

1 Abstract

Numerical models from continuum mechanics are ubiquitous in science and engineering. Advances in computing hardware has increased both the prevalence and usefulness of these models, making them an indispensable tool for the scientists of the future. However, thorough understanding of these methods is often lacking, and special training is required for users to elucidate meaningful simulations from numerical noise. In this course, students will develop a rigorous understanding of discretization procedures for fundamental partial differential equations. Successful students will build the skills necessary to numerically solve models of fluid or solid mechanics on complex domains, which is a necessity for the future STEM workforce. Work will be performed using a combination of the free and open-source tools *julia* and *openFoam*.