

# Chopping carrots and washing dishes: it's not just about geology

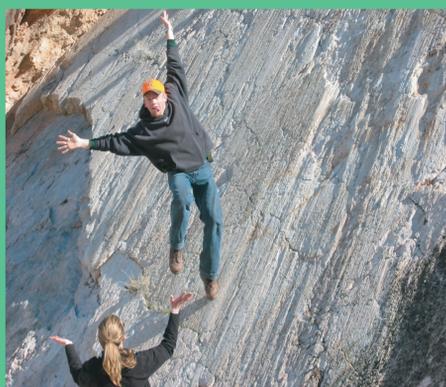
Geology at St. Thomas: building community, teaching effectively, helping students succeed

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## An example of building community and good teaching

### J-term: a month-long introductory field methods course for major, minors, and non-majors

- similar curriculum as the first half of a traditional summer field course: mapping, measuring sections, exercises at Zion and Death Valley
- includes camping, cooking together, campfires and singing, dune wrestling
- offered every year (*students say this is key to capitalize on interest generated in intro courses!*)
- prereq: one intro geo course!  
*It's timing in the curriculum is very intentional: get students in the field early because that's where the best learning occurs*
- upper-division courses are more successful because students build a strong foundation in the basics during J-term



Students cite this course and field labs of on-campus courses as critical. They get to know the profs, get to make good friends, have fun and learn a ton:

*"I learned more in J-term than any other course I've had at St. Thomas. I wish every course could be taught like this one."*

*"J-term clinched it."*

*"Field trips provide awesome bonding experiences, funny memories and hands-on learning."*

*"After the Nevada J-term, I've become pretty certain that I'll pursue this field."*

-student comments



## Examples of good teaching

### Our curriculum dictates careful planning:

1. Most upper-division courses are offered every other year.
2. A student has to be able to complete the degree in two years. Most geology majors declare their sophomore spring or junior summer.
3. Because of these 2 factors, most students do not take the major "in order". We thus have to plan each course to serve a range of backgrounds.

*"At first I was very skeptical about this course and did not like the lack of lecturing. But when I didn't have to study for the final, I realized I had learned a lot and that the format worked well."*

*"I like that the final project for each module guides what we do and all activities/exercises build toward that goal."*

-students from Fundamentals of the Lithosphere, our junior-level, year long course that replaces structure and petrology, and incorporates tectonics. The course was redesigned and uses a case study/World Tour of classic examples of tectonic settings to explore rock-forming and structural processes.



Having fun, getting to know each other and learning tons on the data-gathering field project for Fundamentals of the Lithosphere, Northern MN

## What the students say:

We asked our majors: "Why did you choose this major? What are we doing that makes this department work?..."

they said:

- It feels like a family
- Profs know and care about students
- Good teaching
- Geology is linked to the real world

specifically, they said:

1. the outdoor, hands-on field labs in all classes
2. faculty are interested in their discipline and in the "science" of teaching
3. faculty accommodate a range of backgrounds among students with a focus on problem-solving and project-based courses
4. faculty incorporate into the curriculum and department activities how geology relates to the real world, what you can do with a degree and what you need to know to get a job
5. research and work opportunities during J-term and summer
6. all the full-time faculty teach intro and so you see the same professors again in the upper-division courses
7. the small size of the department, feels like a family
8. the department attitude that you don't have to be a "genius" to be a scientist, that anyone can do it, is supportive of students
9. Faculty help with career planning and decision-making
10. **Enthusiasm**



*Getting to know each other... making friends!!*



## More on good teaching

*Our assumption: students are busy and their time spent learning needs to be effective...they agree! they appreciate it!!*

- all faculty have attended NSF and PKAL workshops on teaching, course-design, and curriculum design
- our entire curriculum has been redesigned since 2000
- we continually move further and further away from lecture format and instead use more active-learning techniques
- we discuss pedagogy with students and let them know what the research on learning says
- we actively seek and use student input

## An example of building community, good teaching, and preparing students to succeed in the real world

- students TA for J-term and on-campus courses

- students appreciate getting involved in the department early on and getting to improve their skills by helping with a course
- majors said when they were intro students, the student TAs were their first link/connection to the department



- students participate in "traditional" research opportunities, with faculty on cool projects in cool places
  - students have traveled to Mongolia, Chile, and Minneapolis
  - students have presented this work at AGU and GSA national meetings
- 8 students participated in a "non-traditional" research opportunity:
  - All 3 faculty ran our optional J-term Advanced Field Course as the data collection phase of a research project
  - The required Senior Capstone Course served as the write-up phase
  - The class presented the results at the spring AGU meeting in Montreal