The Purpose of University Research

-and its applicability to future job performance

Audience: Chemistry (and other science) Majors with emphasis toward new research students.

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Research Goal 1: Advancement

- Advance the Field
- Increase Knowledge
- Improve Processes
- Combine Disciplines
- Enhance the Utility of Theory
- Develop Methods
- Optimize Methods
Research Goal 2: Advance the Student

Knowledge and Comprehension
- Undergraduate years 1-2
  - Define, Describe, List, Identify, Recognize
  - Explain, Distinguish, Discuss

Application and Analysis
- Undergraduate year 3-4
  - Solve, Apply, Develop, Report, Demonstrate, Analyze, Select, Organize, Compare, Contrast, Illustrate, Formulate, Deliver, Direct, Identify

Synthesis
- Undergraduate yr 3-4
  - Specify
  - Relate
  - Explain
  - Execute

- Graduate year 1
  - Create
  - Design
  - Plan
  - Compose
  - Integrate
  - Construct
  - Adapt

Evaluation
- Graduate year 1/2
  - Evaluate
  - Appraise
  - Criticize
  - Decide
  - Defend
  - Judge
  - Justify
  - Assess
  - Self-assess

From Appendix F of the Civil Engineering Body of Knowledge for the 21st Century: An adaptation of Bloom's Taxonomy of Educational Objectives
Over-Arching Outcomes

- **Self-Motivated**
  - Completes a given set of tasks without constant reminders.
  - *Expected* level of performance *at year 3* of undergraduate studies.

- **Self-Directed**
  - *Evaluates* a given set of tasks,
  - *Identifies* what logical tasks are missing,
  - Completes them too.
  - *Desired* level of performance of seniors.
  - *Expected* level of performance of graduate students.
  - *Expected* level of performance *on the job.*

Notice that self-directed effort should begin during the undergraduate years, or the transition to graduate studies will be difficult!
It is up to you to take advantage of the technical university experience.

There are 268 chemistry majors out of 17,214 students at SHSU; 98% of students have chosen a different road.*

“I took the road less traveled by, and that has made all the difference.” – Robert Frost

“You are on track to become an independent contributor, a thinker, a cog in the world’s creative engine. You will be missed if you never develop.” – DLW

*2010 numbers.
Choosing a Major

• Choose the MOST DIFFICULT degree that you can handle because you have hundreds of faculty members who are investing in your success!
• The escalators represent the assistance you receive as you progress through a degree program.
• You still have to work hard making the transition to an independent contributor.
• The ladders represent the lonely work of advancement in the workplace. It is just as difficult as the most difficult university degree.
• This is life. There are no easy paths.

But some paths are immensely enjoyable!!

Salary progression based upon the chemistry job opportunities.