

# ALUMNI SURVEY 2001

## DEPARTMENT OF GEOLOGY AND GEOPHYSICS

### ***INTRODUCTION***

An alumni survey was needed to meet the goals of the Western Association of Schools and Colleges (WASC) review. The University of Hawaii at Manoa (UHM) undertakes an alumni survey only every three years. The last survey was in 2000, and was sent to 1751 students who graduated in 1995. Of the 360 completed responses received none were from graduates of the School of Ocean and Earth Science and Technology (SOEST). Furthermore neither SOEST nor Geology and Geophysics (G&G) have conducted successful alumni surveys.

Alumni surveys from other institutions were examined to create this UHM's G&G survey. The University of Washington (UW) survey was found to best serve our needs. Although this is a general form for all University of Washington undergraduate degree recipients, their questions on the student's present status, income, etc. are concise. The first two sections of the UW survey were amended for G&G usage. Questions with a more specific geological slant were added using examples from State University of New York at Albany G&G survey form.

This new G&G survey was sent out to all 17 of the G&G 1999 and 2000 graduates (except two, whose addresses were unknown) on 10 September 2001. The SOEST Student Services Advisor supplied the names and addresses. A letter from the G&G chair accompanied the survey, with an offer of a free SOEST T-shirt if the alumnus responded. This offer was added because in 1997 the SOEST Student Services Advisor had a poor response rate (3/300) from an alumni survey. Copies of the Chair's letter and the Fall 2001 survey are in Appendix 1.

The response rate to the G&G survey was excellent: 80%. Eight responses were received within three weeks. A follow up letter was sent out in early October, which elicited three more responses. Thus our first alumni survey yielded a remarkable 12 of 15 response.

The survey is divided into three sections. The first section addressed the issue of present employment or post-graduate studying options. If employed questions asked for their monthly income range, relevance of degree to current position, and how they obtained their present situation. If studying, the alumnus was asked where, for what degree and in what field were they studying. If doing neither of the above, they were asked to indicate what they were doing with their time (e.g. childcare, traveling).

The second section asked them to rate their abilities for 10 skills, how important these skills are to their current career activity, and their level of satisfaction with how well UHM trained them for each skill.

The third section requested short answer responses. The alumnus was asked to express opinions on the Department's strengths and weaknesses, courses that should be added as electives or requirements, and what other training they needed or wanted from the Department or University.

## ***RESULTS***

### **SECTION 1:**

#### Gender:

Of the 17 graduates in the 1999-2000 period, 14 were female and 3 were male. No other UHM science program has achieved such a high proportion of female graduates (82%). Of these the two without contact addresses were 1 male and 1 female. Of the 12 who responded 10 were female and 2 male.

#### Year of graduation:

Of the original 17, 6 graduated in 1999 and 11 completed in 2000. Of the respondents 4 were 1999 graduates and 8 were from 2000.

#### Present status:

Ten of these graduates entered the work force.

- 4 work for US for-profit companies
- 3 are involved in K-12 education as teachers
- 2 work for the government
- 1 works for an international company in the US

Type of employment:

- 9 are working full-time
  - six in permanent positions in the G&G field
  - one is in a temporary position as an archaeological technician
  - one is full-time in another field (computer technical trainer)
- 1 is working part time in a variety of jobs as well as attending school part time, 1 did not say

How did they obtain work after graduation:

- 3 obtained work through their faculty advisor
- 2 gained their jobs through networking and personal contacts
- 2 gained employment through the Internet
- 1 gained their position through newspaper advertisements
- 2 did not specify

No one appeared to use the University of Hawaii's Careers Service for assistance.

Job titles:

- Geologist (3)
- Geochemist / Technician (1)
- Teacher (3)
- Archaeological technician (1)
- Technical trainer (1)

Job locations:

Among the employed alumni, most are working in Hawaii (5), two are working in California, one is working in Arizona and one is working in Texas.

Salary:

The average monthly salary is in the \$2300-2800 range (\$27,600 - \$33,600 / year). The 1999 graduates' average monthly salary is in the \$2250-2750 range and for the 2000 graduates the monthly salary range is \$2312-2812. Two are earning less than \$2000 per month, 1 earning in the \$3000-3500 range and one in the \$3500-4000 range (this person is employed in computer training).

Job appropriateness:

Five felt their jobs were appropriate to their education levels and four felt their jobs were beneath their levels. One did not respond.

Ongoing education:

Only two of the employed graduates are doing any study whilst working, one is doing a blend of current career and new area courses, the other is doing career related courses in a new field (computer studies).

Non-employed alumnus

There are two alumnus not employed. One is attending graduate school at UHM undertaking a PhD program in *Marine Geology*, and the other is doing voluntary work in Indiana awaiting acceptance into the graduate program.

**SECTION 2:**

Graduates were asked to rate a list of skills against three criteria: how they perceive their ability for each skill, how important the skill was to their current primary activity, and how satisfied they were with the University of Hawaii's contribution to the development of each skill.

**How graduates saw their skill levels**

<u>Skill</u>	<u>Rating (1=Poor - 5=Excellent)</u>
Working and/or learning independently	4.3
Working cooperatively in a group	4.0
Locating info needed to make decisions	3.8
Working effectively with modern technology	3.7
Using knowledge/ideas/perspectives	3.7
Understanding/applying scientific methods	3.7
Critically analyzing written information	3.5
Defining and solving problems	3.5
Writing effectively	3.3
Speaking effectively	3.3

The skills receiving the most number of excellent rankings were "working and / or learning independently"(6/12) followed by " working cooperatively in a group"(5/12). The students were less confident in their speaking and writing skills. On average, this group ranked their abilities for all skills at good to very good.

### **Ranking of skill as a necessity for their present primary activity**

<u>Skill</u>	<u>Rating (1=Not important-5=Essential)</u>
Locating info to make decisions	4.6
Working effectively with modern technology	4.3
Working cooperatively in a group	4.2
Working and/or learning independently	4.2
Defining and solving problems	3.9
Writing effectively	3.9
Speaking effectively	3.6
Critically analyzing written information	3.5
Using knowledge/ideas/perspectives	3.4
Understanding/applying scientific methods	3.3

The most Essential skills were "working effectively with modern technology" (7/11) and "locating information needed to make decisions / solve problems" (6/11). Most of the skills were considered very important. Surprisingly "understanding and applying scientific principles and methods" received the lowest ranking but received their highest ranking for satisfaction. It is curious that "using knowledge / ideas / perspectives" was not considered as necessary as "locating information to make decisions / solve problems".

### **Satisfaction with UHM's contribution**

<u>Skill</u>	<u>Rating(1=Not at all - 5=Very)</u>
Understanding/applying scientific methods	4.1
Defining and solving problems	3.9
Working cooperatively in a group	3.9
Working and/or learning independently	3.8
Locating info needed to make decisions	3.8
Critically analyzing written information	3.7
Using knowledge/ideas/perspectives	3.7
Writing effectively	3.6
Working effectively with modern technology	3.5
Speaking effectively	3.4

Responses in most categories indicate graduates were "Mostly" satisfied with UHM's contribution to their skills' level. The lowest ranking was for training in speaking effectively.

### Rating of UHM Education

<u>Aspect</u>	<u>Scores (1=Poor - 6=Outstanding)</u>
Quality of instruction in G&G	5.3
Quality of faculty commitment/ help out of class / availability	4.9
Level of advising in G&G	4.9
Level of standards you were held to	4.7
Quality of equipment/facilities	4.7
Opportunities outside classroom	3.9
Selection of courses	3.9
Preparation for employment	2.8

There was a clear shift in responses from "Quality of instruction" that only received Excellent and Outstanding to "Preparation for Employment" where 9 of the 11 respondents selected Good to Poor response options. The responses for "Selection of courses" and "Opportunities outside the classroom" ranged widely over five of the six response options.

The graduates felt that the G&G Department excelled in many categories including instruction, faculty commitment, advising, levels of standards and quality of facilities. The Selection of courses was often considered excellent but many considered it only good. This issue has already been addressed by a major change to the G&G undergraduate curriculum. The weakest overall area was in preparation for employment but the opinions on this issue were the most diverse with many indicating good. This issue remains as an unresolved problem.

### **SECTION 3:**

#### **1. What do you see as the strengths of the Dept. of Geology and Geophysics?**

##### Faculty

- The faculty & staff allowed students to expand
- Enthusiastic instructors and helpful staff
- Help outside the classroom
- Great teachers with lots of experience
- Excellent caring instructors
- Very knowledgeable professors who truly want to share and assist in student's education
- Friendly and supportive atmosphere
- Advising
- Faculty and administration - all helpful and put a lot of time and energy into our education

##### Research

- Knowledge of fields
- Strong research in department really gives students the cutting edge
- Cutting edge technology
- Undergraduate involvement in current research

##### Course work

- Field work (GG305)
- Field trips (hands on learning)
- Classes
- Small class sizes
- Broad range of options within G&G
- Opportunities for all students, including undergrads, to obtain employment and experience within the Department, especially project / thesis opportunities
- Comfortable learning environment

##### Facilities

- Library for SOEST
- Excellent facilities

## **2. What are the weaknesses of the Dept. Of Geology and Geophysics?**

### Faculty

- Some faculty members in how they relate with other members of faculty and students
- Sometimes faculty too busy or gone for extended periods of time (but when staying in the forefront of research might be hard to avoid)

### Courses

- Giving us experiences
- Doing more field work
- Teaching assistants who do not seem well enough prepared to assist when necessary and then just add to the confusion
- Although I was grateful (because I could finish my degree sooner) often courses did not have prerequisites, (or if they did they were not enforced) I feel a more systematic accumulation of knowledge would be less frustrating for students and instructors alike
- Very limited class available - many were every other semester or year
- Need stronger education in computer programs relevant to geology (i.e. Matlab, ENVI) which could further be instilled in students by using the programs in several courses

### Employment preparation

- Mostly prep for students going on for Masters degree, little prep to get job
- Non-preparation for post-graduation employment, most of my classmates work in environmental / drilling fields
- Not able to get jobs after graduation
- The department doesn't seem to prepare us for the real world. After I graduated I could not find a job in Hawaii in this field. Most of the people who graduated with me planned to become teachers so they were OK. I wanted to stay in Geology but I could not afford to pay for grad school, and jobs that hire geologists wouldn't even consider interviewing me because I didn't have a masters or years of experience.

## **3. What courses (or topics) do you feel should be added to the curriculum?**

- Depends on what type of geology people want to get into - hard to really pick out any classes
- The new curriculum sounds good to me (difficult, but necessary) as far as required courses go

**Electives:**

- Field trips in more topics to give training for jobs related to experience
- Social geology - how to prepare people who are threatened by volcanoes to recognize warnings, cope with the imminent danger, move, relocate etc
- More advanced volcanology classes, particularly Hawaiian volcanism
- Training - HAZWOPER, CPR, First Aid
- More technical writing
- Couple of business courses would've helped

**Required:**

- Statistics
- An introduction to hydrogeology - for a basic understanding - shortages of water seem likely in the future, especially for islands like ours and I think this would prove to show a very practical application for geology, and help students make informed decisions about water conservation in their future.
- Computer classes - GMT, Matlab, Excel
- More field work, equipment exercises
- Geomathematics
- Soils (engineers have more knowledge of soils than we do - not good!!), groundwater, subsurface studies

**4. What types of student services could have accentuated your college experience at UHM?**

**(e.g. Resume workshop, clubs, on-campus housing etc.)**

- GRE classes or study techniques
- Some kind of referral alumni network where students can contact those who have already graduated and are using their G&G skills in order to find out if they have advice about what classes were most useful
- Resumes, even bringing recruiters, finding out job openings and announcing in class
- I had a good experience
- Workshops for writing term papers and research papers
- Maybe if the department organized some sort of internship with the local companies, it would give the students real experience even before they graduate

**Comments:**

- The greatest and most effective learning experience for me was my employment and thesis opportunities. I worked for both JoAnn Sinton and Mike Garcia. It was Dr Garcia who gave me an opportunity to learn geochem by aiding me in getting \$5500 research grant for my project at Kilauea. I was also included in a Mauna Loa cruise & was instrumental in coordinating the collection, curation & subsequent processing of lavas.
- I was around longer than most undergraduates and feel I got to SEE the Dept evolve - especially when Steve Martel was in charge of undergraduates (Excellent Adviser)

***DISCUSSION***

The 2001 Alumni survey indicates that G&G graduates are happy with:

- the quality of tuition they have received
- the quality and availability of instructors
- the quality and access to facilities and resources, including the SOEST library

There are mixed messages about field trips / out of classroom experiences - some were very happy, some felt there was not enough

The Alumni expressed concerns regarding:

- Employment preparation
- Availability of classes in the semesters when the students wanted to take them
- Absence of faculty at times, especially during semester

In terms of possible courses that could be added, there was no common consensus. Many suggestions have arisen from the employment environment they are now in where they think a particular skill or piece of knowledge would be beneficial rather than essential. This particular response could suggest a new development for the department - the running of focussed short courses for the environmental / geotechnical community.

The undergraduate program has been modified since these students graduated. Many of their concerns regarding more computer experience relevant to geology and new classes related to employment have been added as required (e.g. GG313, 325) or elective courses (e.g. GG312, 402, 460). More technical writing is also required as requested. Also, prerequisites are listed for all major classes and are followed except in special cases. Other units of the University best handle the requests for classes on soils, business and first aid.

## ***RECOMMENDATIONS***

- The alumni survey should be continued and given at least biannually. It provides valuable feedback about the undergraduate program.
- Every effort should be made to maintain contact with alumni and to keep postal and email addresses current.
- Students need more training in communication skills, especially public speaking
- Instructors need to stress / teach methods for locating information to make decisions and solve problems
- Faculty are to be congratulated for excellent teaching, high standards and commitment to students
- Department has done a great job of providing excellent facilities but needs to work on better preparing students for careers
- Efforts should be made to bring UHM Career Service to the attention of G&G students (perhaps a SOEST-wide undergraduate meeting with a Career Service representative). At the same time, the Career Service needs to be made aware that G&G graduates are not using their services and that if they brought their services over to the SOEST buildings (rather than requiring students to visit the Student Services Building), they may be utilized.
- The Department should explore the feasibility of running focussed short courses for the environmental / geotechnical community.
- An alumni referral network should be established to assist G&G graduates in finding employment and for obtaining advice.

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