

DEPARTMENT OF PHYSICS AND ASTRONOMY, UNIVERSITY OF NEW MEXICO

Physics 307L – Junior Laboratory

Spring 2021

Instructor: Prof. Darcy Barron dbarron2@unm.edu
Office Hours: by appointment, on Microsoft Teams

Teaching Assistant: Duncan McGraw mcgrawd@unm.edu

Course Description: Experiments in modern physics and experimental methods.

Prerequisites: Physics 2415 (computational physics).
Completion of Physics 330 is highly recommended.

Course Goals

In this course, you will:

- apply the theory you have learned in the real (experimental) world
- learn how to use various types of hardware, instrumentation, and software
- learn basic statistics, error analysis, and determination of statistical and systematic errors
- perform the best possible (i.e. the most precise and accurate) experiment within the constraints of the available resources (equipment, time, etc.) – just like in real research!

Textbooks: *An Introduction to Error Analysis – The Study of Uncertainties in Physical Measurements* by John R. Taylor

Course Schedule:	Lectures:	M	1:00PM-1:50PM	Microsoft Teams
	Section 1:	M	2:00PM-4:50PM	PAIS 1405
	Section 2:	Tu	8:00AM-10:50AM	PAIS 1405
	Section 3:	Tu	12:00PM-2:50PM	PAIS 1405

Grading Policy:

In-Class Participation and Performance	25%
Lab Notebook	25%
Formal Reports and Presentations	50%

This is a three credit-hour course, which meets for one hour of lecture and 3 hours of laboratory session. Students are expected to complete a *minimum* of six hours of out-of-class work (including lab preparation and writing lab reports) each week.

Grade Cutoffs: A+ (>97.99%), A (>92.99%), A- (>89.99%), B+ (>87.99%), B (>82.99%), B- (>79.99%), C+ (>77.99%), C (>72.99%), C- (>69.99%), D (>59.99%), F (\leq 59.99%). These are the maximum possible cutoffs.

Course Policies

Respect the UNM Community by Preserving Health

You have the ability to prevent the spread of COVID-19 and to preserve the health of fellow students, your instructor, staff and the community by following UNM health protocols. The UNM Provost Administrative Directive on Mandatory Student Face Covering and Symptom Reporting of July 9, 2020 requires that all students on UNM-Main and UNM branch campuses wear face masks in the face-to-face classroom and on campus unless they have a specific mask accommodation (confidentially documented with the Accessibility Resource Center). UNM Provost Administrative Directive is consistent with Governor Lujan Grisham's Public Health Emergency Order, as amended, and the Public Health Order of the New Mexico Health Secretary. It also requires daily participation in symptom screening through covidscreen, which will be sent via UNM e-mail.

Acceptable masks and mask wearing in class: A two-layer mask that covers the nose and mouth and that is cleaned regularly is acceptable. A face shield is not sufficient protection. It is vital that you wear your mask correctly, covering your nose and mouth. Removing your mask for an extended period to eat or drink in class violates the Provost Administrative Directive and endangers others.

Mask Wearing Accommodation: Individuals with a documented disability or diagnosis may seek accommodation with the UNM Accessibility Resource Center (ARC) (arc.unm.edu). Individuals do not need to reveal private information to an instructor. ARC will require documentation of health requirements, which will be kept confidential. The instructor will be informed only of any need for accommodation.

Consequences of not wearing a mask properly: Unless you have an ARC-approved accommodation, if you don't wear a mask, or if you do not wear a mask properly by covering your nose and mouth, you will be asked to leave class. If you fail to wear a mask properly on more than one occasions, you can expect to be dropped from the class. If you insist on remaining in the classroom while not wearing a mask (without an ARC-determined accommodation), class will be dismissed for the day to protect others and you will be dropped from the class immediately.

The instructor will try to have a few disposable masks available on a first-come, first-served basis.

This class may move to remote delivery at any time to preserve the health and safety of the students, instructor and community. Please check your email regularly for updates about our class and please check <https://bringbackthepack.unm.edu> regularly for general UNM updates.

Communication Policy: Your official UNM email account will be used for important announcements about this course, and any changes in university policy. You must check your email regularly (at least three times per week) for course announcements. When emailing me, please use your @unm.edu email address, and include the course number in your email subject. I will typically respond to emails within several hours but do not make any guarantees. I understand that help sessions may be inconvenient for you, and I am happy to try to work around your schedule. If you need to make alternate arrangements or set up an appointment, please try to do so at least 24 hours in advance.

We will also use Microsoft Teams for communication, including video and chat communication for remote classes, help sessions, and other class discussions. You must use your UNM account to access the course on Microsoft Teams. You will be able to send messages to the instructor, TA, and other students in the course. Please follow the **Netiquette Policy** in all online interactions for this course.

Netiquette (Network Etiquette): To assure that the online environment of this class is pleasant and respectful for all participants, please adhere to standards of common courtesy for all communications. Netiquette in this class includes: No comments will be tolerated that are offensive, derogatory, or

disparaging to any identifiable group of people. No one will be allowed to hide beyond an online persona to intimidate, disrespect, or harass others. If you have questions about appropriate ways to express yourself, please ask me. If you have concerns about how another student expresses himself/herself in class, please let me know. For more information, see this UNM Netiquette page:

<http://online.unm.edu/help/learn/students/pdf/discussion-netiquette.pdf>

Quiet Classroom and Classroom Etiquette Policy: Please be respectful of both the instructor and your fellow students. Avoid causing any distractions that could disrupt the ability of another student to pay attention and learn in class. All electronic devices should be muted or silenced before class begins. Do not talk during class while the instructor is talking. If you are disrupting the class, I will ask you to stop and make note of the disruption. I reserve the right to drop repeated offenders from the course.

Students with Disabilities: Students requesting accommodations for this course due to a disability must go through Accessibility Services (Mesa Vista Hall 2021, 505-277-3506).

Academic Integrity: According to the Regent's Policy Manual of UNM, Section 4.8, "Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records. Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or who otherwise fails to meet the expected standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course."

Title IX: In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see pg 15 - <http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf>). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>.

Citizenship and/or Immigration Status: All students are welcome in this class regardless of citizenship, residency, or immigration status. Your professor will respect your privacy if you choose to disclose your status. As for all students in the class, family emergency-related absences are normally excused with reasonable notice to the professor, as noted in the attendance guidelines above. UNM as an institution has made a core commitment to the success of all our students, including members of our undocumented community. The Administration's welcome is found on our website: <http://undocumented.unm.edu/>.

Support in Receiving Help and in Doing What is Right: I encourage students to be familiar with services and policies that can help them navigate UNM successfully. Many services exist to help you succeed academically and to find your place at UNM, see students.unm.edu or ask me for information about the right resource center or person to contact.