~brigita/COURSES/PHYS-101_2010-2011)).

(iii) **Lab Report** : 10%

You need to prepare your report at home and submit it at the next regularly scheduled lab (submission procedures for the final lab will be discussed in lab by your lab instructor). Grades for late lab reports will be reduced by 10%. Lab reports submitted one (1) week after the due date will receive NO credit. Each report should consist of: (1) a brief summary of the purpose and procedures of the experiment; (2) one or more tables of raw data and results, including the graphs; (3) a description of your final results with an assessment of the factors affecting their accuracy; (4) answers to any questions posed in the lab; and (5) a discussion of what you personally learned from doing the experiment.

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**Recitations/Discussions:**

- (a) 100% attendance at all scheduled recitations is required. Failure to attend the recitations will result in reduction of your final grade at instructor's discretion.
- (b) There will be six homework assignments which you will download from the course web site ([www.physics.drexel.edu/~brigita/COURSES/PHYS-101\\_2010-2011](http://www.physics.drexel.edu/~brigita/COURSES/PHYS-101_2010-2011)). Each assignment will consist of solving standard problems, which will count towards 100% of the homework grade. An additional bonus problem at an advanced level will be provided to enable you to gain extra points.

- (c) The homework assignments are due Fridays by 5:00 PM on (exceptions are Fridays after the two exams). All six homework assignments are *required* for passing the course, and late homeworks will not be accepted.

**Academic Honesty:** All work during the exams must be your own unaided effort. The homework that you submit must be your own final product, although discussion of strategies and numerical results with others is acceptable. Each member of a lab group must take her/his own notes and write her/his own summarizing essay. In all other situations, active cooperation and peer teaching among students is strongly encouraged.

**Tentative Course Schedule:** On the day of Convocation, Tuesday 10/05/2010, all classes are cancelled from 10:00 am to 1:00 pm and the lab schedule in Weeks 3 and 10 is correspondingly adjusted (see the course website for detailed Lab Schedule). Note that on the Columbus Day (Monday, 10/11/2010) there are NO classes scheduled. On the Thanksgiving week, there are NO classes on Wednesday through Friday (11/24/2010–11/26/2010). The last day to withdraw from the course is Friday, 10/29/2010.

**Grading Information/Missed Exams Policy:**

Your letter grade will be based on your total score, obtained from the components listed on Table I. Dates of all exams (Exam 1, Exam 2, and Final Exam) will be posted on the course web site ([www.physics.drexel.edu/~brigita/COURSES/PHYS-101\\_2009-2010/](http://www.physics.drexel.edu/~brigita/COURSES/PHYS-101_2009-2010/)). **THERE WILL BE NO MAKE-UP EXAMS!** If you miss an exam and have a documented, valid reason for doing so, contact the course director as soon as possible. It is not enough to just send an e-mail message about your absence from the exam. You must state in writing why you missed the exam. If the course director renders the reason valid, your remaining exams will be reassigned a different weight to compensate for the missed exam. If you fail to send your written statement within 48 hours after the exam, the missed exam will be automatically assigned a score of zero.

TABLE I: GRADING

Grade Components	Contribution
Exam 1 (1hr)	15%
Exam 2 (1hr)	15%
Final Exam (2hrs)	30%
Four Lab Reports	20%
Homework Assignments (H1-H6)	20%

TABLE II: TENTATIVE SYLLABUS

TIME TABLE	TOPIC	CH/SEC	RECITATIONS	HOMEWORKS	EXAMS
WEEK 1 09/20–09/24	Introduction and Vectors Motion Along a Straight Line	Ch.1/Secs: 3, 7-9 Ch.2/Secs: 1-5	Ch.1: 39,40,46 Ch.1: 47,49,50	No Homework	
WEEK 2 09/27–10/01	Motion Along a Straight Line (contd.) Newton's Laws of Motion	Ch.2/Secs: 1-5 Ch.4/Secs: 1-6	Ch.2: 4,5,13,25 Ch.2: 29,46,78	No Homework	
WEEK 3: 10/04–10/08	Newton's Laws of Motion (contd.) Applying Newton's Laws	Ch.4/Secs: 1-6 Ch.5/Secs: 1-4	Ch.4: 4,16,37,41 Ch.4: 43,50,54	HW1: Due (10/08/2010) Ch.1: 44,51 & Ch.2: 49,54,96(B)	
WEEK 4 10/12–10/15	Applying Newton's Laws (contd.)	Columbus Day Ch.5/Secs: 1-4	Ch.5: 4,19,24,37 Ch.5: 42,50,118	HW2: Due (10/15/2010) Ch.4: 5,9,36,49,56(B)	
WEEK 5 10/18–10/22 <b>10/22/2010</b>	Work and Kinetic Energy Work and Kinetic Energy (contd.) <b>Chs. 1, 2, &amp; 4</b>	Ch.6/Secs: 1-4 Ch.6/Secs: 1-4	Ch.6: 3,17,23,48 Exam 1 Solutions	No Homework No Homework	<b>Exam 1</b>
WEEK 6 10/25–10/29	Potential Energy and Energy Conservation Potential Energy ... (contd.)	Ch.7/Secs: 1-4 Ch.7/Secs: 1-4	Ch.6: 69,77,81,93 Ch.7: 23,42,43,55	HW3: Due (10/29/2010) Ch.5: 7,11,25,44,99(B)	
WEEK 7 11/01–11/05	Momentum, Impulse, and Collisions Momentum, Impulse, ... (contd.)	Ch.8/Secs: 1-5 Ch.8/Secs: 1-5	Ch.7: 58,73,78 Ch.8: 28,37,39,63	HW4: Due (11/05/2010) Ch.6: 5,20,49,73,103(B)	
WEEK 8 11/08–11/12	Rotation of Rigid Bodies Rotation of Rigid Bodies (contd.)	Ch.9/Secs: 1-5 Ch.9/Secs: 1-5	Ch.8: 73,78,79 Ch.9: 11,15,20,49	HW5: Due (11/12/2010) Ch.7: 25,46,51,63,72(B)	
WEEK 9 11/15–11/19 <b>11/19/2010</b>	Rotation of Rigid Bodies (contd.) Rotation of Rigid Bodies (contd.) <b>Chs. 5, 6, &amp; 7</b>	Ch.9/Secs: 1-5 Ch.9/Secs: 1-5	Ch.9: 80,86,92 Exam 2 Solutions	No Homework No Homework	<b>Exam 2</b>
WEEK 10: 11/22–11/26	Dynamics of Rotational Motion	Ch.10/Secs: 1-6 Thanksgiving	No Recitations No Recitations	No Homework No Homework	
WEEK 11: 11/29–12/03	Dynamics of Rotational Motion (contd.) Dynamics of Rotational Motion (contd.)	Ch.10/Secs: 1-6 Ch.10/Secs: 1-6	Ch.10: 3,27,35 Ch.10: 56,64,67	HW6: Due (12/03/2010) Ch.8: 64,81 & Ch.9: 43,83,98(B)	
WEEK 12: 12/06–12/10 <b>TBA</b>	<b>Chapters: 1-2 &amp; 4-10</b>				<b>Final</b>