# General Physics 01:750:203 Fall 2020

#### Instructor: Professor Abdelbaki Brahmia

**Summary:** An introductory course in physics, primarily algebra based with some elements of calculus. Kinematics, Newton's Laws, momentum, circular motion, work and energy, angular dynamics, angular momentum, statics, vibrations, fluids, ideal gas laws, basic thermodynamics, waves and sound.

This course is primarily intended for students in the biological sciences, science majors not requiring analytical physics 01:750:123-124, and science teaching majors.

Pre-requisites: Precalculus

Co-requisites: General Physics Lab 01:750:205 and any calculus course

Students with weaker mathematical skills or those who would benefit from additional instructional support may want to consider 01:750:201 (spring semester only).

#### Credits: 3

Fall 2020 Meeting times: Two 55-minute lectures per week. (see note below) Lecture: TF 2 (10:35-11:30 AM) Recitations: One 80-minute recitation

Textbook: Physics, Cutnell & Johnson, 11th Edition

LMS: Canvas

This course is offered in three formats: fully in person, hybrid, and fully online (fall semester only).

**In person:** Two in person lectures, with one 80-minute recitation. Recitations are based on collaborative learning, with groups of three working together, with a set of common worksheets. There is an individual quiz each recitation. Homework is submitted online. There are two non-cumulative common hour exams and one cumulative final exam.

**Hybrid:** Lectures are recorded and available to review at the student's convenience. Recitations are conducted in person, with the same format as the in-person sections. Homework is submitted online. There are two non-cumulative common hour exams and one cumulative final exam.

**Fully Online:** Lectures are recorded and available to review at the student's convenience. There are weekly online homework and timed weekly quizzes. Students may visit instructors/TA during office hours, or use the online message board to ask questions. Common hour and final exams are in person.

## Provisional Plans for Remote Instruction:

Pre-recorded lectures will be available for all students. During the regular lecture time, the instructor will offer live interactive lectures to discuss material in detail and answer student questions. Attendance at the live lectures is recommended but not required.

In-person and hybrid section recitations will be conducted with Canvas, using the "Breakout Rooms" feature. Students will collaborate in groups of 3, much in the same way they do for in-person sections. Attendance in recitations is required.

Common hour and final examinations will be completed electronically.

Makeup opportunities will be in place in the event a student is unable to attend their regularly scheduled recitation section or exam due to medical illness. Proper documentation must be provided for this allowance.

**Technology requirements:** A working electronic device (i.e. laptop, tablet, phone...). A functional internet connection. A microphone is required for group communication during recitations.

• Students who face complications with their technological equipment may also be provided a makeup opportunity at the discretion of the instructor. It is the student's responsibility to ensure that the above listed technology requirements are satisfied prior to enrollment.

## **Provisional Grading Plans:**

Class participation: 10% Weekly Quizzes: 10% Homework: 20% Mid-term 1: 15% Mid-term 2: 15% Final Exam: 30%

## Schedule (provisional):

Week: Topic

1	Mathematical Concepts, Kinematics in 1 Dimension
2	Kinematics in 2 Dimensions
3	Newton's Laws
4	Dynamics of Uniform Circular Motion
5	Work and Energy
6	Linear Momentum
7	Rotational Kinematics, Statics, Dynamics
8	Statics and Rotational Dynamics, Elasticity and Vibrations
9	Fluid statics and Dynamics
10	Temperature and Heat
11	Ideal gas law, Thermodynamics
12	Thermodynamics, Waves and Sound
13	Waves and Sound
14	Linear Superposition and Interference.

## Academic Integrity:

Students are expected to maintain the highest level of academic integrity. You should be familiar with the university policy on academic integrity: <u>http://academicintegrity.rutgers.edu/academic-integrity-policy/</u> Violations will be reported and enforced according to this policy.

Use of external sources to obtain solutions to homework assignments or exams is cheating and is a violation of the University Academic Integrity policy. Cheating in the course may result in penalties ranging from a zero on an assignment to an F for the course to expulsion from the University. Posting of homework assignments, exams, recorded lectures, or other lecture materials to external sites without the permission of the instructor is a violation of copyright and constitutes a facilitation of dishonesty, which may result in the same penalties as explicit cheating.

Not only does the use of such sites violate the University's policy on Academic Integrity, using such sites interferes with your achievement of the learning you are paying tuition for. Assignments, quizzes, and exams are given not simply to assign grades, but to promote the active learning that occurs through completing assignments on your own. Getting the right answer is much less important than learning how to get the right answer. This learning is critical to your success in subsequent courses and your careers.

## **Student Wellness Services**

Student Counseling, ADAP & Psychiatric Services (CAPS) wellness for non-emergency psychological health issues services (848) 932-7884, 17 Senior Street, New Brunswick, NJ 08901 <u>http://health.rutgers.edu/medical-counseling-services/counseling/</u>

Violence Prevention & Victim Assistance (VPVA), (848) 932-1181, 3 Bartlett Street, New Brunswick, NJ 08901, <u>http://www.vpva.rutgers.edu/</u>

Office of Disability Services (848) 445-6800, Lucy Stone Hall, Suite A145, Livingston, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854, <u>https://ods.rutgers.edu/</u>

Scarlet Listeners for confidential peer counseling and referral hotline, (732) 247-5555, <a href="http://www.scarletlisteners.com">http://www.scarletlisteners.com</a>