

Fundamentals of Observational Astronomy

AST 6725C

Class Periods:

Tues: 3:00PM – 3:50PM
Thurs: 5:10PM – 10:10PM (lab)
BRT 0003, BRT0007 (lab)
Fall 2022

Location:

Academic Term:

Instructor:

Jason Dittmann

jasondittmann@ufl.edu

Office Hours: Monday 1:30-2:30 /Thursday 3:00PM – 4:00PM, Bryant 210 (across from admin office)

Teaching Assistant:

- Francisco Mendez, fmendez@ufl.edu

Course Description

Overview of techniques associated with observational astronomy.

Course Objectives

Understand the instrumentation used in modern astronomy including high-energy, optical and infrared telescopes, as well the radio wavelength regime. Understand and be able to implement the techniques used to reduce these observations including operating a telescope during an observing run and reducing both photometric and spectroscopic data. Particular focus will be made on the recent data made available from the James Webb Space Telescope (JWST) through homework assignments. The laboratory portion of the course will focus on instrumentation knowledge (telescopes and CCDs) and using campus telescope resources to conduct astronomical observations, reduce, and interpret these data.

Recommended Materials

- Astrophysical Techniques
- C R Kitchin
- 7th Edition
- ISBN 978-1-138-59120-2 (paperback)
- ISBN 978-0-429-49113-9 (e-book)
- Digital version available through the UF Library

Course Schedule

Week 1 (Th): Introduction to the course, JWST software packages
Week 2: Telescopes and CCDs [no lab – trainings ongoing]
Week 3: Noise and CCD Data Reduction, CCD Lab
Week 4: High Energy and Radio Telescopes, Radio Lab
Week 5: Optical observing / Photometry, Radio Lab (weather backup)
Week 6: Observing II / Photometry, Radio Lab (weather backup)
Week 7: Spectroscopy I, Photometry Lab
Week 8: Spectroscopy II, Photometry Lab (backup)
Week 9: TA Guest Lecture, Midterm Review, Spectroscopy Lab (backup)
Week 10: Midterm
Week 12: Adaptive Optics, Spectroscopy Lab (backup)
Week 13: How to write a paper with telescope data, Echelle spectra lab
Week 14: Thanksgiving Week
Week 15: Future Telescopes and Instrumentation, Echelle lab (backup)
Week 16: Exam (Dec 5, no exam during Finals Week)

Attendance Policy, Class Expectations, and Make-Up Policy

Both lectures and lab exercises will be conducted in person. Attendance is not mandatory but you are responsible for understanding the material in any missed lecture. Excused absences must be consistent with university policies in the [Graduate Catalog](#) and require appropriate documentation. Additional information can be found in [Attendance Policies](#).

COVID-19 Policy

Both lectures In response to COVID-19, the following recommendations are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

If you are not vaccinated, get vaccinated. Vaccines are readily available and have been demonstrated to be safe and effective against the COVID-19 virus. Visit [one.uf](#) for screening / testing and vaccination opportunities.

If you are sick, stay home. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 to be evaluated.

Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.

Evaluation of Grades

<i>Assignment</i>	<i>Percentage of Final Grade</i>
Homework	30%
Labs	40%
Midterm Exam	15%
Final Exam	15%

Grading Policy

<i>Percent</i>	<i>Grade</i>	<i>Grade Points</i>
90.0 - 100.0	A	4.00
87.0 - 89.9	A-	3.67
84.0 - 86.9	B+	3.33
81.0 - 83.9	B	3.00
78.0 - 80.9	B-	2.67
75.0 - 79.9	C+	2.33
72.0 - 74.9	C	2.00
69.0 - 71.9	C-	1.67
66.0 - 68.9	D+	1.33
63.0 - 65.9	D	1.00
60.0 - 62.9	D-	0.67
0 - 59.9	E	0.00

Note that I reserve the right to "curve" scores up, if I determine that the class score distribution indicates a mismatch between performance and my expectations. This can ONLY improve your numerical score and corresponding letter grade -- I will never apply a curve to reduce a student's score below the raw score.

More information on UF grading policy may be found at:

[UF Graduate Catalog](#)
[Grades and Grading Policies](#)

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the [Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. [Click here for guidance on how to give feedback in a professional and respectful manner](#). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. [Summaries of course evaluation results are available to students here](#).

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” [The Honor Code](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see the [Notification to Students of FERPA Rights](#).

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or police.ufl.edu.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.

[Library Support](#), Various ways to receive assistance with respect to using the libraries or finding resources.

[Teaching Center](#), Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

[Writing Studio](#), 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

[Student Complaints Campus](#)

[On-Line Students Complaints](#)