



Closing the Education Gap in Math and Science for Rural High School Students with SB0169A

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Rural Student Need and Potential Number of Students Impacted

- Few Small Rural Schools offer math and hard-science courses that successfully prepare students for degree programs in science technology, engineering or math.
- Without those math and science courses students do not qualify for the AK Merit Scholarship (4 years of math and 3 of science or 3 years of math and 4 of science)
- Estimated Potential Pool: 548 students graduated from AK secondary schools with 10 or fewer graduates in 2011 (excluding the Anchorage, Fairbanks, Juneau and Ketchikan districts). Roughly 350 from the UAF CRCSD Region. (<http://www.eed.state.ak.us/stats/>)

UA dual-credit distance delivery:

- Currently, UA (CRCD and others) delivers dual-credit course math and science interactively via internet to rural secondary students in small schools (primarily math and Tech Prep). This could be expanded to accommodate more students.
- No other institution has the instructor and knowledge base, along with the delivery infrastructure to deliver math and science courses via distance to rural villages as effectively.
- However: UA Tuition costs are a barrier for many rural HS students; Tuition support for secondary students is currently not consistent across school districts.
- SB0169 addresses tuition need for rural students, this tuition provides revenue to the university to help support expansion of delivery of the needed courses.

A model for e-Delivery of dual-credit lab science courses to small village schools:

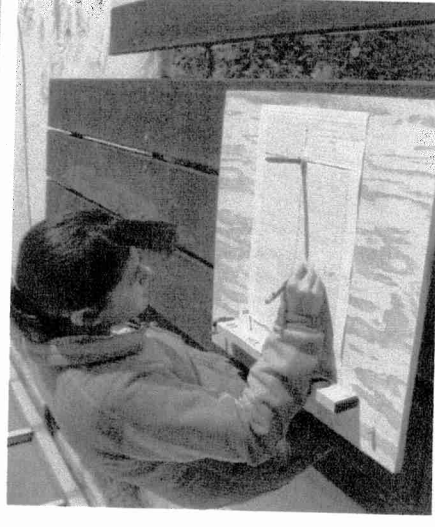
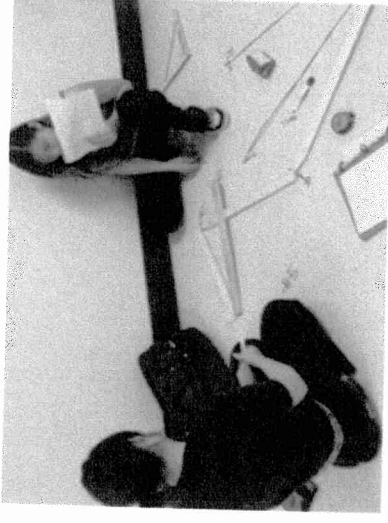
- *Bush Physics for the 21st Century*, (after the Northern colloquial term “*Bush*” meaning wilderness), is aimed at early college and high school students in the remote and often road-less villages of Alaska.
- Introduces the basic physics that explains the natural world with examples familiar to students in modern rural Alaska
- Cultural and place-based connection
- Stresses problem solving necessary for success in university science and math
- Direct delivery via Video-conference course content posted on web-based Black-Board™ , lecture videos available for download.
- Tutorial homework sessions using interactive internet classroom e-live™ (interaction is important for success).
- Course bridges semesters: late-start/early-end with a two week spring break to fit varied school schedules
- 6 credit course translates to one year of high school science
- Three-part laboratory component



Laboratory Component for Bush Physics

The laboratory segment consists of 3 components:

- 1) A series of weekly lab introductions (Simple hands-on-lab experiment kits are shipped to the students).
- 2) An in-depth experimental session (guided by an instructor or mentor)
- 3) A group collaborative experiment where they coordinate times of sun angle measurements with teams in other villages to determine their latitude.



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Supporting the Education of Rural Students Across the State
for Careers in Science, Technology, Engineering and
Mathematics
for the Future of All of Alaska

