

ASEN 6011: Experimental Fluid Mechanics

University of Colorado **Boulder**

Fall Semester 2023

Syllabus

Time: Mon. & Wed. 10:00 AM - 11:15 AM

Physical Classroom: AERO 114

Physical Laboratory Space: WIND

Virtual Office:

Instructor: Professor John Farnsworth

Physical Office: AERO 365

Office Phone: (303)735-7287

Email: john.farnsworth@colorado.edu

Office Hours: Mon. 2:00-3:00 PM & Wed. 3:00-4:00 PM

Website: Canvas (<https://canvas.colorado.edu>)

Slack Workspace: To help better facilitate online communication this semester we will also be using the following Slack Workspace: [Exp. Fluid Mech. \(ASEN 6011\)](#). Please note that you are not required to use this and all course wide notifications will still be sent out also via notifications through the course webpage, but we believe this application will help improve communication and collaboration within the course.

To join the Slack Workspace for the first time please register with your *... colorado.edu* email address using the following link: <https://join.slack.com/t/expfluidmechasen6011/signup>.

Objective: To establish a fundamental understanding of the theory and practice of performing experimental measurements in fluid mechanics.

Description: This course presents an intermediate level introduction into the theory and practice of performing experimental measurements in fluid mechanics. The fundamental principles and definitions associated with instrumentation, measurement procedures, data analysis, and uncertainty quantification will be discussed. A specific focus will be placed on the application of a variety of measurement techniques in low-speed aerodynamic environments. A selection of measurement techniques will be extensively studied and applied including: classical pressure and temperature measurements, thermal (hot-wire) anemometry, laser doppler anemometry, particle image velocimetry, surface and field flow visualization techniques, schlieren and shadowgraph photography techniques.

Prerequisites: Undergraduate level courses dedicated to the fundamentals of fluid mechanics,

race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation, or political philosophy. For more information, see the [classroom behavior policy](#), the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

Requirements for Infectious Diseases: Members of the CU Boulder community and visitors to campus must follow university, department, and building health and safety requirements and all public health orders to reduce the risk of spreading infectious diseases.

The CU Boulder campus is currently mask optional. However, if masks are again required in classrooms, students who fail to adhere to masking requirements will be asked to leave class. Students who do not leave class when asked or who refuse to comply with these requirements will be referred to Student Conduct & Conflict Resolution. Students who require accommodation because a disability prevents them from fulfilling safety measures related to

