



BOISE STATE UNIVERSITY

Nurturing the Next Generation of Computer Science Professionals



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The **Computer Science Professionals (CSP) Hatchery** will create a revolutionary learning environment by modeling the best practices of a software company work experience, layering nurturing aspects that promote ethical questioning, value diversity, and a focus on professional skills such as increased collaboration, communication, and teamwork.

Moral **Ethical** **Social**
Technical **Professional**
Entrepreneurship **Business Mindset**

The CSP Hatchery
Software Company Environment

Incubate Agents of Change

Objectives

- Actively Engaged Stakeholders**
 - Industry
 - Students
 - Faculty
 - Continuous Innovation Together
- VITaL** (Vertically Integrated Teaching and Learning)
 - Agile
 - Foundational
 - Capstone Integration
- Diversity for Mutual Gain**
 - Ethical/Moral Infusion

Professional & Entrepreneurial

Knowledge, Skills & Abilities

Through several meetings with industry representatives, we iteratively developed the KSA categories and desired outcomes shown below.

KSA Category	Desired Outcomes
Business	An understanding of how a company makes money and executes its strategy
Collaboration & Teams	Working with people and groups to achieve a goal
Entrepreneurship	Organizes, manages, and assumes the risks of a business or enterprise
Professional	A person engaged and qualified in the computing profession
Research & Development	Seeks innovation and improvement of products and processes
Technical	Practical knowledge and skills associated with the computing field

Partner for Success!

Foundational Values

Navigating Computing Systems

Intro to Version Control

Agile Development

Intro to Database System Usage

Technical Interviews, Jobs and Careers

Faculty Staff Advising Students

Boise State University RED Team

Next Steps

- Second round HU proposals planned - Desire:
 - ~3 additional required HUs
 - ~6 elective HUs (satisfies CS electives)
- Threading HU content in CS courses
- Capstone integration
- Establish an "Entrepreneurial Emphasis"
- Examine students' social/emotional levels
- Interview industry partners
- Monitor HU content implementation
- Research, Validation, and Publication

Progress

- 14 HU proposals submitted (2/3rd faculty participation)
- Approved 6 HU courses
- RED team member on each HU team
- All CS faculty interviewed by social science PI
- Received 500+ student responses on beliefs, perceptions, educational experience, social (cultural competence) and emotional (self-esteem)

Challenges

- Ingrained biases and comfort zones
- Building student and faculty buy-in and participation
- Logistics: scheduling, integration and threading, advising, communication
- New course development
- Modifying existing courses to utilize Hatchery concepts - "Threading"
- Increasing future survey response rate and willingness to provide feedback on beliefs and experiences
- Using survey and interview data to identify and address ongoing challenges

"...every bit of computer science touches and affects society. We *have to be* careful what our tools do to people!..."

"...That's just the way the world is! If [under-represented groups] can't handle that, I can't help them..."

Hatchery* Change Process

*Hatchery Units (HUs) are one credit courses focused on skills relevant to computer science professionals and designed to rapidly adapt to the changing needs of industry. HUs are also a vehicle to diffuse social justice and equity through the curriculum.

Proposal	Development	Integration
<ul style="list-style-type: none"> Submission Project Review & Follow-up Industry Knowledge, Skills and Abilities (KSA) Evaluation Concept Decision: <ul style="list-style-type: none"> Approve Development Proposal Refinement Defer Proposal 	<ul style="list-style-type: none"> Syllabus Industry Participation Course Materials 1st Course Offering Pilot Decision: <ul style="list-style-type: none"> Course Approval Course Refinement Defer Course Integration 	<ul style="list-style-type: none"> Course Refinement Integration Opportunities: <ul style="list-style-type: none"> HU Content Threading Capstone Integration

Hatchery Curriculum Map

Agile HU Students Assist Capstone Teams

Foundational Values (Diversity and Social Justice) Threaded Freshman to Senior Courses