

AST 2133: OBSERVATIONAL LABORATORY 1

Fall 2016 Syllabus

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OFFICE HOURS – ANDREJ

Tue 10am – noon
Wed 10am – noon
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OFFICE HOURS – SCOTT

Mon 1:30 – 3:30pm
Tues 1:30 – 3:30pm
Thr 1:30 – 3:30pm
other times by appointment

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 master the techniques of astrometry, photometry and spectroscopy. Is there a more noble pursuit in all of the sciences than learning how to imprison unsuspecting photons just trying to make their way through the universe, and then force them to tell us something we don't know? The answer is no. No, there isn't! You'll use all three telescopes available in the Student Research Observatory. And who knows, before the class is through, you might even start using them well! Then you'll learn how to wring every last bit of science from the data you've gathered... an all-around glorious ObLab experience.

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 5 questions, with an additional question for extra credit. Each question is worth 100 points, 500 points total + 100 points for extra credit;

- 5 data gathering and analysis assignments, and their [official, research-grade] write-ups, each worth 150 points + 25 points for extra credit.

If you do the math, you will see that homeworks carry 14% of the grade, the test carries 34% of the grade, and the assignments carry 52% 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, we are just scribes.

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 homeworks. 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.

Over and out. Let the fun begin! :)