Project DEM BONES: Using dead critters to attract high school students to college level science

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Project DEM BONES

Support provided by:
Innovative ways to promote science education at key levels

Question:
How do we keep secondary students interested in math and science at a tertiary level?

Answer:
Develop hands-on innovative curricula that target recruitment to higher education.
Anomaly #1 - college going

Proportion of Recent High School Graduates Attending College

Borrowed from D. Thomas
Other Concerns

1. That Alaska is almost last in the US for the proportion of HS graduates who go to college. The State and BOR have charged us to move up on that list.

2. That Alaskans want UA to act as a system... cross transfer of credits, collaborative teaching across MAUs, common research programs.

From M. Castellini
SDI Themes

• Student Achievement and Attainment
• Productive Partnerships With Alaska’s Schools
• Productive Partnerships with Public Entities and Private Industries
• Research and Development to Sustain Alaska’s Communities and Economic Growth
• Accountability to The People of Alaska
Genesis of the Idea

Distinctive Education in Motion: Biodiversity Of Nature and Environmental Stewardship
DEM BONES

Currently offered at UAF as FISH 100

• Syllabus
• Science Standards
• Exam: written paper
DEM BONES

A  Science as Inquiry and Process
A student should understand and be able to apply the processes and applications of scientific inquiry.

C  Concepts of Life Science
A student should understand and be able to apply the concepts, models, theories, facts, evidence, systems, and processes of life science.

E  Science and Technology
A student should understand the relationships among science, technology, and society.

F  Cultural, Social, Personal Perspectives and Sciences
A student should understand the dynamic relationships among scientific, cultural, social, and personal perspectives.

- http://www.eed.state.ak.us/contentstandards/Science.html
Why articulate in the classroom?

- Hands-on!
- Promotes teamwork!
- Connects students to UA!
Why articulate in the classroom?

• Discreet process with clear beginning and end
• Great opportunity to cross curriculum with one project
• Tangible end product!
Harvest the skeleton
Sort and clean the bones

Lay out and understand the anatomy
Gluing Bones

Hanging the skeleton

Lectures include anatomy, physiology, ecology, cultural uses, and marine policy
DEM BONES

- Spring 2011 - Sea Otter - 16 students - all for UAF Credit
- Spring 2012 - 2 Sea Lions - 40 students - 35 for UAF Credit
- Spring 2013 - Harbor seal/sea lion - 33 students - 30 for UAF Credit
- Sitka Sound Science Center - Summer 2011 Making Waves Science Camp - 14 middle school students
- Sitka Sound Science Center - Community class for Orca Articulation - 11 students (ages 7-70)
Highlights

• School District and community very supportive
• 2nd highest enrollment in Fisheries Division and 3rd highest in SFOS
• Student responses:

“This class was such an amazing experience and for me and I learned so much in so little time and it has really made me reconsider what I want to do in college.” Jordyn Campbell - 2011

“Extraordinary, is the only way to describe it. I’m glad to be able to be part of this class and have had the chance to build this skeleton. “ Destry Lietz - 2012

“The process of articulating a skeleton is a wonderful way to learn the anatomy of an animal. The hands on learning style solidifies the information and helps to be able to apply it. I have learned much more from participating in the articulation of the California sea lion than I ever would have from a textbook.” Emilyanne Lohrey - 2013
Challenges

1. Funding source not stable:
   2011 - CTC - Instructor raised funds for full tuition and TA
   2012 - CTC Co-Sponsored course, reduced tuition, grant funded, SFOS TA
   2013 - SFOS Co-Sponsored course, reduced tuition, student and school funded, SFOS TA
   2014 - SFOS Co-Sponsored course, reduced tuition, student and school funded, no TA

2. Unusual for administration
   CTC and SFOS manage differently

3. Inability to respond to all communities that want the class.
What does a program like DEMBONES do for students?

1. Gives them a connection to the UA System

2. Makes college less distant and scary

3. Gives the message that their education is in their hands, and is fun!

4. Is an opportunity to network and introduces professional development
What does a program like DEM BONES do for UAF(S)?

1. Is a form of targeted recruiting
2. Reaches out to prospective students in a non-traditional way
3. Promotes science inquiry at a personal and meaningful level
4. Grad students gain connections with high school programs
Suggestions to further implement SDI

1. Encourage and support co-sponsored and tech-prep classes
2. Incentivize faculty outreach at non-traditional levels
3. Discourage silo thinking both within schools and MAUs
Questions?