The Computer Science Professionals’ Hatchery
Boise State University
Incorporating Inclusion, Diversity & Social Justice into the Computer Science Curriculum

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Part of the NSF RED Program
(Revolutionizing Engineering & CS Departments)

Team of:

a. CS Faculty
b. Engineering Education specialist
c. Social Scientist
d. External evaluator
The Hatchery
(Fish hatcheries are unique in Idaho’s economic ecosystem)

Help BSU CS Adapt

Responsive to Industry Needs
● Industry Advisory Group identifies new & emerging needs to support their strategic growth

Responsive to Social Forces
● Inclusion, Diversity, Social Justice
  ○ Moral imperatives and
  ○ Strategic business objectives
STAGE 1
Identify Industry & Social Needs

STAGE 2
Create & Update CS-HU Curriculum

STAGE 3
Update 3-credit Courses

STAGE 4
Do Students & Industry Accomplish Goals of CSP-Hatchery?

Continuous Spiral

What do we want?

Offer incentives to faculty & industry to offer CS-HU courses

Incorporate ID&SJ into existing curriculum

Formative Evaluation
Industry Identifies Skills
We Identify Social Needs

CS-HU (CS-Hatchery Units)
● 1-credit courses in technical and professional skills
  ○ CS-HU 130 Foundational Values
  ○ CS-HU 153 Navigating Computer Systems
  ○ CS-HU 250 Version Control (Git)
  ○ CS-HU 269 HCI Concepts
  ○ CS-HU 279 Agile Development
  ○ CS-HU 274 Software Testing
  ○ CS-HU 310 Intro to Databases
  ○ CS-HU 390 Interviews, Jobs, Careers
  ○ CS-HU 398 Current Topics in CS
All CS-HU Courses Use EBIPs
(Evidence Based Instructional Practices)

• Engineering Ed expert (Noah Salzman) is on all course development teams
• Customizing materials, media & assignments
All CS-HU Courses Include ID& SJ

(Customized to fit content as indicated by principal instructor)

• Social Scientist (Don Winiecki) is on all course development teams
• Customizing materials, media & assignments
Adapting Existing Courses
(Embed ID&SJ in technical courses)

Add and Adapt Content and Assignments

In addition to CS-HU courses, the following are affected

- CS 421 Design & Analysis of Algorithms
- CS 481 Senior Design

Including other courses in College of Engineering

- ENGR 130 Introduction to Engineering Applications
- ME 112 Introduction to Biomedical Engineering
- ME 481 Senior Design
- OPWL 586 Professional Ethics
Common Elements Link Content
(Rubrics for Rating Peer Teammates, Analyzing & Addressing Problems)

Rubrics Introduced in CS-HU 130 Foundational Values and Used in Other Courses & in Industry Practice

Teammate Rating Rubric used in grading of team projects
  ● Based on Social Science Research & Corporate Practice

Analyzing Systemic Problems & Planning Interventions
  ● Based on Systems Sciences
  ● Rawls’ *Theory of Justice*
Resistance is ...

Institutionalized Norms, Personal Beliefs...

- Startup Seminar to Introduce Main Issues
- One-on-One Meetings, Design Sessions, …
  - “...just the way it is…” is turned into
  - “...how we have allowed it to become…”
- Use willing faculty as examples of success to gradually improve adoption
Wanna Follow What We’re Doing?

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