

## PKAL Summer Institute on Undergraduate Science & Mathematics

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### Creativity

- Creativity should be a goal of student learning. In the 21<sup>st</sup> Century, the Creative Class = Leaders.
- Creativity examines ideas that are habitually incompatible. Building bridges between disciplines is a way to get at some of these habitually incompatible areas.
- Economic success in the future will require risk taking and non-conformity. Note that risk taking entails failure.
- Research into creativity suggests that it can be taught, so the question is: how can we foster creativity in our science curricula at Eckerd? What cultural assumptions within might inhibit attempts to release the creativity of our students?

### Institutional Transformation: Leadership

- What are our key metrics for assessing success in the sciences what are our priorities?
- Our metrics should be related to the future.
- Need systems within Eckerd to promote & support change. This would take into account issues such as credit hour system, teaching loads, mentoring, reward systems, hiring, etc.
- We must create the right leadership culture with respect to institutional change.
- We need to be “strategic” in leading change in the sciences.
- There is a critical need for understanding our current situation and need for change; we need a shared understanding of key success factors in driving strategic change. we need to understand the context of leadership in academia.

### Cross-Departmental Conversations About How Students Learn

- We typically identify ourselves by discipline and sub-discipline. We say, “I am a professor of . . . “ We need to think differently about this.
- What is learning? Want to connect discussions of student learning with the larger goal of transforming institutions.
- Become familiar with the literature on student learning and cognitive psychology.
- Students need to acquire meta-cognition skills to guide their own learning.

### Assessment of Summer Research

- We should assess our Natural Sciences Summer Research Program. See: Lopatto, D. (2004). Survey of Undergraduate Research Experiences (SURE): First findings. *Cell Biology Education*, 3, 270-277.

### The Civic Scientist

- The idea behind the civic scientist is “to get scientists more broadly involved in the society that was built in their insight and intellect.”
- How to become a civic scientist: run for the school board; be involved in science & the media.