Instructor:	Howard Haber
Office:	Kerr Hall, Room 211
Phone Number:	459-4228
Office Hours:	Mondays and Tuesdays 2–3 pm
E-mail:	haber@scipp.ucsc.edu

REQUIRED TEXTBOOK:

General Relativity, by I.R. Kenyon

Recommended Outside Reading:

<u>Concerning tests of general relativity</u>

Was Einstein Right?, by Clifford M. Will

Clifford M. Will, "The confrontation between general relativity and experiment," *Living Rev. Rel.* **4**, 4 (2001) [gr-qc/0103036]

<u>Other introductory texts:</u>

A Short Course in General Relativity, by J. Foster and J.D. Nightingale

General Relativity, by J.L. Martin

An Introduction to Relativistic Gravitation, by Rémi Hakim

A First Course in General Relativity, by B.F. Schutz

Flat and Curved Space-Times, by George F.R. Ellis and Ruth M. Williams

Principles of Cosmology and Gravitation, by Michael Berry

<u>More advanced texts:</u>

Introducing Einstein's Relativity, by Ray D'Inverno

Gravitation and Spacetime, by Hans C. Ohanian and Remo Ruffini

Gravitation, by Charles W. Misner, Kip S. Thorne and John Archibald Wheeler

Gravitation and Cosmology, by Steven Weinberg

Fall 2001 Course Outline

1. Special Relativity
2. The Equivalence Principle
3. Space and Spacetime Curvature
4. Tensors in Curved Spacetime
5. Einstein Field Equations
6. Tests of General Relativity
7. Black Holes
8. Gravitational Radiation
9. Early Universe Cosmology
10. Gravity and Extra Dimensions

Course Requirements

The basic course requirements consist of regular problem sets (40%), a take-home midterm exam (25%) and an in-class (open book/open notes) final exam (35%) [percentage of the course grade indicated in parentheses]. Prerequisites for the course are: Physics 114B, 105 and 110B or equivalent. No prior knowledge of differential geometry is required.