

CAREER AWARENESS AND PREPARATION FOR THE WORKFORCE: USF GEOSCIENCES PROGRAMS AND PARTNERSHIPS, AND LESSONS LEARNED

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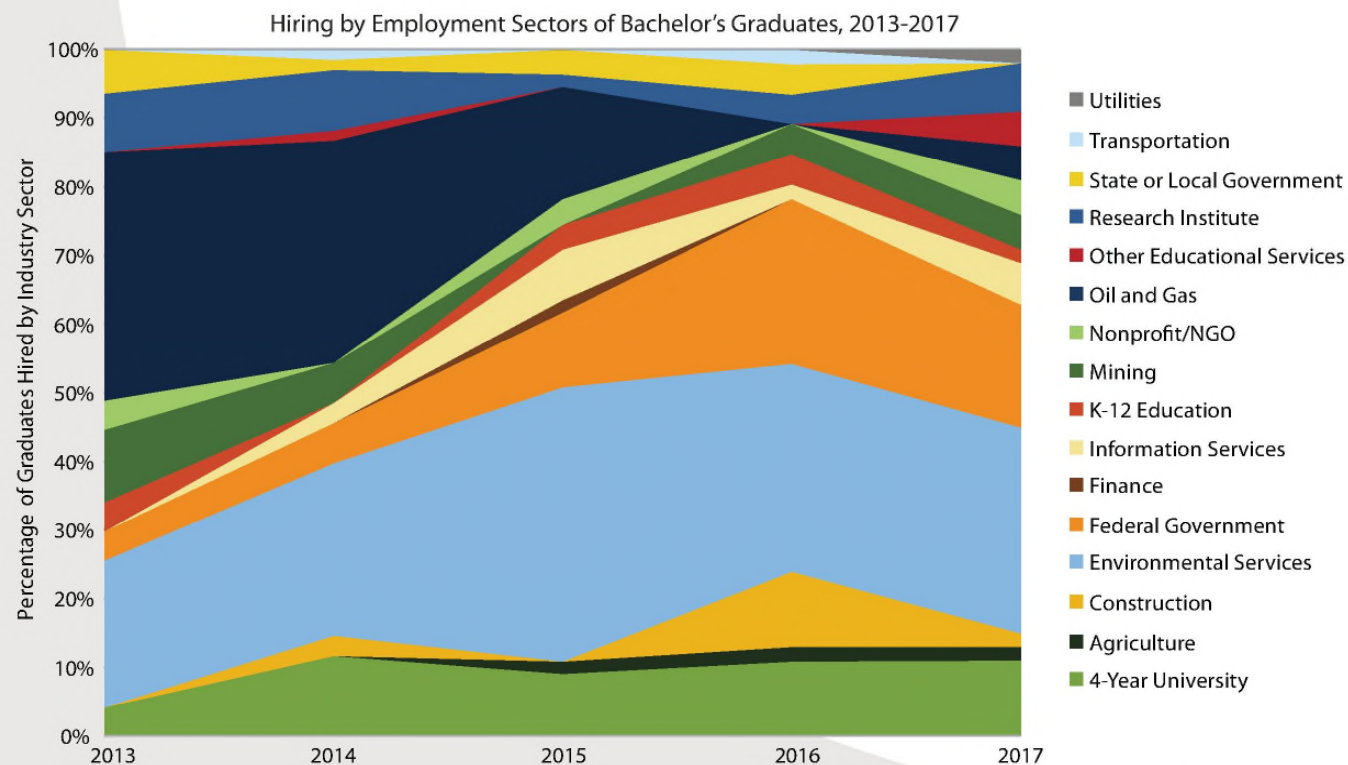
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First, a reality check. Where do students go?

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No.135**

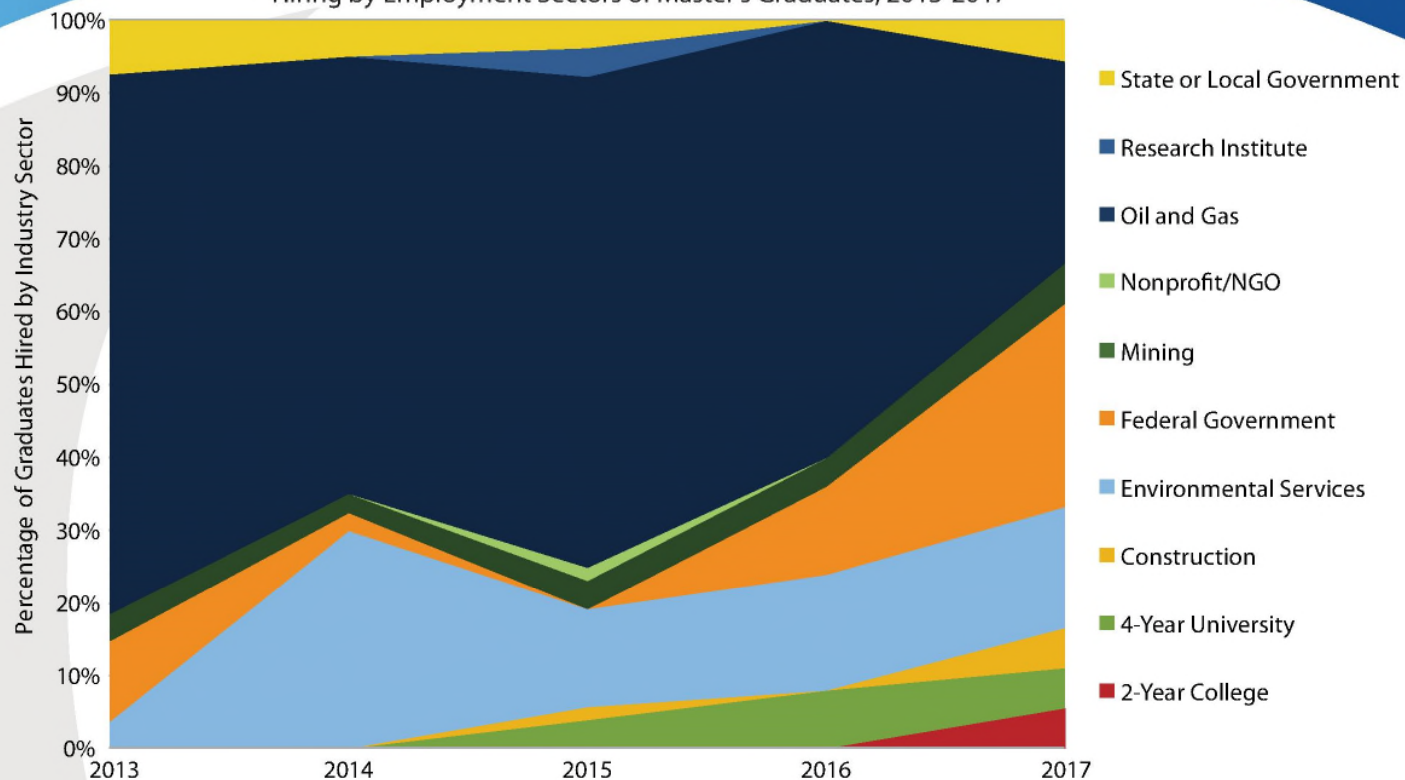
Hiring Trends of Recent Graduates 2013-2017



- Carolyn E. Wilson

First, a reality check. Where do students go?

Hiring by Employment Sectors of Master's Graduates, 2013-2017



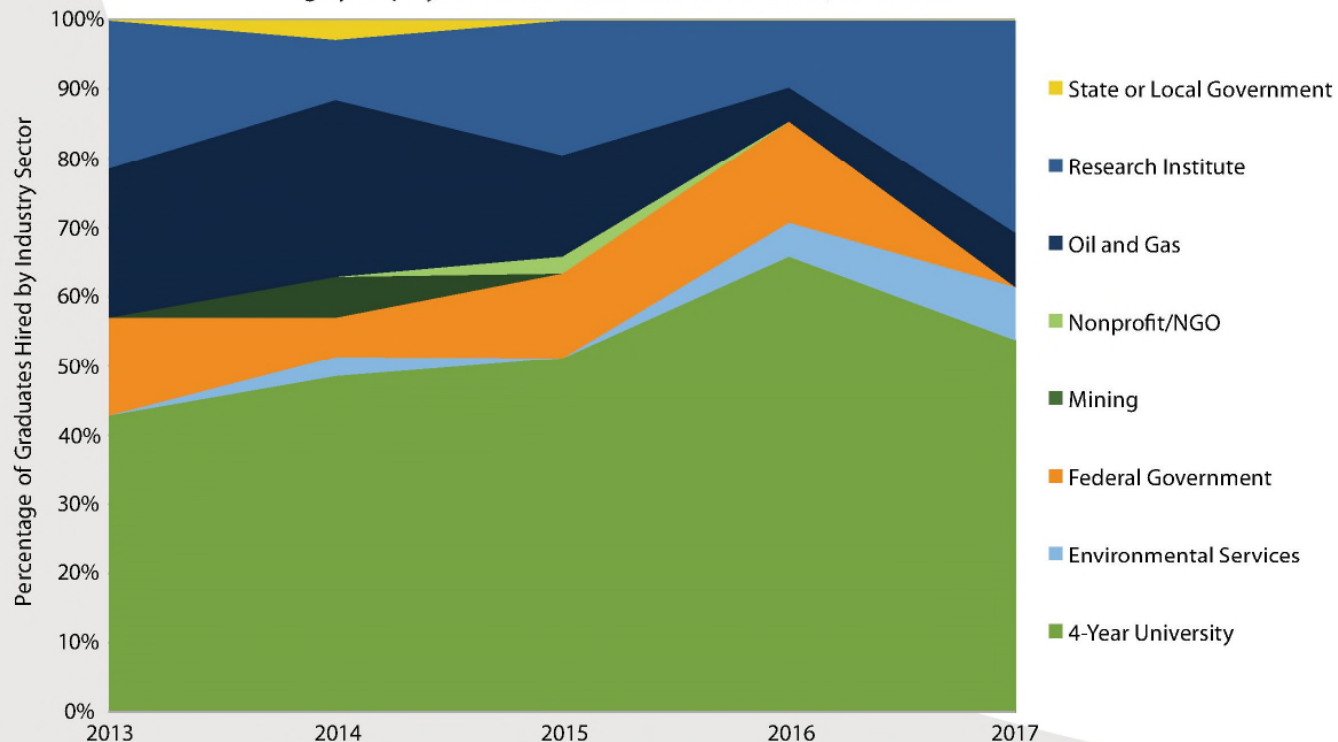
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Hiring Trends of Recent Graduates 2013-2017

Hiring by Employment Sectors of Doctoral Graduates, 2013-2017



CONSENSUS VIEWS*:

- ✗ Professional skills are critical in geoscience graduates, at all levels:
 - + Career awareness
 - + Interpersonal skills (teamwork, cultural awareness)
 - + Professional ethics
 - + Communication (oral and written)
 - + Project management
- ✗ Many of these are not readily amenable to classroom instruction (at least not by “regular” faculty!!)

** Taken from the NSF Summit on Improving Geoscience Graduate Student Preparedness for the Future Workforce, May 2019, Univ of Texas*

A strategy to consider...

- ✗ Engaging local employers and/or your alumni for student professional development (and even instructional) support and assistance
- ✗ A “case study”
 - + Nov. 1997: The USF Geology Alumni Society (GAS) is formally established. Organization of USF Geology graduates working in environmental industries and state/regional/local government. Later expanded to include representatives of local/regional/national firms where USF graduates work
 - ✗ Developed at the behest of our alumni, with USF Geology/Geoscience support

Origins, and a timeline...

- ✖ The University of South Florida has developed course work, programs and partnerships over the past 30 years that have evolved into a vibrant symbiosis between the geology department, the alumni and local and regional employment sectors.

Origins, and a timeline...

- ✖ A critical component of USF's development of course work and ancillary offerings in support of job preparedness is the ongoing interaction with the Geology Alumni Association (GAS).
- ✖ It's worth a few minutes of this presentation to summarize a timeline and highlight certain milestones to show this evolution.
- ✖ As always, things start small.....

Origins, and a timeline...

- ✗ ~Spring semester, 1997: USF Geology Club (an undergraduate student organization) holds a “networking reception” to learn about local geoscience employment opportunities.
 - + Geology faculty (mostly one faculty member...) contact alumni in local firms, government, etc., to attend.
 - + April 16 - 40+ students and ~25 alumni take part (and faculty too...)
 - ✗ The alumni start talking, to each other, then to that faculty member....
- ✗ **Sept. 25** – Letter to alumni – call for a meeting to possibly form a society.
- ✗ **Oct. 6** – Meeting is held
- ✗ **Oct. 24** – Paperwork is submitted – formal request to form the society
- ✗ **Nov. 5, 1997:** The USF Geology Alumni Society (GAS) is formally established within the the USF Alumni Association.

Origins, and a timeline...

- ✘ The paperwork submitted to the University requesting formation of the GAS was prescient in several ways – it included the following as the initial purpose for the formation of the society:
 - + Networking with fellow USF geologists
 - + Recruiting USF geology students for employment
 - + Joint activities with the USF Geology Club
 - + Mentoring USF Geology students, and.....
 - + PROFESSIONAL EVENTS AND CONTINUING EDUCATION

Alumni-Employer-Student-Faculty partnering...

Direct engagement and communication with USF Geoscience student organizations



Geology Alumni Society Meeting Minutes

Date: 7 May 2014

Start Time: 18:05

Attendees:

Dr. Bruce Nocita	
Dr. Len Vacher	
Dr. Jeff Ryan	
Katie Giglio	USF Faculty Alumni Representative, Liaison
Ann Sava	Commencement Chair
Ophelia George	
Jon Hull	
Eileen Rodriguez	
Dr. Dorian McGee	
Matt Wissler	

Facilitating employer-student contacts and networking, at all GAS events

More direct partnering with the department on events (graduation receptions)

1) Approval of minutes from last meeting

- Meeting minutes were approved.

2) Old Business

Explicit employer partnerships on courses and curricula (USF PGSM in Geology; Professional Advisory Committee; courses on Professional Geology and Careers in the Geosciences)

- Workshop was held on 17 April 2014.
- 8 students attended (6 undergraduate and 2 graduate students).
- Food was provided.
- Tampa Bay Area Environmental Professionals (TBAEP) also has resume workshop recently. Next year's workshop should be scheduled at a different time (not in the spring).

c. Spring Graduation Reception (Ann Sava)

- Reception held on 3 May 2014 (day after graduation) at the Natural Earth Science (NES) Building.
- 14 students attended (included one student from the ESP program). Friends of graduates also attended.
- There were more attendees than RSVPs received. For future receptions, a proper headcount will be needed.

d. Professional Science Masters Symposium (Dr. Len Vacher)

- PSM Symposium was held on 23 April 2014 following Dr. Pasek's class at the Chemistry Building.
- 4 Geology Alums and the next 4 PSM students were in attendance.
- The presentation was instructive and underscored the value of inclusion of the alumni in the review process.

SS

a. Geology Club Update (Ophelia George)

- No update.

b. GGSO Update (Ophelia George)

- Spring Picnic was held on 3 May 2014 at the USF Riverside Park.
- Turnout was excellent.

c. Field School (Dr. Bruce Nocita, Dr. Jeff Ryan and Jon Hull)

- Jon Hull sent out e-mail blast soliciting donations for the Field School fund earlier in the week.
- 30 students are enrolled in the Field School.
- The Field School fund is not available but is likely around \$3,000.
- Alumni Danny Lindsay was hired by the Geology Department to serve as assistant and will travel with students and instructors to Field Camp at the end of the semester.
- The increased size of Field Camp has increased the potential liability concern for the department.
- Increased focus on health and safety has been initiated with First Aid and CPR training for all instructors.
- Students must provide documentation of health insurance prior to departing for Field School.

4) Other Business

a. Dr. Mark Stewart Retirement (Dr. Len Vacher)

the Fall Rockbreaker.
Mary Haney retirement celebration at the
be needed.

Garnering Support for new Departmental initiatives (Field Camp/Field School)

Closing: Dr. Bruce Nocita adjourns meeting.

End Time: 18:45

Professional Masters

- ✖ Preceding, and then parallel with the evolving relationships described above, USF implemented professional MS programs :
 - + 1986 – Hydrogeology Internship
 - + Superseded by the Professional Science Masters (PSM) – ongoing and expanded from just hydrogeology
 - + Both are non-thesis options and the PSM accomadates part-time, working students as much as possible

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USF Professional Science Master's Degree in Geology

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The USF Professional Science Master's Degree in Geology is a non-thesis M.S. degree option that culminates with internship experience with local companies or agencies in the environmental field. This program is appropriate for professionals already working for geoscience companies in the region, and for students interested in pursuing careers in environmental/water science fields. The program requires 27 hours of structured coursework, including a course titled **Introduction to Professional Geology**, and a 3-credit internship project.

Internship projects can focus on professional geology assignments in coastal management, environmental geophysics, environmental geochemistry or hydrogeology. The internship project is typically supervised by a Professional Geologist (PG) and must receive prior approval by the internship coordinator. The curriculum requires a comprehensive exit exam based on coursework and the internship project. Before completing an exit exam, the student must submit an Internship Project Report approved by the supervising PG. The Environmental Geoscience internship committee determines the format of the exam. Normally, the exam format is an oral examination following the student's presentation of the results of the internship project to their committee.

Internship students are expected to present the results of their projects at an evening public meeting hosted by the [Geology Alumni Society](#) at the [Southwest Florida Water Management District](#) (SWFWMD) Tampa office.

For more information about the USF Professional Science Master's Degree in Geology contact our Program Specialist [Jessica Wilson](#) at (813) 974-8188, or by email normanj@usf.edu.

Curriculum

A minimum of 30 credit hours is required. All courses are for 3 graduate credit hours unless otherwise noted.

Recommended Core Courses: 12 hours

Courses born of the USF-Employer partnership:

- Offered since 2015
- Covers both career information and personal academic planning

GLY 6739: INTRODUCTION TO PROFESSIONAL GEOSCIENCE FALL 2019 - COURSE SCHEDULE

2019

8/27/2019	WEEK #1: Introduction The Geology Professional Masters Program. History of and introduction to the USF professional geology network (Geology Alumni Society etc). Introduction to and preview of course.	Bruce Nocita
9/3/2019	WEEK #2: Project Management Principles of project management; complexity and uncertainty of projects; effective project management.	Bruce Nocita
9/10/2019	WEEK #3: Communications in the GeoSciences Business development vs. marketing. What is involved in each; who does it; client relationships; proposals.	Bruce Nocita
9/17/2019	WEEK #4: Networking Event Introduction to professional geologists in Florida: Hydrogeology, coastal geology, geophysics. State, federal, private.	TBA
9/24/2019	WEEK #5: Scoping, budgeting and scheduling a project. Lump sum, time and expenses, and contingency budgeting; how to prepare a budget; how to avoid short falls; change orders; how to track project budgets. Project management software; time and personnel allocations; anticipating scheduling failures.	Tony Grasso; Mike Wightman
10/1/2019	WEEK #6: Project Documentation and Reporting Preparation of field work orders, field notes, data presentation, report writing.	Bruce Nocita
10/8/2019	WEEK #7: Mid-Term Assessment Also, Networking Event discussion.	Bruce Nocita
10/15/2019	WEEK #8: Business Development & Marketing	
10/22/2019	WEEK #9: Liability avoidance What is liability and who is liable; relationship of licensure to liability; government versus private sector protections; general avoidance.	
10/29/2019	WEEK #10: State Geologist Dr. Jonathan Arthur FGS services; FGS Mission and interaction with other State agencies	
11/5/2019	WEEK #11: No class	
11/12/2019	WEEK #12: Business Ethics and Leadership Skills Ethical perspectives; staff/employee management; team building; the role of the manager; time management	Mike Starks, Ron Noble, Gregg Jones
11/19/2019	WEEK #13: Wetlands and GIS Wetland delineation, endangered species, uses of GIS. Professional licensure.	Kim Tapley, Kai Rains
11/26/2019	WEEK #14: P.G. Panel discussion Concept of Professional Geologist. Who, where, and why be licensed; ethical requirements; educational requirements; work requirements; testing; and discipline	Tom Scott; Gabrielle Enos; Adam Forkner
12/3/2019	WEEK #15: Professional Development Technical expertise, administrative duties, budgets, conference presentations, committees, marketing, mentoring, regulatory meetings, professional organization membership/participation.	Bruce Nocita
12/10/2019	WEEK #16: FINAL EXAM	

Central to both courses:
Professional Networking!

GLY 2930-004 Preparing for a Career in Geology (1 credit) Spring 2019

COURSE SCHEDULE (SUBJECT TO CHANGE)

Wed	Topic	Instructor/Panelists
1/9/19	Introduction to Course	
		Bruce Nocita, Teresa Ippolito, Juan Henry
		IS/BA, Tracks, Prerequisites, Sequencing, Strategies. Geology within lands and GIS
		Dr. Greg Herbert, Teresa Ippolito
		Dr. Sarah Kruse, Dr. Chuck Conner, Judy McIlrath, Danny Lindsay
1/30/19	Water Resources	
		Dr. Gregg Jones (Cardno), Jim Guida (Progressive Water Resources), Ron Basso (SWFWMD)
2/6/19	Assessment, Remediation, and Infrastructure	
		Terry Griffin (Cardno), Matt Wissler (Geosyntec), Mike Starks (ERM)
2/13/19	TBA (Banquet on 2/9)	
2/20/19	SWFWMD	
		Brian Armstrong, Sandie Will, Dave Arnold, Jason LaRoche, Julie Zydek
2/27/19	Wetlands, Waters and Geospatial	
		Dr. Kai Rains, Terrie Lee (HSW)
3/6/19	PG and GIT	
		Dr. Tom Scott, Mike Alfieri (WRA), Adam Forkner (S&ME)
3/13/19	SPRING BREAK	
3/20/19	Mineral and Rock Resources	

- Offered since 2010
- Gateway offering to the PGSM program
- A “business of geoscience” course...

Activities, Seminars, Panels, Networking, etc.

- × Banquet – annual
- × Rockbreaker – annual
- × Professional Geology Workshop
- × Resume Workshop – annual since 2008
- × Undergraduate Curriculum Advisory Panel
- × PGSM Internship Symposium
- × Job Fair

Activities, Seminars, Panels, Networking, etc.

- ✖ Equipment Expo – Bi-annual
- ✖ Field Trips
- ✖ Graduation Receptions

20 years later...



SCHOOL OF GEOSCIENCES

USF GEOLOGY ALUMNI SOCIETY 19TH ANNUAL BANQUET



Supporting Fellowships and Scholarships in the USF Geology Program
and the Geology Field Station

SATURDAY - FEBRUARY 9, 2019

TRADITIONS HALL
GIBBONS ALUMNI CENTER, USF TAMPA CAMPUS

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PING WANG



SAM UPCHURCH & TOM SCOTT



JON HULL



Steve Camp & Eileen Rodriguez



So You Think You Want To Be A Professional Earth/Geo Scientist After You Graduate?

Today at 3:30-5pm, the Geology Alumni Association will present a panel discussion on the candid realities of a professional working career in the Geosciences as part of the weekly Colloquium series. The event will be held at the Advanced Visualization Center (AVC), 147 CMC, in the CAS Multidisciplinary Complex (formerly the Physics and Mathematics Building). Here's a link to a [map](#) showing the location of the AVC building in the Multidisciplinary Complex. There is visitor parking in Lot 8B. **A Rock Breaker social will follow at the Beef O'Bradys located in the Marshall Center on campus.**

A six person panel, consisting of USF graduates, will provide insights and perspectives on their personal paths as both professional geologists and geoscientists. Panelists will range from recent graduates to persons with 10 to 25 years of work experience:

- Mr. Craig Kovach, P.G. (Geology BS, 1987)
- Ms. Kathleen Moran, P.G. (Geology BS, 1997)
- Mr. Terry Griffin, P.G. (Geology MS, 1989)
- Mr. Gregg Jones, P.G. (Geology MS, 1988, Current PhD Candidate)
- Ms. Ivana Blankenship (Geography MA, 2008)
- Mr. Ryan Horstman (Environmental Science, 2003)
- Mr. Mike Wightman, P.G. (moderator, MS, 1990)

The moderated discussion will pose such questions as:

- If you could choose a different career, would you?
- What are the keys to being successful in your interview and in your first years with a company or agency?
- What salary should you expect?
- BS/BA versus MS or PhD, obtaining further professional certifications what difference does it make, is it worth the time, expense and effort?
- What courses make a difference?
- What future employers care about; how to make the right first impression.
- What does a company expect from you, and what should you expect from a company?

Sincerely,
Mike Wightman, Event Chair
USF Geology Alumni Society

The USF-Employer-Alumni partnership is now “normal business”, and it continues to grow...

Advice...

- ✘ Must have leadership from key alumni and from Dept. Chair
- ✘ Promote a business style approach
- ✘ It's a different paradigm so build the culture over time
- ✘ Encourage faculty to buy in on the partnering concept by connecting theory with real world application
- ✘ Make sure the students understand the expectations of industry
- ✘ Dept. needs to listen to community and show progress towards developing students that meet the local/regional community and industry needs

Observation:

Many of the professional development and outreach activities led by our geoscience employers via USF-GAS connections (career awareness events, resume/interviewing tutorials, guest lectures, internships, input on/participation in courses and curricula) have been identified by employers as activities on which they could partner with Departments (discussed at length at the NSF Summit in May)

How to do this?

- ✗ **Start VERY small** (for us it was a student-funded afternoon reception/info session with local employers, that then grew...)
- ✗ **Help your alumni re-connect** (with your students and each other)
 - + A faculty “hero” is very helpful...
 - + *If it's worthwhile to do, it's worth assigned time....*
- ✗ **Say “thank you!”** (all the time!)

Thank You

Bruce W. Nocita, Ph.D., P.G.

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