

Abstract Submitted
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Attracting Students to Fluid Mechanics with Coffee WILLIAM RISTENPART, Dept. Chemical Engineering, University of California Davis — We describe a new class developed at U.C. Davis titled “The Design of Coffee,” which serves as a nonmathematical introduction to chemical engineering as illustrated by the process of roasting and brewing coffee. Hands-on coffee experiments demonstrate key engineering principles, including material balances, chemical kinetics, mass transfer, conservation of energy, and fluid mechanics. The experiments lead to an engineering design competition where students strive to make the best tasting coffee using the least amount of energy - a classic engineering optimization problem, but one that is both fun and tasty. “The Design of Coffee” started as a freshmen seminar in 2013, and it has exploded in popularity: it now serves 1,533 students per year, and is the largest and most popular elective course at U.C. Davis. In this talk we focus on the class pedagogy as applied to fluid mechanics, with an emphasis on how coffee serves as an engaging and exciting topic for teaching students about fluid mechanics in an approachable, hands-on manner.

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