

**Analytical Physics II Lab**  
**01:750:229**  
**Fall 2020**

Instructor: Gabe Alba

Summary: Introduction to experimentation and demonstration of physical principles of electricity and magnetism. Complementary to Analytical Physics, 01:750:227.

This course is intended for students majoring in engineering or physics.

Pre-requisites: 01:750:124, Calc2 01:640:152

Co-requisites: 01:750:227

Meeting times: One three hour lab per week, 10 labs per semester

Text: None

LMS: Canvas

Remote Instruction:

All course material and announcements will be disseminated on Canvas, with email notifications sent from there. There will also be links to the online classes conducted on the web-conferencing system (either Webex or Zoom). The classes will be taught synchronously, meaning there will be a specific meeting time, and will be led by a TA (Teaching Assistant), aided by an LA (Learning Assistant). Course material, in the form of PDF documents, Java, HTML5 or Flash simulations and short videos, will be posted on Canvas at least 24 hours before the first section of the week meets.

- Students form groups which use Breakout Rooms to simulate lab tables and allow students to collaborate.
- Lab activities include a pre-lab activity, a sequence of experimental tasks with explicit emphasis on scientific reasoning abilities (finding patterns in nature, suggesting hypotheses, testing those hypotheses, etc.), and end-of-lab reflection.
- Lab reports will be written concurrently by lab partners on Google Docs and are completed by the end of the period.

Technology requirements:

Any desktop PC, notebook PC, or tablet with a modern web browser and a stable network connection will be sufficient. The more capable the hardware the better. Using just a smart phone is possible in an emergency, but it makes simulations and collaborating on documents far more difficult. A webcam is not required, but helps create more of a connection with other students and instructors. A microphone isn't required either, but does greatly improve collaboration. A smart phone also isn't required, but their ability to easily record images, video, sound, and make other sorts of measurements will enhance many activities.

Assessment:

Course grades are determined by a student's average score on each week's lab activities. It is the responsibility of each student to contribute substantially to their group's efforts and to make it clear that they have done so.

**Schedule (provisional):**

<b>Week:</b>	<b>Topic</b>
Week 1	No lab
Week 2	Electric Interactions
Week 3	Electric Fields
Week 4	Capacitors
Week 5	DC Circuits
Week 6	Circuit Investigations 1
Week 7	No Lab
Week 8	Circuit Investigations 2
Week 9	LED's
Week 10	Magnetic interactions
Week 11	Electromagnetic induction
Week 12	No lab
Week 13	Investigations of RC and RLC circuits.
Week 14	No lab

**Academic Integrity:**

Students are expected to maintain the highest level of academic integrity. You should be familiar with the university policy on academic integrity: <http://academicintegrity.rutgers.edu/academic-integrity-policy/> 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  
<http://health.rutgers.edu/medical-counseling-services/counseling/>

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

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

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