Programming as a Way of Thinking

A Teaching and Learning Seminar

Speaker: Prof. Allen Downey

Location: Kemper 1065

Time: January 5th, 3:00-4:00pm

Programming is not just a way to translate well-known solutions into code; it is a way to explore, discover solutions, and then create the language to express them. Programming is a meta-skill that helps people learn other skills and understand new ideas by expressing them in code. When programmers debug code that represents their understanding, they are debugging their brains at the same time. Modern programming languages like Python allow programmers to think in code, and think differently as a result.

In this talk I present examples where Python is used as a thinking tool, a way to understand abstract ideas by expressing them in code. I start with basic examples that demonstrate the expressive power of Python, and move on to recent projects that prompted me to reflect on Python as a way of thinking. I draw examples from statistics, mechanics, and digital signal processing.

Allen Downey is a Professor of Computer Science at Olin College. He is the author of ThinkPython, ThinkDSP, ThinkBayes, and other popular titles. Prof. Downey is an international leader in educating undergraduates through computational thinking. He is supported by Olin's Collaboratory which is "dedicated to co-designing transformational educational experiences with and for other institutions". See his website (http://www.allendowney.com) and his Wikipedia article (https://en.wikipedia.org/wiki/Allen_B._Downey) for more information.

This seminar is made possible by the Undergraduate Instructional Innovation Program funds provided by the Association of American Universities (AAU) and Google administered by the Center for Educational Effectiveness.

CEE
UC Davis Center for Educational Effectiveness

UCDAVIS
MECHANICAL AND AEROSPACE ENGINEERING

Data Science Initiative