UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

APPLIED MATHEMATICS 507
"INTRODUCTION TO RELATIVITY THEORY"

Calendar Description: H(3-0)

Mathematical theories of space and time. Special Relativity. Electro-dynamics. General Relativity.

Prerequisite: Applied Mathematics 505 and consent of the Division.

Syllabus

Topics	Number of hours
I Special Relativity:	
Kinematics (Minkowski space)	6
Dynamics	4
Electromagnetism	5
II Tensor Analysis:	
Tensors	4
Affine Connections	4
Metric (Riemann Geometry)	4
III General Relativity:	9
Equations of motion, Field equations	
Schwarzschild solution	
Total	**36**

References:

R. Resnick: Introduction to Special Relativity -- I
W. Rindler: Essential Relativity -- I, II and III
E. Schrodinger: Space-time Structure -- II, III
Adler, Basia, Schiffer: Introduction to General Relativity -- II, III
d'Inverno: Introducing Einstein's Relativity -- I, II and III

Note: These are very rough estimates: the instructor has the flexibility to accommodate needs and wishes of the students.

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