

AST 2133: OBSERVATIONAL LABORATORY 1

Fall 2020 Syllabus

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VIRTUAL OFFICE HOURS

Mon 9am – 11am
Wed 9am – 11am
Fri 9am – 11am

other times by appointment

In this class we value each person as part of a learning community for their insights, perspectives and opinions, irrespective of gender, gender identity, race, sexual orientation, disability, spiritual values, political beliefs or nationality. We celebrate diversity and highlight its principal role in enriching our academic, professional and personal lives.

Course time and location:

Wed 1:50pm-4:40pm, M241 (2nd floor Mendel)

Course homepage:

<http://aprsa.villanova.edu/?q=oblab>

No astronomer is complete without an understanding of spherical triangles, equatorial coordinates (right ascension and declination), hour angles, precession, nutation, etc. No, clicking around Starry Night Pro does not count. We will first learn all the basics necessary to *build* a planetarium program, and acquire bragging rights to predicting when and where a certain object will be on the sky without any computers or calculators, accurately to about 15 minutes. Once we've mastered celestial astronomy, we will focus on space telescope data gathering, reduction and analysis. Unfortunately, the current pandemic situation restricts us from using the on-site observatories, so we will defer using the equipment to (hopefully) next semester.

Course material:

- **W. Smart, “Spherical Astronomy”** (6th Edition, ISBN 978-0521291804)
- IRAF manuals, freely available from <http://iraf.noao.edu/docs/docmain.html>

Course work and grading:

Your final grade will reflect your effort, homeworks, test and the data assignments. For the course you are required to do the following:

- every week there will be a homework assigned that is required for everyone. Every homework has 5 questions, with an additional question for extra credit. Each question is worth 10 points, 50 points total + 10 points for extra credit;
- there will be one 1.5-hour test on celestial astronomy. The test will have 3 questions, with an additional question for extra credit. Each question is worth 150 points, 450 points total + 150 points for extra credit;
- 3 data analysis assignments, and their [official, research-grade] write-ups, each worth 150 points + 30 points for extra credit.

If you do the math, you will see that homeworks carry ~20% of the grade, the test carries ~40% of the grade, and the assignments carry ~40% of the grade. The grading will be done according to the following breakdown:

0-56%	F	68-72%	C-	84-88%	B
56-60%	D-	72-76%	C	88-92%	B+
60-64%	D	76-80%	C+	92-96%	A-
64-68%	D+	80-84%	B-	96-100%	A

Yes, looks scary. But remember: work hard, work consistently, seize all the extra credit opportunities, and there should be no reason for concern. Ultimately, the grade you earn is yours alone, I am just a scribe.

Attendance:

Regular attendance is essential for uninterrupted understanding of course material. Since this course covers a significant amount of content in a not-so-significant amount of time, each missed class will hurt. Really hurt. The topics are not trivial and continuous work is required to remain on top of things.

Please do not miss turning in homeworks and taking the test. If you must miss a test, you must inform us of that in advance, and you must have a written notice excusing your absence. Provided that you follow these rules, we will provide you with a makeup opportunity for the test. Verbal excuses and call-the-health-center-and-you'll-see-I-was-sick-on-the-day-of-the-homework/test are not admissible. There will be no exceptions. If you do not turn your homework in on time, you can still turn it in by the end of the week, but the penalty for late homework will be a 30% grade deduction. In other words: don't miss the homework deadline. Do them, they really help.

The etiquette for using laptops and cell phones in class:

We have no issues with using computers (in fact, you will need them for the second part of the lab). However, it will be very detrimental for you if you try to use them for celestial astronomy part. You will be publicly flogged and/or burned at the stake if caught using cell phones in class for texting, facebooking or web surfing.

Academic integrity and Special needs:

Finally, here goes the standard blurb: any violation of the Code of ethics will be grounds for failing the course. Any cheating, copying, duplication of work, etc, will get you into trouble. If you have any concerns whatsoever, come talk to us and we're sure we'll be able to sort everything out.

It is the policy of Villanova University to make reasonable academic accommodations for qualified individuals with special needs. If you are a person with a special need please contact me after class or during office hours and make arrangements to register with the Learning Support Services by contacting 610-519-5176 or by emailing learning.support.services@villanova.edu. as soon as possible. Students approved for accommodations should use ClockWork to register and book tests.

Over and out. Let the fun begin! :)