Description

A broad introduction to the physics of celestial objects including formation, structure and evolution of stars, the physics of the interstellar medium, stellar remnants (white dwarfs, neutron stars, black holes).

Instructors

Marco Cavaglia
Office: Physics 204
Office hours: By appointment.
Email: cavaglia@mst.edu

Meeting time and location

Tuesday and Thursday, 9:30 – 10:45 a.m. in Physics 127

Prerequisites

Physics 2305 “Introduction to Modern Physics”.

Textbook (required)

Carroll, Bradley W. and Ostlie, Dale A., An Introduction to Modern Astrophysics

Objectives

Upon completing this course, the successful student will have an adequate comprehension of the basics of modern astrophysics.
Evaluation

Exams. There will be a mid-term exam (date TBD) and a final exam (date TBD), the latter will be in two parts, (a) and (b). The mid-term exam will cover the first half of the course and is mandatory to take. Part (a) of the final exam will cover the second part of the course and is mandatory to take. Part (b) will cover again the first part of the course. It is optional to take, but if the student chooses to take it, and scores better than in mid-term exam, its score will replace the score of the mid-term exam.

The exams will consist of problems to be worked out. Students will be allowed to use a calculator and may be provided with an equation sheet by the instructor. No use of notes or books will be allowed. If you must miss an exam because of a civil duty (e.g., jury duty or military service), official University competitions, performances, or travel, religious observations, or certain scheduled medical procedures, please inform the instructor ahead of time to arrange an accommodation. Missing an exam without prior notification of the instructor may lead to receiving a zero grade. However, illnesses and other problems, which sometimes occur unexpectedly, may lead to an accommodation in this policy.

Homework. Assignments will be announced in class and must be turned in at the beginning of class on the day they are due. Late submission will not normally be accepted and will count zero towards the final grade. However, if there is a valid reason (e.g., due to documented illness), students may be excused from turning in an assignment on time. If a student has extended unavoidable absences the instructor may make some adjustments to the homework policy. Requests for regrades must be submitted no later than the end of the second class after graded assignments are returned. All assignments will count toward the final grade, i.e., no drops! Please plan accordingly.

Handed-in assignments must be easy to read. Use white paper that is 8.5 x 11 inches with no torn or tattered edges. Do not write or print in red. Staple multiple pages together. Student name and problem set number should be clearly written in the top right corner of all pages. Show all your work; the answer alone is not worth anything. Solutions must be explained with enough English to be understandable. Numerical answers should have units and a reasonable number of significant digits. All returned assignments should be kept by students until the final grade of the course has been posted by the instructor. Transgression of the above rules may reduce your grade on the assignment.

Grading

Grade points will be based on assignments and exams as follows:
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Homework</td>
<td>500</td>
</tr>
<tr>
<td>Mid-term exam</td>
<td>250</td>
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<tr>
<td>Final exam</td>
<td>250</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>1000</strong></td>
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Grading scale (points):

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

Course attendance policy

Students are required to attend all classes. Please do not arrive late to class or leave early unless you have been previously excused by the instructor. Of course, if you are taken ill during class, 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 know the reason why you left. The instructor 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 5 (five) confirmed absences or by missing a total of 5 (five) graded assignments of any kind (exams and homework) are subject to being dropped if a subsequent class or assignment is missed.

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, then you will be dropped from the course and any financial aid will be adjusted accordingly.

Health and well-being

The physical and mental well-being of all students (and of the instructor) takes precedence on any other considerations in this course. The instructor will strive to keep the students safe and healthy. He hopes students will do the same for their well-being, as well as the instructor’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 you 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 have a smooth educational experience over the semester, as well as reduce the burden on our health services.

It is my understanding that wearing a facial covering is not required to attend classes. However, it may be wise (and an act of kindness toward others) to wear one as long as you can. Please remember that the person close to you may be immunosuppressed, i.e., their immune system may be more susceptible than you to a variety of medical problems, illness, or adverse effects. *But the fruit of the Spirit is love, joy, peace, patience, kindness, goodness, faithfulness, gentleness, self-control; against such things there is no law.* [Galatians 5:22-23]

### Academic dishonesty and disruptive behavior

Academic dishonesty and disruptive behavior will not be tolerated and will be dealt in accordance to university policies. Students should familiarize themselves with the Student Conduct Rules of the University of Missouri in Section 200 of the Collected Rules and Regulations to review the expected standards for student academic integrity, disciplinary procedures, sanctions, and appeal procedures.

In the occurrence of disruptive behavior, the course instructors may request the campus Judicial Officer to take effective disciplinary action after issuing a warning. See Student Academic Regulations at [http://registrar.mst.edu/academicregs](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 University of Science and Technology is 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.

Students with disabilities, which have been verified through the Office of Student Disability Services, should contact the instructor at the beginning of the semester to discuss their individual needs for accommodations.

To learn more about student disability services available to Missouri S&T students, please visit [https://dss.mst.edu/](https://dss.mst.edu/).
Non-discrimination statement

The University of Missouri does not discriminate on the basis of race, color, national origin, ancestry, religion, sex, pregnancy, sexual orientation, gender identity, gender expression, age, disability, protected veteran status, or any other status protected by applicable state or federal law. The University affirms its commitment to providing equal opportunities by establishing the Equal Opportunity Policy statement in Section 600.010 of the Collected Rules and Regulations. The University’s nondiscrimination policies apply to any phase of its employment process, any phase of its admission or financial aid programs, and other aspects of its educational programs or activities.

Additionally, this policy and the existing Title IX policies apply to allegations of sexual misconduct or allegations of other forms of sex discrimination, as defined in Section 600.020C, occurring within the University’s educational programs and activities and instances occurring in other settings, including off-campus if there are effects of the conduct that interfere with or limit students’ ability to participate in or benefit from the University’s educational programs and activities.

Missouri S&T’s Title IX Coordinator is Paul Hirtz. Contact him (hirtz@mst.edu; (573) 341-7734; 900 Innovation Drive - Suite 500) to report Title IX violations. To learn more about Title IX resources and reporting options (confidential and non-confidential) available to Missouri S&T students, staff, and faculty, please visit http://titleix.mst.edu.

Changes to syllabus

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

Statement of agreement

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