Flipping the Intro Stats Classroom with the Integrated Statistics Learning Environment (ISLE)

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USCOTS 2021

THE COLLEGE OF
WOOSTER

ISLE

- Built by Philipp Burkhardt at Carnegie Mellon (pgb@andrew.cmu.edu)

- http://www.stat.cmu.edu/isle/index.html

- "Teaching Statistical Concepts and Modern Data Analysis With a Computer-Integrated Learning Environment", *JSDSE*, 29:sup1.

- Browser-based interactive statistics and data analysis platform -- free, no downloads, works on tablet

- No coding, but powerful functionality for data analysis

- ISLE has a wide array of functions for both in-class and remote instruction and student work.

Course
Math 102: Introduction to Statistics

- Wide variety of background/interest/engagement
  → they need to be able to learn at their own pace

- College of Wooster: 22% domestic students of color; 16% international students; 45 states and 61 countries represented; 19% Pell Grant recipients

- 3 hours/week is not enough time for active learning *and* lecture (*and* coding!)

The Flipped Class

- Before class: Assigned reading; Video lessons (hosted on ISLE)

  - Video (replaces lecture): 3 – 20 min

  - (Ungraded) Comprehension questions: generally MC, so they get instant feedback

- Beginning of class: 5-minute graded "Concept Check" quiz

- In class:

  - Review Concept Checks and/or commonly-missed comprehension questions from video lessons; take questions → mini-lectures

  - Active learning in groups of 2 – 4 (labs, mini-projects, explorations, practice problems, review)

Flipping FAQ

- Do I have to record my own lectures?

- How do I make sure students actually watch the videos?

- What about remote teaching/learning?

- What do students say?

What if I want to do this?
What are the next steps?

- ISLE: http://www.stat.cmu.edu/isle/index.html

- An example video lesson (including code):
https://isle.heinz.cmu.edu/math102/jsm-demonstration/

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Many thanks to the ISLE Team, especially Philipp Burkhardt and Rebecca Nugent.