First Course Pedagogy Chrestomathics

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Tag Workshop Organizers Meeting
January 26, 2013
Washington, DC

Requirements

- Effective pedagogy for diverse students with particular emphasis on female students
- Effectiveness demonstrated by evaluation and / or has a foundation based on research-based practices

CS1X Chrestomathics

- CS 1X – an introductory CS course targeted for students without prior experience
- Attractive to under-represented groups
- More likely to choose computing
- Attraction comparable to demographics up to comparable levels
- Students persist
- Students are comparable to other CS students

CS 1X Chrestomathics

- Organized around problem solving
- Uses a scaffolded, active learning, lab-centric approach for achieving mastery of concepts and skills
- Other schools have adopted its approach

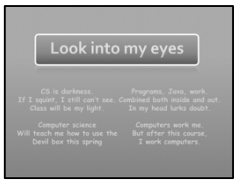
CS1X demographics

- Approximately 100 students per offering in recent semesters
- Enrollments are typically 55% female, while UVA Engineering is approximately 30% female
- Women's increased percentage provides a comfortable course environment for women without stigmatizing them

- Both female and male students choose a CS major at a slightly higher then CS1G students

CS1 Workshop session

- Begins with interesting and offbeat problem solving activity
- Course mechanics and pedagogy are then introduced.
- Web repositories of the materials are made available
- Highlights student versus teacher interests



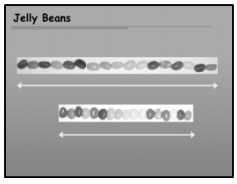
- Mentions a statistic from a CS2 test 1 survey that students with AP computer science outperformed other students (CS1X students outperformed other CS1 students)
- Ends with a discussion of CS1 practices recommended by the attendees in preparation for the session

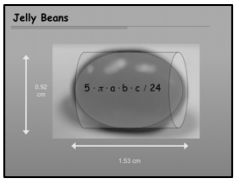
CS1 Workshop session

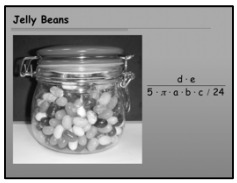
- Attendees consistently find session useful
  - 76% of previous workshop participants strongly agreed in post-workshop survey that the information presented was useful
  - 61% of the respondents in a follow-up survey indicated that they are using or adapting its elements in their own courses

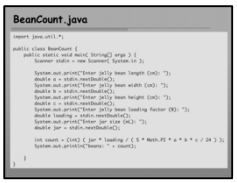
Getting a taste of computational thinking

Problem solving



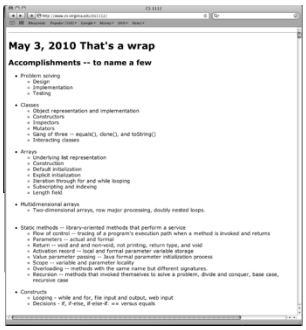






What's it all about

- Guided discovery
- Active and collaborative learning
- Class culture of success
- Encouraging pedagogy and examples
- Constant recruiting
- Integrated lecture and laboratory – instructor and TAs all the time
- Regular acknowledgement



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