Idaho Science Talent Expansion Program 2013: Increasing Student Success Through Student Support, Improved Instruction
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The Idaho STEP program at Boise State University implements best practice approaches to improve FTFT student retention in STEM majors. These include (1) faculty development learning communities that promote teaching in introductory STEM courses; (2) a self-paced mathematics learning module focusing on algebra, pre-calculus, and calculus skill refreshment and development; (3) Freshmen undergraduate research in STEM labs (15 students per year); and (4) 5 day outdoor adventure for math and science enrichment. Idaho STEP completed its third year in December 2012.

Program Components

Academic Programs:
• Faculty Learning Community (FLC)
  ✓ Year long seminar for STEM instructors
  ✓ Focus on curricular & instructional change
  2 cohorts 17 faculty
• ALEKS® Mathematics Learning
  ✓ Optional, self paced modules
  ✓ Supplement algebra - calculus
  200 students / Year

Advising & Mentoring:
• Improved FTFT Summer Orientation
  ✓ Departmental advisors
  ✓ STEM group registration
  400 students / Year
• UG Research
  ✓ Connection to major through lab experience
  ✓ Seminar to build transition and success skills
  38 total students

Community & Identity:
• STEM Summer Adventure
  ✓ Goal: community building
  ✓ 17 students, 1 seminar course
  ✓ Focus on URM, women
  21 total students

Assessments & Benchmarks

Community Goals
➢ Improving instructional practices to increase student learning
➢ Innovate calculus structures within which these practices can occur

C or better Rates
➢ Increase number of users
➢ Demonstrate success if persist with module

Advising & Mentoring:

Create STEM Identity
➢ Integrated STEM orientation and advising experience; identify STEM resources
➢ Campus wide recognition of STEM students as a group of high community value and potential.

Increase Retention
➢ Increase network size
➢ Retention in STEM Major

UG Research began in fall 2010 with 9 students; the average FTFT STEM retention is 90% into the sophomore year.

Data, Status & Results

1st cohort demonstrated increased reflection and exploration of new pedagogies during the year of the FLC. Current cohort exploring possible changes in how calculus is coordinated and taught. Building widespread understanding of need to integrate calculus with other STEM disciplines. Proposals emerging to create a coordinated “first year STEM” academic experience.

Retention & Success
➢ Goal: Increase FTFT retention by at least 15%
➢ Student engagement questions used to measure engagement

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Fall 2010-12: 20hr ALEKS users 86% pass rate, <20 70% pass rate

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There was a statistically significant difference for Summer Adventure participants, χ²(3,N=12)=8.8, p=.001
➢ 75% of year 1 participants remain in STEM
➢ 88% of year 2 participants had C or better in math, a strong retention indicator

Poster format adapted from Bridgewater State University poster presented at the 2013 STEP annual meeting

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