PHYSICS 225a-General Relativity
Fall 2000

Instructor:	Benjamin Grinstein
Office Hours:	Fridays, 13:30-14:30 Mayer Hall 5210
Place and Time:	Mayer Hall 5301 , Tuesdays and Thursdays 11:10-12:30
Web Page:	http://einstein.ucsd.edu/ben
email:	bgrinstein@ucsd.edu
Textbook:	Bernard E. Schutz, *A first course in general relativity*, Cambridge University Press

Grades:
The course grade will be computed as 100% from homework. There will be no final exam.

Homework:
On average will be assigned every two weeks. Problems will be taken from Schutz or of comparable difficulty from another source. Due date given with assignment. Due date is non-negotiable. Solutions will be posted on due date. Late work will not be accepted and credit will not be given. Graded homework will be returned as soon as possible. Please retain for your records, at least until final grade is assigned (mistakes are made occasionally in recording and computing grades; it is your responsibility to keep track of your own record). Homework is personal — see *Academic Dishonesty* below.

Exams:
There will be no exams.

Email:
From time to time it is convenient to send notices promptly via email. This will be done through the email account the student registered with ISIS. If you have not registered your email address please do so at your earliest convenience.

Course Web Page:
From the instructor's web page go to "Physics 225a (fall 00)."

Sean Carrolls lectures:
http://xxx.lanl.gov/abs/gr-qc/9712019
These notes represent approximately one semester's worth of lectures on introductory general relativity for beginning graduate students in physics. Topics include manifolds, Riemannian geometry, Einstein's equations, and three applications: gravitational radiation, black holes, and cosmology.

Academic Dishonesty:
Please read the UCSD *Policy on Integrity of Scholarship* in the 1999-2000 General Catalog.

The following recommended references have been put in “book reserve” at the S&E library. Some are also available from reserve at CASS.

1.Author Dirac, P. A. M. (Paul Adrien Maurice), 1902-
Title General theory of relativity / P. A. M. Dirac
Published New York : Wiley, [1975]
ISBN 0471215759

2.Author Misner, Charles W
Title Gravitation
[by] Charles W. Misner, Kip S. Thorne [and] John Archibald Wheeler
Published San Francisco, W. H. Freeman [1973]
ISBN 0716703343 0716703440 (pbk.)

3.Author Ignazio Ciufolini and John Archibald Wheeler
Title Gravitation and inertia
Published Princeton, N.J. : Princeton University Press, c1995
Series Princeton series in physics
ISBN 0691033234 (acid-free paper)
0691036543

4.Author Wald, Robert M
Title General relativity / Robert M. Wald
Published Chicago : University of Chicago Press, 1984
ISBN 0226870324 0226870332 (pbk.)

5.Author Weinberg, Steven
Title The first three minutes :
a modern view of the origin of the universe
Published New York : Basic Books, c1977
ISBN 0465024351

6.Author Weinberg, Steven
Title Gravitation and cosmology:
principles and applications of the general theory of relativity
Published New York, Wiley [1972]
ISBN 0471925675

7.Author Edwin F. Taylor, John Archibald Wheeler
Title Spacetime physics : introduction to special relativity
Published New York : W.H. Freeman, c1992
ISBN 0716723271
0716723263 (cased)

8.Author Einstein, Albert, 1879-1955
Title The meaning of relativity
Published Princeton, Princeton University Press, 1945
Note "The first edition of this book, published in 1922
... consisted of the text of Mr. Einstein's Stafford Little lectures, delivered in May 1921 at Princeton University. For this second edition, Mr. Einstein has added an appendix discussing certain advances in the theory of relativity since 1921."
"The text of the first edition was translated by Edwin Plimpton Adams, the new appendix by Ernst G. Straus."

9.Author Adams, Edwin Plimpton, 1878-
Straus, Ernst Gabor, 1922 Author
Lorentz, H. A. (Hendrik Antoon), 1853-1928
Title The principle of relativity; a collection of original memoirs on the special and general theory of relativity, by H. A. Lorentz [and others] with notes by A. Sommerfeld, translated by W. Perrett and G. B. Jeffery
Published [New York] Dover [1952]
ISBN 0486600815

10.Author Einstein, Albert; translated by Robert W. Lawson
Title Relativity
Published Amherst, N.Y. : Prometheus Books, 1995
ISBN 0879759798 (pbk.)

11.Author Einstein, Albert; translated by Robert W. Lawson
Title Relativity: the special and the general theory.
Published Gloucester, Mass, Peter Smith, 1959 [c1948]

12.Author Pais, Abraham, 1918-
Title "Subtle is the Lord-- " : the science and the life of Albert Einstein
Published Oxford University Press, 1982
ISBN 019853907X

13.Author Spivak, Michael
Title A comprehensive introduction to differential geometry, FIRST VOLUME
Published Berkeley : Publish or Perish, inc., 1979
Edition 2d ed
ISBN 0914098837

14.Author Schutz, Bernard F
Title Geometrical methods of mathematical physics
Published Cambridge ; New York : Cambridge University Press, 1980
ISBN 0521232716 0521298873 (pbk.)

15.Author L. D. Landau and E. M. Lifshitz.
Title The classical theory of fields
Translated from the Russian by Morton Hamermesh
Published Oxford, New York, Pergamon Press [1971]
Series Course of theoretical physics, v. 2
ISBN 0080160190

16.Author L. D. Landau and E. M. Lifshitz.
Title Fluid mechanics,
Translated from the Russian by J. B. Sykes and W. H. Reid
Published London, Pergamon Press;
Reading, Mass., Addison-Wesley Pub. Co., 1959
Series Course of theoretical physics, v. 6
The A-W series in advanced physics