

Syllabus PHY231 – Spring 2012 – Sections 1&2

- **Course Website:** <http://www.pa.msu.edu/courses/phy231>
- **Lecture:** BPS1410, Sec. 1, 10:20 – 11:40; Sec. 2, 12:40 – 2:00; **Attend ONLY your section.** You will have an assigned seat for every lecture. It will be sent to you by email. Write the seat number on your i-clicker. **You Must Sit In Your Assigned Seat.**
- **Instructor:** C. Bromberg, Rm: BPS3225, Email: bromberg@pa.msu.edu, 517-884-5580
- **Office Hours:** Wednesday 11:00 – 1:00, BPS 1248, or by appointment via email
- **Teaching Assistants:** Strosacker Physics Learning Center (BPS 1248) will have several TAs available during the hrs. 9:00 am - 9:00 pm. See course website for TA hours.
- **Textbook (C&J):** Cutnell & Johnson, PHYSICS 9e (MSU), ISBN 978-1-118-11893-1. Text is loose-leaf 3-hole punched. **You Must Purchase THIS version of the book.** Bring appropriate chapters to class in a small binder, and keep remainder in another binder at home. In class questions may refer to specific pages in the text!
- **Course description and Prerequisites:** see website
- **Readings:** C&J readings are listed in the *Course Schedule (below)* for each lecture. Pay close attention to the worked out examples. Understand the reasoning behind each step.
- **I-clickers:** You must own and bring (**only your own**) “i-clicker” to (**only your**) lecture section, and sit in only your assigned seat.
- **HW “Check your Understanding”:** are listed on the *Course Schedule*. Answers are at the back of the book. Similar questions will be used as “i-clicker” Questions in class. Keep a notebook of your solutions and bring them to any trip to the Learning Center.
- **HW Problems:** from previous lecture due in the lecture listed on the *Course Schedule*. Answers are at the back of the book. Similar ones will be used in “i-clicker” Quizzes. Keep a notebook of your solutions and bring them to any trip to the Learning Center.
- **Quizzes:** Multiple-choice i-clicker Quizzes (open book) will be given in the first 15 minutes of most Tuesday lectures, except after a Midterm Exam. Quiz questions will be similar to the HW assignment questions and problems.
- **Exams:** There will be **two midterm exams** during regular class hours on the dates shown on the *Course Schedule*. The exams will be closed book, but you may use one (double-sided) 8-1/2x11” sheet of notes and equations. Exams may contain material from the textbook, homework and quizzes and will consist of conceptual and numerical problems. There will be a common **2-hr Final Exam on Thurs., May 3, 8:00pm – 10:00pm**, Rm. to be decided. You will need a calculator, a #2 pencil and your student ID when taking an exam. Alternate Final Exam policy will be as stated by the Registrar.
- **Academic Dishonesty:** University rules and procedures regarding academic dishonesty will be strictly applied without exceptions, for i-clicker Questions, Quizzes, and Exams.
- **Grading Criteria:** Grades are based on in-lecture i-clicker Questions (5%), i-clicker Quizzes (15%), two Midterm exams (15% each), Final Exam (50%). 4 lowest Clicker Session grades, and 2 lowest Quizzes will be dropped. See website for details. Only written Medical excuses for ONE missed Midterm will be accepted. Makeup exam or weighting by 2 the other Midterm, will be at the lecturer’s discretion.
- **Grades:** The mean grade in PHY231 will be about 3.0. In *each section* the approximate percentage of the enrollment obtaining each grade are; 4.0(15%), 3.5(25%), 3.0(25%), 2.5(15%), 2.0 or lower (20%).
- **Disabilities:** Students with a disability must register with the instructor in person.

Course Schedule on the back

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Course Schedule

Wk	Date	Day	Topics	C&J Reading	✓ Your Understanding HW	HW Problems
1	1/10	T	Syllabus/Units/Trig/Vectors	Ch. 1, Sec. 1-5		
	1/12	Th	Vector Algebra/Components	Ch. 1, Sec. 6-9	Ch.1: 1,2,3,8,10,12,13,18	
2	1/17	T	1D Motion Variables/Equations	Ch. 2, Sec. 1-8	Ch.2: 4,5,12,13,14	Ch. 1: 1,5,11,19,23,31,61
	1/19	Th	2D Motion Equations	Ch. 3, Sec. 1-5	Ch. 3: 2,3,7,8,10,17	Ch. 2: 3,9,15,19,27,29,53,65,67
3	1/24	T	Forces - Newton's 1st & 2nd Law	Ch. 4, Sec. 1-4	Ch. 4: 2,4,5,	Ch. 3: 3,7,13,25,29,43,57,77
	1/26	Th	Newton's 3rd Law - Gravitation	Ch. 4, Sec. 5-7	Ch. 4: 6 - 10	Ch. 4: 1,3,5,9,11,13,15
4	1/31	T	Normal Forces, Friction, Tension	Ch. 4, Sec. 8-10	Ch. 4: 11,12,13,15,17,18	Ch. 4: 21,23,25,27
	2/2	Th	Equilibrium	Ch. 4, Sec. 11	Ch. 4: 19 - 22	Ch. 4: 39,41,45,53,57
5	2/7	T	Forces and Acceleration, Review	Ch. 1 - 4	Ch.4: 23,24,25	Ch.4: 59,61,77,79
	2/9	Th	Midterm Exam 1	Ch. 1 - 4		
6	2/14	T	Uniform Circular Motion	Ch. 5, Sec. 1-8	Ch. 5: 1 - 8	
	2/16	Th	Work - Kinetic & Potential Energy	Ch. 6, Sec. 1-4	Ch. 6: 1,2,3,4,6,7,8,9	Ch. 5: 1,3,5,11,17,23,31,39,41
7	2/21	T	Conservation of Mechanical Energy	Ch. 6, Sec. 5-6	Ch. 6: 10 - 15	Ch. 6: 1,3,5,11,15,21,29,33
	2/23	Th	Using Energy to Solve Problems	Ch. 6, Sec. 7-10	Ch. 6: 16,17	Ch. 6: 39,41,43,47,49
8	2/28	T	Impulse, Conservation of Momentum	Ch.7, Sec. 1-3	Ch.7: 1,3,4,5,8,9,10,12,14	Ch. 6: 65,67,69
	3/1	Th	1D and 2D Collisions	Ch. 7 Sec. 4-6	Ch. 7: 18,19,20	Ch.7: 1,5,9,11,17,21
9	3/6	T	Spring Break			
	3/8	Th	Spring Break			
10	3/13	T	Rotational Kinematics	Ch. 8 Sec. 1-8	Ch. 8: 2,5,8,11,13,15,16	Ch. 7: 29, 31,35,43
	3/15	Th	Rotational Dynamics	Ch. 9 Sec. 1-7	Ch. 9: 2,4,5,6,7,8,9,10,12,13	Ch. 8: 1,5,7,9,13,15,23,37,45,51
11	3/20	T	Energy, Momentum, Rotations, Review	Ch. 1-9	Ch. 9: 17,19,20	Ch. 9: 3,9,13,21,23,39,45,51,63
	3/22	Th	Midterm Exam 2	Ch. 1-9		
12	3/27	T	Simple Harmonic Motion	Ch. 10, Sec. 1-9	Ch. 10: 1-11, 16,19	
	3/29	Th	Fluids	Ch. 11, Sec. 1-12	Ch. 11: 2,5,6,8,10,11,12,17	Ch. 10: 1,3,5,15,21,27,33,43,51
13	4/3	T	Temperature Heat	Ch. 12, Sec. 1-11	Ch. 12: 3,5,8,11,14,16,17,19	Ch. 11: 3,13,17,27,29,37,43,63
	4/5	Th	Heat Transfer	Ch. 13, Sec. 1-5	Ch. 13: 1,7,8,10,13	Ch. 12:5,11,15,31,47,61,79
14	4/10	T	Ideal Gas Law/Kinetic Theory	Ch. 14, Sec. 1-5	Ch. 14: 1,3,7,12,13,15,	Ch. 13: 1,3,9,13
	4/12	Th	Thermodynamics & the 1st Law	Ch. 15, Sec. 1-6	Ch. 15: 1,2,6,7,8,11	Ch. 14: 1,3,11,13,19,25,33,37,49
15	4/17	T	2nd Law of Thermodynamics	Ch. 15, Sec 7-13	Ch. 15: 12,13,15,16,21,24	Ch. 15 :1, 3,13,14,21,25,35
	4/19	Th	Waves and Sound	Ch. 16, Sec 1-12	Ch. 16: 3,6,9,11,13,15,19,21	Ch. 15: 45,47,51,53,63,67,77,95
16	4/24	T	Diffraction & Interference	Ch. 17, Sec 1-8	Ch. 17:1,2,3,7,9,12,16	Ch.16: 1,7,13,25,31,45,53,67,77
	4/26	Th	Review	Ch. 1-17		Ch. 17: 3,5,19,27,31
17	5/3	Th	Final Exam 8:00-10:00 pm, Rm TBD	Ch. 1-17		