

PHYSICS 1509 - INTRODUCTORY ASTRONOMY LABORATORY – Spring 2025

Section 301: <https://umsystem.instructure.com/courses/287969>

Description

A science laboratory course in which the student analyzes and interprets astronomical data.

Instructor

Professor Marco Cavaglia

Office: Physics 204

Office hours: Wednesday 12:00 p.m. – 1:00 p.m. or by appointment. Please confirm beforehand for availability.

Email: cavagliam@mst.edu

Please address your instructor with his academic title when emailing him. **Emails that do not include a proper salutation or sign-off will not be responded to.** Your instructor will answer to your emails as quickly as possible, but please keep in mind that teaching this course is only one of his many responsibilities. Please be patient with him. If you have not received a response within one working day, don't hesitate to send a reminder. Within one working day, feel free to send a reminder.

Meeting time and location

Every second week (more or less) on Monday 6:00 p.m. – 7:50 p.m. in Physics 213.

Course goals and student learning outcomes

Upon completing this course, the successful student will learn how to analyze some simple astronomical data.

Evaluation

There will be six labs during the semester. **You must attend and return your lab report at the end of each session.** Each completed lab report is worth up to 200 points. A missing lab report counts as zero. The five best scores will count toward the final grade, i.e., the lowest score will be dropped. You will work the labs in groups with two teammates of your choice, but **you must return your own lab report. Please make sure that your lab report has your name and lab number clearly written in the top right corner of all pages.**

Lab reports must be easy to read. No writing that is too small to be seen without a magnifying glass; no writing that crosses lines, jumps up and down, and/or makes a maze on the page. Symbols and English words should be easily readable. **Messy lab reports will not be graded.** Numerical answers must have units and a proper number of significant figures. You must keep all returned lab reports until the final grade of the course has been posted by the instructor. **Transgression of the above rules will reduce your grade on the assignment.**

The department will appoint a graduate student teaching assistant to run the labs. Their name will be communicated as soon as they have been appointed. **Please be kind to your lab instructor!**

Grading scale (points):

A: 895 and above
B: 795 – 894
C: 695 – 794
D: 595 – 694
F: 594 and below

Course attendance policy

This course is **Classroom Based**. **You are required to attend all labs.** Please do not arrive late or leave early unless you have been previously excused by the instructor or the lab assistant. Of course, if you are taken ill during a lab or in case of an emergency, feel free to leave. However, as soon as you feel better or the emergency is over, let the instructor or the lab assistant know why you left. They will not solicit details of the occurrence or any personal or private information.

Students with inadequate attendance may be dropped. **Any student who has inadequate attendance, as evidenced by two confirmed absences or missing a total of two graded lab reports, is subject to being dropped.**

The university requires that all students have their course attendance verified at least once during the first two weeks of the semester. If your attendance is not verified, you will be dropped from the course, and any financial aid will be adjusted accordingly.

Health and well-being

In this course, the physical and mental well-being of all students (as well as the instructor) takes precedence over all other considerations. The instructor and the lab assistant will strive to keep the students safe and healthy. They hope students will do the same for their well-being as well as the instructor and lab assistant's well-being. While no situation is risk-free, there are easy and effective actions you can take to protect yourself and others around you.

If you're feeling unwell, stay at home. Staying at home until you feel better or have been cleared to return to campus by health officers reduces the risk that you will pass on an illness to your friends, fellow students, your instructor, and others in your community. It will help ensure a smooth educational experience over the semester, as well as reduce the burden on our health services. Please contact Student Health Services at mstshs@mst.edu and/or 573-341-4284, if you become ill or are unable to attend a lab or take tests on campus.

Bugs. To protect our campus community and each other from the risks of viral infections, Missouri S&T strongly encourages all students, faculty, and staff to be up-to-date on vaccinations. A combination of vaccination, staying home when you are sick, and seeking testing when you have symptoms will be our most effective measures to mitigate against the spread of viruses. There is no requirement to provide proof of immunization, but voluntary reporting of vaccination information can be done at <https://studenthealth.mst.edu/>. If you are isolating, you will receive an absence note from Student Health and not Student Support and Community Standards (Care Management). You will be responsible of forwarding the absence note to the instructor.

In the case of a campus emergency, safe alternative lab operations will be implemented.

Copyright, FERPA, and use of electronic devices during class

It is vitally important that our learning environment promotes a respectful exchange of ideas. This entails being sensitive to the views and beliefs expressed during discussions, whether in the lab or online. Please obtain instructor permission before recording any lab activity. It is a violation of University of Missouri policy to distribute such recordings without authorization and the permission of all who are recorded. More information is provided [online](#).

Note on the use of internet-enabled devices in the lab. Your instructor's main goal in this class is to provide the best possible teaching experience. This includes mutual respect as well as cooperation among all parties (instructor and students). Students that search the internet, chat with friends, or watch TikTok videos about topics unrelated to the course while in labs are examples of disrespectful student behavior. **Students who use personal electronic devices in the lab for non-lab work will be asked to stop, unless there is an emergency. Students will be asked to leave if they do not comply. In the event of refusal, the behavior will be considered disruptive, and your instructor and lab assistant reserve the right to request that an appropriate disciplinary action be taken by the Campus Judicial Officer.**

Accessibility and accommodations

It is the university's goal that learning experiences be as accessible as possible. Student Accessibility and Testing provides services and accommodations that facilitate full participation in Missouri S&T's learning experience for students with disabilities. If you anticipate or experience physical, academic, and/or digital barriers due to a disability, please contact Student Accessibility and Testing at (573) 341-6655, email dss@mst.edu, or visit <https://saat.mst.edu/> for information.

Academic integrity and disruptive behavior

All students are expected to follow the [Standard of Conduct](#) and [Honor Code](#). **Academic dishonesty and disruptive behavior will not be tolerated** and will be dealt with in accordance with university policies.

[Student Academic Regulations](#) describes the student standard of conduct relative to the University of Missouri System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism, sabotage, and unauthorized use of artificially generated content, any of which will be reported to the Dean of Students. You should familiarize yourselves with the Student Conduct Rules of the University of Missouri in [Section 200.010](#) of the [Collected Rules and Regulations](#) to review the expected standards for student academic integrity, disciplinary procedures, sanctions, and appeal procedures. Other resources for students regarding academic integrity can be found at this [link](#).

In the event of disruptive behavior, the course instructor will request the campus Judicial Officer to take effective disciplinary action after issuing a warning. See Student Academic Regulations at <http://registrar.mst.edu/academicregs>.

Disability policy

The Americans with Disabilities Act prohibits discrimination against and guarantees that people with disabilities have the same opportunities as people without a disability. Missouri S&T and your instructor are committed to providing educational opportunities for all academically qualified students. Reasonable accommodations to ensure equitable access to its programs and services for individuals with disabilities will be made in compliance with the Americans with Disabilities Act.

At the beginning of the semester, students with disabilities who have had their status verified by the Office of Student Disability Services should get in touch with the instructor to go over their specific accommodation requirements.

To learn more about student disability services available to Missouri S&T students, please visit <https://dss.mst.edu/>.

Non-discrimination, equity and Title IX

Missouri S&T is committed to the safety and well-being of our campus community, and to creating an environment free from discrimination and harassment.

The University prohibits discrimination and harassment on the basis of race, color, national origin, ancestry, religion, sex, pregnancy, sexual orientation, gender identity, gender expression, age, disability, protected veteran status, and any other status protected by applicable state or federal law. As used in this policy, the word “sex” is also inclusive of the term “gender.”

Additionally, US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Sexual harassment violations of this law include quid pro quo, hostile environment, sexual assault, dating/domestic violence, and stalking. The U.S. Department of Education has stated the prohibition on discrimination on the basis of sex includes sexual orientation and gender identity.

Students who are experiencing pregnancy or pregnancy-related conditions, including the birthing parent and non-birthing parent, have rights protected under Title IX. Students should contact Student Accessibility and Testing or the Office of Equity and Title IX to learn more about their rights and pregnancy-related assistance/accommodations provided by the University to ensure equitable access to University educational programs and activities.

In accordance with the University of Missouri’s Collected Rules and Regulations, all faculty and staff are required to report any information concerning discrimination disclosed through communication including, but not limited to, direct conversation, email, social media, classroom papers and homework exercises to the Equity Officer/Title IX Coordinator.

For more information regarding support for those that have been impacted or to report an

incident of discrimination or harassment as defined by [Chapter 600](#) of the University's Collected Rules and Regulations, visit the Office of Equity and Title IX or visit their website at equity.mst.edu.

Office of Equity and Title IX

Equity Officer and Title IX Coordinator: Dr. Paul Hirtz

Phone: (573) 341-7734

Location: 900 Innovation Drive, Suite 500

E-mail: equity@mst.edu

Changes to this syllabus

If a revision of the syllabus becomes necessary during the semester, it will be discussed in class.

Statement of agreement

Please carefully review and print for your records this syllabus. **By taking this class, you confirm that you have read and understood this document and are agreeable to the policies and provisions set forth therein.**

Appendix A: Other resources

S&T provides resources to support your mental, physical, and social well-being. Any of us can experience challenges that make learning difficult. If you are struggling, take advantage of the following resources offered by the university.

[Student Well-Being](#) provides counseling services, health promotion initiatives, and prevention programs to empower the S&T community to thrive and enhance personal, academic, and professional success. Department office hours are Monday – Friday, 8 a.m. – 4:30 p.m. On the website, you can find information related to confidential individual and group counseling, wellness consultations and trainings, case management services, resources for many health and wellness topics, and help for mental health crisis situations. For the 988 Suicide and Crisis Lifeline, call or text 988, or visit missouri988.org.

The [Health and Well-Being Canvas Course](#) features trainings, presentations, and other health and well-being resources for students. The course is free for all students, is non-credit, and students can enroll at any point in the semester.

[Student Support and Community Standards](#) is your central resource for support. During your time at S&T, you or a friend may need help navigating their student experience, facing a barrier, or experiencing a challenge. You are not alone! Student Support has a dedicated team and numerous resources such as [UCARE](#) and the [student emergency fund](#)

to help you navigate the S&T experience and support your success. This includes support to address barriers related to academic, personal, emotional, medical, financial, or any other needs. All students can learn and grow from challenges or setbacks, they are stepping stones to success and we are here to help.

The **Curtis Laws Wilson Library** is the place to gather on campus, offering group meeting spaces, quiet study carrels and reservable conference rooms. The library provides students and faculty with physical and electronic books, journals, articles and databases as well as recreational reading, games and DVDs. We also have technology to check out, from laptops to charges to calculators and everything inbetween. Librarians create library and course guides to help navigate searching for resources. Talk to us one-on-one via chat, email, phone or in person for any assistance regarding library services or finding peer-reviewed, credible research materials for study and research needs. Find out more information and connect with the library at this link: <https://library.mst.edu>.

The **Writing and Communication Center**'s mission is to assist all students in their efforts to become better writers, communicators, and critical thinkers. The Center's peer consultants and coaches provide free individualized one-on-one and small group conversations to offer meaningful feedback and guidance to students across all disciplines. More information can be found on our website, through email: writing@mst.edu or stop by Curtis Laws Wilson Library 314-315.

The **Student Success Center** (SSC) offers peer tutoring and success coaching to help students succeed in their academic goals. Additionally, we work as a resource hub and can connect you to the campus resources necessary to help you dig deeper and finish the semester strong. Visit the SSC in Room 117 Innovation Lab and contact us at ssc@mst.edu or 573-341-7590. To learn more about the SSC, visit <https://ssc.mst.edu>. SSC helps in three ways:

- The **LEAD Drop-in** service provides convenient access to experienced peer learning assistants for a multitude of courses across campus. No appointments necessary. Simply check the tutoring schedule to discover when support for your specific course is available at <https://ssc.mst.edu/leaddrop-in>.
- The **LEAD Group Sessions** offer after-hours group tutoring, facilitated by dedicated peer learning assistants in partnership with faculty members. Explore the LEAD Group schedule to see if your course is featured and join LEAD at the next session: <https://ssc.mst.edu/leadgroup>.
- If your schedule clashes with our LEAD offerings, or if your course isn't covered, **Knack Tutoring** is your solution. Request a tutor for either a virtual meeting or an in-person session on campus, ensuring you get the help you need, when you need it. To sign up for your FREE Knack account, visit <https://ssc.mst.edu/knacktutoring>.

The **Military & Veterans Resource Center** (MVRC) is dedicated to supporting those who have served, are currently serving, and those who aspire to serve in our nation's armed forces, along with their families. We are committed to fostering a welcoming and inclusive

environment that empowers military-connected students to achieve their educational and personal goals. Through tailored resources, academic and career support, and community connections, we aim to enhance the success and well-being of service members, veterans, and their loved ones as they transition into and thrive within higher education here on campus.

Appendix B: Lab schedule

	Week	Section 301 (Monday)
Lab 1	2	January 27
Lab 2	4	February 10
Lab 3	6	February 24
Lab 4	8	March 10
Lab 5	11	March 31
Lab 6	13	April 14
Lab Extra	15	April 28