

Physics 711

Topics in Particles and Fields (General Relativity)

Instructor: Jason Kumar
WAT 436
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Class meets:
M W 11:00am-12:20pm (during daylight savings time)
M W 12:00pm-1:20pm (during standard time)
WAT 417

The lecture for this course will be given by Professor Pearl Sandick (University of Hawaii). The syllabus for the course, including textbooks, grading, and Student Learning Outcomes, are in the attached syllabus for the University of Utah course.

Physics 7720: General Relativity

Fall 2014

- Instructor: Pearl Sandick
Email: sandick@physics.utah.edu
Phone: 801-581-8397
Office: INSCC 210
Office Hours: Mondays 4:30 - 5:30pm, and by appointment
- Course Website: <http://www.physics.utah.edu/~sandick/7720fall2014>
All announcements and assignments will be posted on the course website. Check it often! A Google Calendar for the course is also available there.
- Lectures: MW 3:00pm-4:20pm in JFB 210
- Textbook: *Spacetime and Geometry: An Introduction to General Relativity*
Sean M. Carroll
ISBN: 0-8053-8732-3
- References: Several other books are on reserve at the Marriott Library. For a complete list, see the course website. When using multiple resources, please be aware that conventions can *and do* vary widely. Different authors use different conventions for the metric signature, the Planck mass, etc. Always be careful when comparing discussions and results from different references!
- Description: This is a graduate level introduction to general relativity. Topics covered will include a brief discussion of special relativity, manifolds and elements of differential geometry, curvature, gravitation and Einstein's Equation, the Schwarzschild solution and black holes, and gravitational radiation.
- Objectives: By the end of the course, students will develop an understanding of general relativity from both mathematical and physical perspectives. Students will be comfortable with calculations involving tensors and differential forms, and will be able to calculate curvature and geodesics and apply the Einstein field equations to simple physical systems.
- Homework and Exams: Homework problems will be assigned roughly every two weeks. In order to receive full credit, your solutions must be correct and your calculation and/or explanation must be clear. There will be one in-class midterm exam roughly halfway through the semester, date TBD. **The final exam is scheduled for Wednesday, December 17th, from 1:00pm to 3:00pm.** Please mark your calendar.

- Grading: 60% Homework
20% Midterm (in class)
20% Final Exam
- Important Dates: August 25th (Monday) - First Day of Class
September 1st (Monday) - Labor Day Holiday
September 3rd (Wednesday) - Last day to drop classes
September 8th (Monday) - Last day to add, elect CR/NC, or audit classes
October 12-19 (Sunday-Sunday) - Fall Break
October 24th (Friday) - Last day to withdraw from classes
November 27-28 (Thursday-Friday) - Thanksgiving Break
December 12th (Friday) - Last Day of Class
December 17th (Wednesday) - Final Exam
- Honesty: Cheating on exams or copying homework will not be tolerated. You are encouraged to discuss class lectures and readings with your classmates, as well as to collaborate on homework assignments, provided all members of the group contribute to the collaboration. In all cases, all students must turn in their own unique solutions. If caught cheating or copying assignments from any sources, all parties involved will receive zero credit for the exam or assignment.
- ADA Compliance: The University of Utah Department of Physics seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in this course, reasonable prior notice must be given to the instructor and to the Center for Disability Services, 162 Olpin Union Bldg, 581-5020 (V/TDD) to make arrangements for accommodations. You are strongly encouraged to come and talk to the instructor about your disability and necessary accommodations within the first two weeks of the semester.