

- COVARIANT KINEMATICS / DYNAMICS -

**PHYSICS 472L - Syllabus**

Spring 2016

**Instructor :** Channon Price, x6106, cprice@alaska.edu

**Office hours :** MTWRF 9:00 am - 10:00 am or by prior appointment; please consult my calendar at the above email address.

**Class hours :** MWF 1:00 pm - 2:00 pm (REIC 207), 15 January to 17 February.

**Prerequisites :** PHYS 220; PHYS 301; or permission of instructor. Strongly encouraged: PHYS 341; PHYS 342; PHYS 343.

**Texts :** Reading handouts to be distributed by the class website [see below].

**Description :** The UAF Catalog listing for PHYS 472L is: Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one credit courses. Prerequisites: PHYS 220; PHYS 301; or permission of instructor.)

**Grading :** 1 credit. Homework (65%); final exam (35%). The course will be graded plus/minus.

**Schedule :** See the attached course schedule. Assignments will be made during the course. The final exam will be held on the last day of class, Wednesday 17 February.

**Learning Outcomes :** Students who complete this module will learn how to describe physical phenomena covariantly, will learn why a manifestly covariant description is necessary to incorporate the correct physics, will learn how to manipulate the covariant descriptions, and begin to develop an intuition about relativistic physics.

**Remarks :** The course materials (reading handouts, homework problems, additional enrichments) will be made available on the course website <http://137.229.43.8/physics/phys472L.html>

**Disability Services :** The Physics Department will work with the Office of Disabilities Services (208 WHIT, x7043) to provide reasonable accommodation to students with disabilities.

## Tentative PHYS 472L Course Schedule

Lecture 1: Introduction

Lecture 2: Structure of Spacetime

Lecture 3: Covariant Kinematics

Lecture 4: Covariant Kinematics

Lecture 5: Covariant Kinematics

Lecture 6: Covariant Kinematics

Lecture 7: Relativistic Reactions

Lecture 8: Relativistic Reactions

Lecture 9: Relativistic Reactions

Lecture 10: Covariant Dynamics

Lecture 11: Covariant Dynamics

Lecture 12: Covariant Dynamics

Lecture 13: Final exam