

Dark Matter

ASTR 333/433 Spring 2026
Case Western Reserve University
TR 11:30AM – 12:45PM Sears 552
astroweb.case.edu/ssm/ASTR333

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This course will explore the astronomical evidence for mass discrepancies and hypothesized solutions. Textbook (optional): *Dark Matter: Evidence, Theory, and Constraints* by Marsh, Ellis, & Mehta
Prerequisites: ASTR 222 or PHYS 310

Course Work and Grades

- Four homeworks due 2/5, 3/3, 4/2, 4/23. Each homework is worth 5% of the total grade.
- Two exams: a midterm 3/5 (30% of the final grade) and the final 4/30 (40% of the final grade).
- Class participation (10% of the final grade).
- Students enrolled in 433 will encounter additional problems on the homeworks and exams over and above what is required for 333.

There is no absolute performance scale: grades will be assigned on a curve. Attendance, participation, and collaboration are all encouraged; the use of AI is not. Ultimately, your submitted work must be your own. Completing all assignments in a timely fashion is required to obtain an A.

Late homework policy: Late homeworks suffer a minimum 20% mark down. Further arbitrary and capricious penalties will apply to homeworks that are more than one day late.

Missed exam policy: Don't. If there is an extraordinarily good reason to miss the scheduled exam, arrangements must be agreed with Prof. McGaugh prior to the exam date.

Further details, including homework assignments, lecture topics, slides, and associated readings, are posted at astroweb.case.edu/ssm/ASTR333. This webpage serves as the primary document for this course (not Canvas). Updates, events, and any modifications that prove necessary will be posted there.

Students at Case Western Reserve University are expected to uphold the highest ethical standards of academic conduct. Academic integrity addresses all forms of academic dishonesty, including cheating, plagiarism, misrepresentation, obstruction, and submitting without permission work to one course that was completed for another course. Please review the complete academic integrity policy¹. Any violation of the policy will be reported to the Dean of Undergraduate Advising and the Office of Student Conduct & Community Standards.

In accordance with federal law, if you have a documented disability, you may be eligible to request accommodations from Disability Resources. In order to be considered for accommodations, you must first register with the Disability Resources office. Please contact their office to register at 216-368-5230 or get more information on how to begin the process. Please keep in mind that accommodations are not retroactive.

¹ bulletin.case.edu/undergraduate-academics/academic-integrity/