

Introduction to Environmental Fluid Mechanics GEOS 498 (3 units)

Instructor: Dr. Shane Mayor

Motivation: Fluids (gases and liquids) are ubiquitous and play central roles in shaping the environment and transporting heat, momentum, pollutants, and constituents that support life and control climate. This course will provide students with an introduction to fundamental concepts in fluid mechanics and an illumination of the vital and fascinating, and often non-intuitive, world of fluid phenomena.

Key concepts covered: Continuum hypothesis, viscosity, pressure gradients, hydrostatic balance, buoyancy, convection, density currents, waves, turbulence, the Coriolis effect, vorticity, scale analysis, and dynamic similarity. The instructor will introduce and explain partial derivatives and tensor notation and derive the Navier-Stokes equations that are central to understanding fluid motions. It is not intended to be a comprehensive course, but rather an entry point for beginners to start becoming fluent and comfortable with the material.



Prerequisites: PHYS 202A or PHYS 204A and MATH109 or MATH 120.

Interested? Please contact Dr. Shane Mayor (sdmayor@csuchico.edu, Office: PHSC 117) as soon as possible for planning purposes.