



6 May 2013

To: Senate President Peter Courtney
House Speaker Tina Kotek and Co-Chair
Sen. Richard Devlin, Co-Chair
Rep. Peter Buckley, Co-Chair
Sen. Fred Girod, Co-Chair
Rep. Val Hoyle
Rep. Greg Smith
Rep. Nancy Nathanson
Rep. John Huffman

From: Dr. Dean Livelybrooks, co-director, University of Oregon STEM Careers through Outreach, Research and Education (STEM CORE) center

Re: SB 5506: Science Commons and Research Library Capital Construction G-Bond Request

Dear Leadership and Co-Chairs,

I am a geophysicist, physics faculty member, and 16-year school board member (the mighty Crow-Applegate-Lorane SD) leading activities throughout the state to increase the production of science, technology, engineering and math (STEM) 2- and 4-year graduates. This effort starts at the K-12 level, so for ten years we have placed science graduate students alongside teachers in classrooms using hands-on, inquiry-driven curricula in Lane County and in the InterMountain ESD service area. In addition, we are working with Lane County teachers, who are visiting STEM work sites to capture the 'look and feel' of STEM careers and develop this within grade 5-10 projects-based curricula. For the past 5 years, working with 6 Oregon community college campuses, 132 students have undertaken research experiences at the University of Oregon, and then undertaken 'catalytic outreach' on their campuses to influence others to enroll in STEM career pathways.

Many others on the UO campus (and elsewhere in the state) undertake similar activities, for example Jill Baxter of the UO College of Education has worked with elementary teachers to build stronger connections between math, language arts and science, all of which are critical to Oregon phasing in use of the Common Core State Standards and the Next Generation Science Standards. So in late 2011 we formed a center, STEM CORE, to organize efforts not only across campus, but with K-12 partners, STEM industry and government partners.

STEM CORE members have identified key strategies for doubling the number of STEM graduates statewide by 2030, including: near-peer mentoring that crosses institutional boundaries, imparting a sense of how math, communications, science and engineering are intertwined in the STEM workplace, supporting inclusion of high tech. apparatus in classrooms through regional STEM education support centers, and by helping high school students grapple with, make sense of, and advocate using data from the real world.

The proposed UO Science Commons and Research Library would support our development of these strategies. For example, a 'big data room,' with many megapixel displays, data visualization tools, and facilities to teach scientific programming to high school and university students would help us develop data skills within STEM career pathways. High school students would attend workshops held there and

DEPARTMENT OF PHYSICS

1274 University of Oregon, Eugene OR 97403-1274

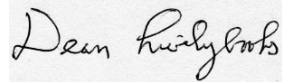
T (541) 346-4751 F (541) 346-5861 www.physics.uoregon.edu

co-led by STEM undergraduates and graduate students providing opportunities for near-peer mentoring, with K-12 students interacting in meaningful ways with students just ahead of them on the STEM path. This facility could be used otherwise for public outreach, become part of the campus tour, engaging visitors with interpretations of data that help them understand their natural surroundings. Another element of the UO Science Commons would be an equipment sharing library that could extend outside the UO. We have pioneered these in Lane County, with a scanning electron microscope that travels to K-12 classrooms, and 'high tech' equipment such as gel electrophoresis kits that were developed with our partners at LifeTechnologies. The Science Commons could hold a lending library of probes, interfaces and loggers that, when used in K-12 classrooms and for informal outreach activities, would model their ubiquitous use in STEM industry and by government scientists. I think you would agree that these are novel and exciting activities that would be ideally supported by a UO Science Commons Research Library. STEM CORE views the advent of this facility as a big boost to our efforts to increase the breadth and depth of STEM talent in Oregon.

Action requested : The legislature should take advantage of this opportunity by amending SB 5506 to include \$8,375,000 XI-G bonds that would be combined with *matching* private matching dollars and other sources to expand and remodel the underground science library to create a new Science Commons and Research Library that would support advanced scientific research.

Thank you for your time and consideration.

Sincerely,



Dean Livelybrooks
Co-Director, STEM CORE, University of Oregon Physics Dept.
Eugene, OR, 97403

also,
25690 Wolf Creek Rd.
Veneta, OR 97487