Nurturing the Next Generation of Computer Science Professionals
IUSE/PFE:RED: Computer Science Professionals Hatchery
Tim Andersen, Lead PI and Department Chair of Computer Science; Amit Jain, Co-PI and Associate Department Chair; Noah Salzman, Education Researcher; Don Winiecki, Social Scientist; Dianxiang Xu, Co-PI

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. (NSF Award# #1623189)

Next Steps
- Second round HU proposals planned - Desires
  - 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/level
  - Interview industry partners
  - Mentor HU content implementation
  - Research, Validation, and Publication

Objectives
- Actively Engaged Stakeholders
- VITAL Vertically Integrated Teaching and Learning
- Diversity for Mutual Gain

Partner for Success!
Foundational Values
Navigating Computing Systems
Technical Interviews, Jobs, and Careers

Informal Curriculum
- Faculty Staff Advising Students
- Boise State University RED Team

Partnership for Success
- A person engaged in threading HU content
- Industry Knowledge, Skills, and Abilities (KSA) developed the KSA categories and desired outcomes shown below.

Knowledge, Skills & Abilities

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

Challenges
- Ingrained biases and comfort zones
- Building student and faculty buy-in and participation
- Logistical: 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 need 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.

Hatchery Curriculum Map

- CS 121/121L Computer Science I
- CS 121 Computer Science II
- CS 321/321L Computers Systems & Software
- CS 322 Software Engineering
- CS 323/323L Computer Science III
- CS 324/324L Data Structures & Algorithms
- CS 325 Operating Systems
- CS 326 Programming Languages
- CS 327 Introduction to Theory of Computation

"Partnership for Success!"

"...every bit of computer science touches and affects society. We need 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..."