Classroom Lessons From Geoscience Undergraduate Research and Presentations

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BAYLOR UNIVERSITY
MONDAY 10-23-17

Undergraduate Research Poster Presenters
Presentation Overview

Geosciences Research Lessons Learned

- What Worked: Eight Learning Areas
- Improvements: Four Key Thoughts
- Baylor wide undergraduate research

Conclusions

- Key Learnings and Next Steps
Eight Learning Areas

- Motivation
- Template
- Scientific Method
- Weekly Deadlines
- Presenting
- Diversity
- Portfolio
- Faculty
Motivation

- Student’s Topic
- Discussed teacher
- Weekly Updated
- Displayed
- Evaluated
Baylor’s Undergraduate Research

Other Undergraduate Disciplines

1. Economics
2. Engineering
3. Communications
4. Religion
5. Family and Consumer Sciences
6. Modern Foreign Languages
7. Statistics
8. Family and Consumer Sciences
9. Health, Human Performance and Recreation
10. Physics
11. Psychology
12. Chemistry

Baylor Wide

Geo

Department of Geosciences
College of Arts and Sciences
Template

- Starting Point
- Key Areas
- Just Start
- Works for Most Projects
- Compare and Contrast
- Format Challenges
- Best Practices
Scientific Method

Abstract
Purpose
Introduction
Data
Interpretation
Conclusions

Each Week We’ll Focus on each part of your poster
You’ll present class to keep current

Abstract Due Before Research Completed
Tension or Balance: Each Section Vs Overall View
Scientific Method

- Details
- Provided Sections
- Explanation
- Guidance
- Discuss Each Week

Reference: Abacus.bates.edu
Weekly Deadlines

Assignments

- Topic Agreement: 1/24/17
- Abstract to Wayne: 1/31/17
- Abstract Submitted: 2/7/17
- Class Progress Updates
- Poster to Wayne: 3/21/17
- Poster Displayed: 3/29/17

Timing

- Abstract Submitted: 2/7/17
- Class Progress Updates
- Poster to Wayne: 3/21/17
- Poster Displayed: 3/29/17

40% of Grade

60% of Class Grade
### Weekly Deadlines

**March - April 2017**

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
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<tbody>
<tr>
<td>Mar 12</td>
<td>13</td>
<td>14</td>
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<td>16</td>
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<td>18</td>
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<tr>
<td>GSA South-Central Section; Omni San Antonio, TX</td>
<td>12:30pm Research and Presentation Class; D.110</td>
<td>12:00pm MG; Bee Friendly Gardening; Arboretum</td>
<td>12:00pm Joe and Wayne BPAI Update Meeting; Joe’s Office; Hawkes, Waco</td>
<td>12:00pm Joe and Wayne BPAI Update Meeting; Joe’s Office; Hawkes, Waco</td>
<td>12:00pm Joe and Wayne BPAI Update Meeting; Joe’s Office; Hawkes, Waco</td>
<td>8:30am March 25 - Riana will talk about Vegetables and Jean Carothers will speak about Basket Gardening; Waco Library Bosque Behind Cotton Patch</td>
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**Today**

- **No Class, if Poster Printed**

**Next**

- **No Class, if Poster Printed**

**Finalizing**

- 12:00pm Hydro Team Meeting Across from Joe’s Office
- 12:00pm Updates on Water

**Printing**

- 12:00pm Hydro Team Meeting Across from Joe’s Office
- 3:00pm The Untold Story of the...

**Poster Details**

- Email information about poster display

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Presentations

- Each Student To Present
- Small Class Size: About Ten
- Peer to Peer Improvement
  - Like the Work Place
  - Students Added Things I Missed
Diversity of Topics

Stratigraphy

Magnetostratigraphy of the lower Paleocene upper Nacimiento Formation

TYLER LEGGETT

2-21-17

Compare & Contrast

Igneous Petrology

A Comparison of Water Geomorphic Features on Mars and Earth

Kathryn Hoffman, Baylor University

Equipment Development

Feasibility Study for Development of Sensor Array to Record Spatiotemporal Seabed Current Conditions in Real-Time

Aleem Goelani, Baylor University

Abstract

Problems

Methods

Results

Introduction

No Empirical Data

Data Loss

Data Loss Resulted by Travelers

Conclusions

References

Site Assessment

On and Off Site Subsurface Assessment of Potential Environmental Impacts of Trichloroethylene and Dichloroethane at Former Canada Dry Bottling Facility in Endicott, New York

Daleon Mikes, Baylor University

Abstract

Methods

Discussion

Introduction

Results

Conclusions

References

Petroleum Geology

A Case Study of a Horizontal Well Completion Project and Measured Production Changes in a Re-entered Well, Fayette County, Texas

Hao Xing, Po, Baylor University

Abstract

Methods

Results

Conclusions

References
Internships & Careers

Graduate School
Most common problem

Not telling a story

Clear and Logical

Peer to Peer
Teacher’s Input

- Coaching but **not doing**
- Rewriting and Rewriting
- Organization
- Logical

Wayne’s comments, 1-31-16

Author: Kolton Sundquist
Post Title:

Abstract

Research in the geological aspects of land use planning is extremely important for the safest and most environmentally conscious development of the natural environment for use in urban building. The implication of safely using natural land for building purposes affects everyone that comes into contact with urban structures around the globe. The research being done involves a specific case study in Malibu, California, in which costal landslides led to the destruction of houses after the cliff side on which they were built had collapsed. In order to confront, contain, and eliminate the problem of losing urban structures due to landslides as a result of poor land use planning, the affected areas must be studied and the geological data collected must be used in the future land use of similar sites. The geological data collected from various sources will then be compiled and studied in order to determine the underlying geological constraints for the region. By studying the affected areas and using geological data collected a conclusion regarding the potential hazards and geological constraints of the area in question can be made. Proper land use planning and preventative measures can then be taken using the geological data compiled on the landslide sites found in Malibu. The resulting conclusions may also be applied to the improvement of land planning on sites with deferring geographical settings but similar geological make up at the case study site.

Did a very quick review...saw this link. Looks like there is enough information for your research topic. http://www.malibugeology.com/articles.html
Research Stages

- **Beginning Excitement**
- **Completed Elation**
- **Problems to Solutions**

- **Enthusiasm**
  - High
  - Low

- **Time**
  - Start
  - End

- **Unexpected Occurs**
- **Solving Problems**
Poster “Etiquette”

- **Dialog** with
  - Visitors
    - Non-Geosciences
    - Faculty
    - Students
  - Judges

- “Dead Time” at poster
  - How to Keep motivated?
Summary

- Lessons Learning
  - Student Motivation
  - Teacher Leadership

- Improvement Areas
  - Writing and Rewriting
  - Etiquette

- Long Term Benefits
  - Graduate School/Career
Poster: On the Cutting Edge: Fifteen Years of Impacts on Geoscience Education

Monday, October 23, 4:30-6:30 p.m.

Booth 180
Poster 163-12

TEACHING A SUBSURFACE SIMULATED SUBJECT OUTDOORS: HOW TO LEVERAGE TIME FOR FIELD HYDROGEOLOGY