Life after Cal: Adapting to Change and Enjoying your Time in Graduate School

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http://eps.berkeley.edu/~brimhall/Alumni_Student_Forum/Website_Alumni_Student_Forum.htm
Outline

• Background

• My Graduate School Experience/Research

• Life after Graduate School
  • Perspectives on Research Laboratory and Oil & Gas Industry

• Tips/Advice
About Me

• CAL: BA Geology 2012

• University of Nevada, Reno: MS Geophysics 2014

• Internships
  • Lawrence Livermore National Laboratory 2012
  • Chesapeake Energy 2013
My motivation for Grad School

• Originally wanted to work in a Geology-related field with my Bachelor’s degree

• Having a Master’s degree can substitute for years of work experience when applying for a job

• Make connections with an industry-focused school to land a job
Graduate School Timeline

- 06/11: Decided to apply to Graduate School
- 01/12: Submitted all applications
- 04/12: Visited UNR and accepted their offer
- 05/12: Graduated from CAL
- Summer 2012: Worked at Lawrence Livermore National Laboratory
- 08/12: Started at UNR
- 09/12: Switched to Geophysics at UNR
- Summer 2013: Worked at Chesapeake Energy
- 05/14: Expected graduation date
Other UNR student stories

- Became part-time student and worked to stay in desired program
- Stayed in original program, got a teaching assistantship, and is now doing inter-disciplinary research
- It is very important for you to figure out what you want to study!
Nevada Seismological Laboratory

- Research Division within the College of Science at UNR
  - Responsible for instrumental studies of earthquakes in Nevada
  - Lab operates a statewide network of seismographic stations

- Students
  - 8 Graduate students
  - 13 Undergraduate students
  - 2 Postdocs

- 21 Faculty/Staff
My Research

• Investigating the seismicity, stress field, and strain field through the Lake Tahoe/Truckee, CA region
Walker Lane: NW-SE trending right-lateral strike-slip fault zone in Western Great Basin, accommodates ~20% of Pacific-North American plate motion.

Presence of normal and strike-slip faulting indicates transtensional deformation.

Lake Tahoe/Truckee region: transition zone between N-S trending normal faulting of Sierran frontal fault zone and strike-slip faulting of northern Walker Lane.
Generalized Fault Map

Modified from Brothers et al. (2009)
Data

- 21,356 earthquake events in Nevada Seismological Laboratory recorded catalog from 1984 to 2013
- 1,267 events in historical catalog from 1857 to 1983 (dePolo)
Earthquake Relocations

- Locations of 5,634 events between 2000 and present
Focal Mechanisms
Scripps and UNR Research Cruise

- Assess seismic hazard near San Onofre Nuclear Generating Station
Scripps and UNR Research Cruise

- 3D Shallow Marine Seismic Reflection Survey
- P-Cable Survey
A typical day

- Treat it like a 9-5 job
  - Classes
  - Research
  - Homework
  - Seminars
- Usually work one day on the weekend
Around the office
Coursework prep

• As much Math as possible
• Programming
• Remote Sensing, GIS

• Take classes outside your major
• Math 53, 54
• EPS 109, E7

• Civil Engineering, Environmental Sciences
Courses taken at UNR

- Seismology
  - Predicting strong earthquake ground motion
  - Networking

- Geophysics
  - Applied Geophysics
  - Geodynamics
  - Time Series and Filtering

- Electives
  - Remote Sensing
  - Fortran Programming
Applying to Graduate School

- Search for universities/professors doing research you are interested in, read their papers
- Talk to EPS professors for advice
- Contact potential advisors (email, network at conferences)
- Know the deadlines/Submit all application materials (letters of recommendation, transcripts, essays)
- Visit the professor/campus, talk to current graduate students
Funding

- Don’t be afraid to talk about numbers
- Make sure you get a funding offer in writing
- Teaching Assistant vs Research Assistant
- TA
  - Great teaching experience
  - Improve your communication skills
- RA
  - Get to focus on your research
  - Required to spend a minimum of 20 hrs/week
Attending Conferences

• Great opportunity to view posters and listen to talks about research in your field of interest

• Present your own research and get instant feedback

• Diverse range of attendees with unique perspectives

• American Geophysical Union Fall Meeting

• Seismological Society of America Annual Meeting

• Southern California Earthquake Center Annual Meeting
After Grad School what next?

- With Master’s could go on to PhD program
  - Professor
  - Universities/Research Laboratories
- 5 main industries for Geoscience: Consulting (Environmental, Geotechnical), Construction, Mining, Geothermal, and Oil & Gas
- USGS, State Geological Surveys
- Teaching
  - K-12
  - Community College
Internships

- An extended interview between you and the company
- Valuable experience and allows you to gauge your interest
- Open yourself to more opportunities
- Most are paid!
My summer with Lawrence Livermore National Laboratory
Research Project
How do I work for a Research Lab?

- PhD is usually required
- Depends on focus of lab you are applying to
- Internships with lab definitely help
My summer with Chesapeake Energy
Research Project
Activities
How do I work in Oil?

- Companies are looking for Geoscience Master’s students
- Typically want to hire you for a summer internship after your first year of Grad School

- Job Fairs
  - Rocky Mountain Rendezvous. University of Wyoming, Sept
  - SEG Annual Meeting. Sept/Oct
What I learned from my internships

- Work pace is much faster in industry than in a research laboratory
- Industry usually provides “instant” results related to your work
- In research labs, funding can drive your research
- Learn through talking to other employees outside of your project team
- Communication is extremely important
General Advice

- Gain a different perspective outside of Berkeley
- Get involved in undergraduate research
- Graduate School is demanding but you can do it!
- Don’t be afraid to make a change/take a risk
- Get involved with professional society student chapters or start one up
- There are many paths to Grad School
Thank you!

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