

Relativity

Course Information

Instructor: Tamara Bogdanovic (tamarab@gatech.edu)

Course Prefix and Number: PHYS 4147

Term: Fall 2026

Course Description

This course will briefly cover special relativity to introduce the key concepts that lead to a revolution in our understanding of space and time. Most of the course will be spent on general relativity. We will cover, as time permits, spacetime curvature, metrics, geodesics, experimental verification of general relativity, black holes, gravitational waves, and cosmological models.

Course Learning Outcomes

After successfully completing this course, you should be able to

- solve problems in curved spacetime using index notation, tensors and diagrams,
- interpret gravitational phenomena using concepts from general relativity, and
- recognize faulty scientific reasoning, your own and in the media.

Required Course Materials

Textbook: *Gravity: An Introduction to Einstein's General Relativity* by James Hartle, ISBN 978-1316517543. (Bookstore [\[link\]](#))

Grading Policy

This course is graded on a letter grade basis.

Graded Components		Final Letter Grades	
Homework	35%	A	90-100%
Exam 1	20%	B	80-89%
Exam 2	20%	C	70-79%
Exam 3	20%	D	60-69%
Class participation	5%	F	< 59%

Attendance Policy

This will be an active classroom, where you will be expected to participate. Class participation will be assessed in about 10 in-class assignments. The assignments will be short (~5 minute) calculations carried out by students during class time and designed for practice of the newly learned concepts.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Review the [Student Code of Conduct](#) and the Georgia Tech [Academic Honor Code](#).

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

Not applicable

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulates some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.