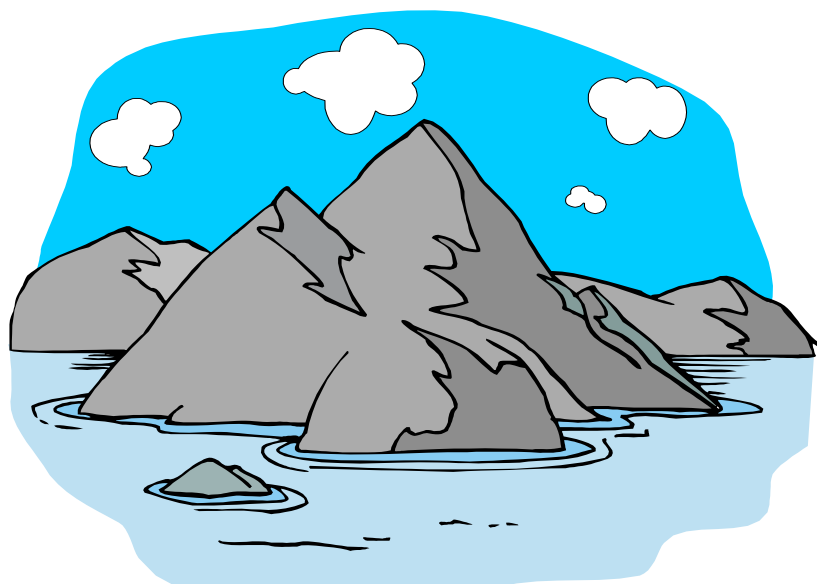


DEPARTMENT OF GEOLOGY & GEOPHYSICS

UNDERGRADUATE SURVIVAL MANUAL

2006-2007

Updated June 2006



SCHOOL OF OCEAN & EARTH SCIENCE & TECHNOLOGY
UNIVERSITY OF HAWAII

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The University of Hawaii at Manoa is an equal opportunity/affirmative action institution and is committed to a policy of nondiscrimination on the bases of race, sex, age, religion, color, national origin, ancestry, disability, marital status, arrest and court record, sexual orientation, and veteran status. This policy covers admission and access to, and participation, treatment and employment in the University's programs, activities, and services. For more information on equal opportunity and affirmative action policies and complaint procedures, contact:

Students: Alan Yang, Dean of Students, 956-3290 (V/T)

Students with Disabilities: Ann Ito, KOKUA Program Director, 956-7511 (V/T)

INTRODUCTION

GEOLOGY & GEOPHYSICS

The geosciences are central to the scientific study of the Earth and other bodies in our solar system. The scope of geosciences is extremely broad. Geology and geophysics tend to focus primarily on the solid, rocky portions of the planets (including the Earth), but have important ties to meteorology and oceanography. The Earth and many of the other planets are dynamic. Geoscientists study both the internal and surface changes of these planets and strive to illuminate their underlying causes to better understand their origin and evolution. Research on earth and planetary sciences ranges from submarine volcanism to monitoring the environment, from coastal erosion to past climate changes, from the origins of life to monitoring earthquakes and active volcanoes, and from the composition of meteorites and Mars to the distribution of petroleum and water resources. The geosciences offer rich variety and stimulating opportunities for multidisciplinary discoveries of great intellectual and practical importance.

JOB OPPORTUNITIES

Earth science jobs typically offer tremendous variety, opportunities to work both outdoors and in the laboratory, and many opportunities for distant travel. This rich variety is one of the special appeals of a career in the earth sciences. Many earth scientists find employment in the development of our natural resources and the stewardship of our environment. This trend is likely to continue. The need for clean water, sound policies for land use, and stable energy resources continues to increase locally, nationally, and globally. Earth scientists, because of their training, make key contributions in these areas and can expect employment opportunities to expand to meet growing needs.

Employment opportunities exist in both the private and public sectors. Environmental firms and the petroleum industry hire many earth scientists. Geologists and geophysicists also work for numerous state and federal agencies, colleges, and universities. Earth scientists commonly work as part of multi-disciplinary teams with computer scientists, engineers, biologists, chemists, physicists, geographers, and science writers. Geological specialists are also employed extensively in the aerospace industry, in the evaluation of extraterrestrial data and in the planning of future missions in space, such as a manned return flight to the Moon. With their broad backgrounds in science, geologists are also well prepared for careers as science teachers.

PREPARE EDUCATIONALLY

Prospective majors are strongly encouraged to build a solid background of understanding in chemistry, physics, and mathematics. These disciplines form the foundation for investigating how the Earth and other planets work. This broad science foundation also prepares students for diverse opportunities and for work in multi-disciplinary teams.

Many technical professional positions require an advanced degree (MS or PhD). An undergraduate degree in the earth sciences provides a solid preparation for a career in teaching or as a stepping stone to fields such as environmental law and urban planning.

CHALLENGES AND REWARDS

Geology and geophysics provides excellent training in critical thinking and prepares students for a wide variety of potential future employment opportunities ranging from public service to teaching, as well as for students curious about our place in nature. The intellectual rewards of basic geosciences research are comparable to those in other exciting fields such as biomedical research, particle physics, and cosmology. Outstanding challenges in the geosciences include how to predict earthquakes and volcanic eruptions, discovering the history of Mars, understanding the forces that move the surface of plates of the Earth, and contributing to wiser stewardship and use of the Earth's precious resources.

THE DEPARTMENT OF GEOLOGY & GEOPHYSICS

WHO WE ARE

The Department of Geology & Geophysics is one of three undergraduate programs within the School of Ocean & Earth Science & Technology (SOEST) at the University of Hawaii at Manoa (UHM).

The department offers outstanding programs of study at the undergraduate and graduate levels. The faculty is large (about 25 teaching and research faculty and about 30 additional graduate faculty) and diverse, with strong programs in all major subdisciplines.

The geographic location of Honolulu in the midst of the Pacific Ocean and the rich geologic setting provide a natural focus for research programs in seismology, volcanology, marine geology and geophysics, tectonics, planetary science, sedimentology, hydrogeology, geochemistry, paleoceanography, meteorites, and many other fields.

The quality of the school's research vessels, submersibles, laboratories, and computing facilities reflects its strong commitment to the excellence in field studies, as well as in theoretical and modeling studies. The quality of the faculty, research facilities, and opportunities is difficult to match.

The department is one of the larger earth science departments in the country and carries on research worldwide. Students have immediate access to many people engaged in the process of discovery. The spirit of curiosity and the pursuit of knowledge are alive and well here!

This department urges all students to seek and create opportunities to work outside of the classroom. Your success depends on it!

Research universities such as UHM present unique opportunities for students to conduct hands-on research. The department provides several fellowships to undergraduates on a competitive basis to encourage their participation in research. These also provide opportunities for students and faculty to interact closely. You are encouraged to take advantage of these opportunities to further your academic success.

WHERE TO GET HELP

CHARLES FLETCHER

Department Chair
Office: POST 721C
Phone: 956-2582
Email: gg-chair@soest.hawaii.edu

JOHN MAHONEY

Professor & Advisor
Office: POST 606D
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JANET BECKER

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Phone: 956-6514
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Phone: 956-8763
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SUSAN VAN GORDER

Department Office Manager
Office: POST 701
Phone: 956-7640
Email: gg-dept@hawaii.edu

DEGREE REQUIREMENTS*

UNIVERSITY OF HAWAII AT MANOA

UHM GENERAL EDUCATION CORE and GRADUATION REQUIREMENTS

Foundations Requirements (12 credits)

Written Communication (FW) (3 credits)
- ENG 100, 101 or ELI 100

Symbolic Reasoning (FS) (3 credits)
- MATH 140, 241, 242

Global & Multicultural Perspectives (FG) (6 credits)
- 2 courses, each from a different group

Diversification Requirement (19 credits)

Arts (DA), Humanities (DH), and Literature (DL)
- 2 courses, each from different areas
- 3 credits each

Social Sciences (DS)
- 2 courses, each from a different department
- 3 credits each

Natural Sciences

Biological Sciences (DB)
- GG requires BIOL 171+171L, BIOL 103/ZOOL 101 or MICRO 130 (effective S06)

Physical Sciences (DP) (3 credits)
- GG 101, 103, 104, 105, 108, 170*

Science Laboratory (DY) (1 credit)
- GG 101L, 170*

*GG 170 is a 4-credit course and lab and fulfills both DP and DY.

UHM GRADUATION REQUIREMENTS

Focus Requirements

Focus courses are shown in the UHM catalog but appear in each semester's Schedule of Classes/UH Manoa Registration Homepage. Because the approved Focus courses may change each semester, students should consult UH Manoa Registration Homepage's up-to-date online course listing before they register. Approved Focus courses taken at other UH system campuses are listed at the following website:
www.hawaii.edu/ovcaa/academics/articulation_courses.htm

Contemporary Ethical Issues (E): 1 course
 Hawaiian, Asian, and Pacific Issues (H): 1 course
 Oral Communication (O): 1 course
 Writing Intensive Courses (W): 2-5 courses

Hawaiian/Second Language Requirements (101 and 102 for the same language)

Credits for Previous Language Experience:

All students (including native speakers of a language) under the current 2001-2005 General Education requirements with experience in a language other than English may earn "back credits." These students may take any UH course, appropriate to their level, in which there is significant use of that language. (Appropriate level determined by placement exam or advisor; significant use determined by the instructor). Upon completion of this course, if students earn a letter grade of C (not C-) or better, they will receive between 3-16 back credits.

Back credits may be earned for only one language. The student must take the course for a letter grade (not credit/no credit). Check with the appropriate language department for details and forms.

Requirements for Non-UH Transfer Students

Students must have a pro-rated requirement, which is based on the number of non-UH transfer credits accepted by the UH Manoa campus.

Number of accepted credit hours:	Focus Requirement				
	W	H	E	or	O
0 – 36	5*	1	1		1
37 – 54	4*	1	1		1
55 – 88	3*	1	1-E	or	1-O
89+	2*	1	0		0

*including at least two "W" courses numbered at the 300- 400-level

Requirements for UH Transfer Students

Focus requirements for UH transfer students are determined by the year students enter the UH system and the number of credits that UH Manoa accepts. The following table applies to students who enter UH in the Spring 2005 or later. Students who entered UH prior to Spring 2005 should check with their college advisor to determine their Focus requirements.

Students who enter the UH system in Spring 2005 or later must meet the requirements given in the table below. The E and O requirements are reduced, based on the number of UH transfer credit hours accepted. Transfer of E and O credits is not allowed. The W and H requirements are not reduced; students may transfer approved UH courses to help them satisfy the W and H course requirements.

Number of accepted credit hours:	Focus Requirement				
	W	H	E	or	O
0 – 54	5*	1	1		1
55 – 88	5*	1	1-E	or	1-O
89+	5*	1	0		0

*including at least two "W" courses numbered at the 300- 400-level

See the University of Hawaii at Manoa catalog for complete details and listing of courses. Requirements vary and is dependent upon your semester of entry to UHM or the UH System.

DEGREE REQUIREMENTS

SCHOOL OF OCEAN & EARTH SCIENCE & TECHNOLOGY

124 credits total, the equivalent of four years of full-time work

Chemistry

CHEM 161, 161L, 162, 162L (8 credits total)

Physics

PHYS 151, 151L, 152, 152L (8 credits total) for the BA

PHYS 170, 170L, 272, 272L (9 credits total) for the BS

Mathematics

MATH 241 for the BA (4 credits total)

MATH 241 and 242 for the BS (8 credits total)

60 non-introductory level courses (i.e. courses numbered 300 and above or 200-level courses that have explicit college-level prerequisites. The following courses are introductory courses and will not count toward the 60 credits of non-introductory level courses:

CHEM 162, 162L

PHYS 152, 152L, 170, 170L

100-level language courses (i.e., 101 and 102)

200-level English courses

2 semesters of one language (101 through 102)

Minimum cumulative GPA of 2.00 for all UH Manoa courses

Minimum cumulative GPA of 2.00 for all courses applied to GG major requirements.

Effective Fall 2005, undergraduate majors in Geology and Geophysics will be required to earn a minimum grade of C (not C-) in all supporting math and science courses associated with their degree requirements. Supporting courses include courses in chemistry, mathematics, physics, and biology.

Effective Spring 2006, undergraduate majors in Geology and Geophysics will be required to take one of the following courses to fulfill their DB requirement and GG requirements: BIOL 171+171L, BIOL 103/ZOOL 101, MICRO 130.

DEPARTMENT OF GEOLOGY & GEOPHYSICS

Requirements for a Bachelor of Science in Geology and Geophysics

The BS degree in Geology and Geophysics is strongly recommended for students who intend to pursue graduate work or employment in geology or geophysics.

This degree provides more substantial grounding in computational skills and analytical procedures than is required for the BA degree; it places additional emphasis on applications of chemistry, physics, and mathematics to studying the Earth.

The BS degree requires:

- 1) 39-40 credits in the Geology and Geophysics curriculum including: one introductory level Geology and Geophysics course with a lab, nine non-introductory GG courses, a two-credit research seminar (GG 410).
- 2) A minimum of 11 credits of approved upper division science electives in Geology & Geophysics. With advice and consent of the undergraduate advisor, courses in other natural sciences, mathematics, or engineering may be substituted as electives. Students are encouraged to participate in an internship or enroll in a mainland summer field course as an elective.
- 3) Support mathematics and science classes include physics, chemistry, biological sciences (BIOL 171+171L, BIOL 103 or ZOOL 101 or MICRO 130), and two semesters of college calculus; these total 28 credits and should be taken as early as possible.

Required BS courses

Geology & Geophysics Courses (40 credits)

- GG 101 Dynamic Earth or GG 103 Geology of the Hawaiian Islands (3) and GG 101L Dynamic Earth Laboratory (1) **OR**
- GG 170 Physical Geology (4)
- GG 200 Geological Inquiry (4)
- GG 250 Scientific Programming (3)
- GG 301 Mineralogy (4)
- GG 302 Igneous and Metamorphic Petrology (3)
- GG 303 Structural Geology (3)
- GG 304 Physics of Earth and Planets (4)
- GG 305 Geological Field Methods (3)
- GG 309 Sedimentology & Stratigraphy (4)
- GG 325 Fundamentals of Geochemistry (3)
- GG 410 Undergraduate Seminar (2)

Approved Upper Division Geology and Geophysics Courses (11 credits)

- GG 300 Volcanology (3)
- GG 312 Geomathematics (3)
- GG 313 Geological Data Analysis I (3)
- GG 399 Directed Reading (V)
- GG 401 Introduction to Mineral Physics (3)
- GG 402 Hawaiian Geology (3)
- GG 407 Energy and Mineral Resources (3)
- GG 420 Sea Levels, Ice Ages & Global Change (3)
- GG 421 Geological Record of Climate Change (3)
- GG 423 Marine Geology (3)
- GG 425 Environmental Geochemistry (3)
- GG 426 Sedimentary Isotope Geochemistry (30)
- GG 430 Geology and Mineral Resources of Asia (3)
- GG 444 Plate Tectonics (3)
- GG 450 Geophysical Methods (4)
- GG 451 Earthquakes (3)
- GG 454 Engineering Geology (3)
- GG 455 Hydrogeology (4)
- GG 460 Geological Remote Sensing (4)
- GG 466 Planetary Geology (3)
- GG 499 Undergraduate Thesis (3)

Support Courses (28 credits)

- General Chemistry (CHEM 161, 161L, 162, 162L)
- Calculus I and II (MATH 241, 242, ~~and 242L~~)
- General Physics (PHYS 170, 170L, 272, 272L)
- Biological Science course (BIOL 171+L, ZOOL 101, BIOL 103 or MICRO 130)

Requirements for a Bachelor of Arts in Geology

The BA degree in Geology is appropriate for students interested in the study of the Earth but who do not necessarily intend to pursue graduate work or employment in traditional geology fields.

This degree is more flexible than the BS program and is suitable for students who are considering, a double major, teaching, or employment other than a professional geologist.

The BA degree requires:

- 1) 30 credits in the Geology and Geophysics curriculum including: one introductory level Geology and Geophysics course with a lab, seven non-introductory GG courses, and a two-credit research seminar (GG 410).
- 2) A minimum of 5 credits of approved upper division science electives in Geology & Geophysics is also required; these courses can be in Geology and Geophysics or in other natural sciences, mathematics, or engineering. Students are encouraged to participate in an internship or enroll in a mainland summer field course as an elective.
- 3) Supporting mathematics and science classes include physics, chemistry, biological sciences (BIOL 171+171L, BIOL 103 or ZOOL 101 or MICRO 130), and one semester of college calculus; these total 23 credits and should be taken as early as possible.

Required Courses

Geology & Geophysics Courses (40 credits)

GG 101 Dynamic Earth or GG 103 Geology of the Hawaiian Islands (3) and GG 101L Dynamic Earth Laboratory (1) **OR**
 GG 170 Physical Geology (4)
 GG 200 Geological Inquiry (4)
 GG 250 Scientific Programming (3)
 GG 301 Mineralogy (4)
 GG 302 Igneous and Metamorphic Petrology (3)
 GG 303 Structural Geology (3)
 GG 305 Geological Field Methods (3)
 GG 309 Sedimentology & Stratigraphy (4)
 GG 410 Undergraduate Seminar (2)

Approved Upper Division Geology and Geophysics Courses (5 credits)

GG 300 Volcanology (3)	GG 426 Sedimentary Isotope Geochemistry (3)
GG 304 Physics of Earth & Planets (4)	GG 430 Geology and Mineral Resources of Asia (3)
GG 312 Geomathematics (3)	GG 444 Plate Tectonics (3)
GG 313 Geological Data Analysis I (3)	GG 450 Geophysical Methods (4)
GG 399 Directed Reading (V)	GG 451 Earthquakes (3)
GG 401 Introduction to Mineral Physics (3)	GG 454 Engineering Geology (3)
GG 402 Hawaiian Geology (3)	GG 455 Hydrogeology (4)
GG 407 Energy and Mineral Resources (3)	GG 420 Sea Levels, Ice Ages & Global Change (3)
GG 421 Geological Record of Climate Change (3)	GG 460 Geological Remote Sensing (4)
GG 423 Marine Geology (3)	GG 466 Planetary Geology (3)
GG 425 Environmental Geochemistry (3)	GG 499 Undergraduate Thesis (3)

Support Courses (23 credits)

General Chemistry (CHEM 161, 161L, 162, 162L)
 Calculus I (MATH 241)
 College Physics (PHYS 151, 151L, 152, 152L)
 Biological Science course (BIOL 171+L, ZOOL 101, BIOL 103 or MICRO 130)

SAMPLE SCHEDULE FOR BS IN GEOLOGY & GEOPHYSICS

FALL SEMESTER	YEAR 1 CREDITS	UPPER DIVISION	SPRING SEMESTER	YEAR 1 CREDITS	UPPER DIVISION
Math 241	4	4	Math 242 + L	4	4
Language 101	3	0	Language 102	3	0
Chemistry 161 + L	4	0	Chemistry 162 + L	4	0
GG 170	4	0	English 100	3	0
Total:	15	4	Total:	14	4

FALL SEMESTER	YEAR 2 CREDITS	UPPER DIVISION	SPRING SEMESTER	YEAR 2 CREDITS	UPPER DIVISION
DB	3	0	GG 200	4	4
FG	3	0	FG	3	0
Focus H	3	0	DA/DH/DL	3	0
Physics 170 + L	5	0	Physics 272 + L	4	4
Elective	2	0	DS	3	0
Total:	16	0	Total:	17	8

FALL SEMESTER	YEAR 3 CREDITS	UPPER DIVISION	SPRING SEMESTER	YEAR 3 CREDITS	UPPER DIVISION
GG 301	4	4	GG 302 (WI)	3	3
GG 250	3	3	GG 309 (WI)	4	4
GG 325	3	3	GG Elective	3	3
DS	3	0	DA/DH/DL	3	0
Elective	3	0	Focus H	3	0
Total:	16	10	Total:	16	10

FALL SEMESTER	YEAR 4 CREDITS	UPPER DIVISION	SPRING SEMESTER	YEAR 4 CREDITS	UPPER DIVISION
GG 303	3	3	GG 304	4	4
GG 410 (Focus O)	2	2	GG 305 (WI)	3	3
GG Elective	3	3	GG Elective (WI)	3	3
GG Elective	3	3	Upper Division Elective	3	3
Elective (WI)	3	0	Elective	3	0
Total:	14	11	Total:	16	13

TOTAL CREDITS:	124	UPPER DIVISION CREDITS:	60
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University of Hawaii General Education and Graduation Requirements:

FG – Global & Multicultural Perspective course

DA – Diversification course in the Arts

DH – Diversification course in the Humanities

DL – Diversification course in Literature

DS – Diversification course in the Social Sciences

Focus E – Contemporary Ethical Issues course

Focus H – Hawaiian, Asia & Pacific Issues course

Focus O – Oral communication course

Focus WI – Writing intensive course

Course designations for FG, DA, DH, DL, and DS course are found in the University of Hawaii at Manoa Catalog. Course designations for Focus courses appear each semester in the Schedule of Classes/UH Manoa Registration Homepage. Designations for Focus courses can change from semester to semester so students need to confirm the designations each semester.

PLANNING FOR YOUR ACADEMIC SUCCESS

Planning is an essential part of gaining success and reaping its benefits. Your success depends on it!

UHM CATALOG IN HAND?

You should obtain a copy of the UHM General Catalog for the semester in which you enter and be familiar with the rules and regulations.

HOUSEKEEPING

You must meet with SOEST student academic advisor, Leona Anthony, when you enter the program. She will steer you in the right direction for smooth sailing. If you are a transfer student, she will go over courses that have and have not transferred from your previous institution. Any courses in question should be brought up at this time and not the semester prior to graduation. All students are provided with an individual computer access code to the department computer labs, and an email address with SOEST. Any student-related matter can be directed to Leona and she is available throughout the year. Please contact her directly for an appointment.

GET TO KNOW YOUR ADVISORS

The Department of Geology & Geophysics has two faculty advisors, Drs. John Mahoney and Janet Becker. GG majors are required to meet with a GG faculty advisor at least once a semester prior to their registration for the next semester. You may contact either advisor to make an appointment. Prepare a list of questions and your plan for next semester's classes prior to the meeting. Keep your copy of the advising checklist up to date and confirm it with your advisor. Failure to meet with an advisor prior to registration will result in a "hold" on a student's registration capabilities.

TAKE YOUR PLACEMENT EXAMS

Placement exams are given for several courses including mathematics, chemistry, English, and foreign and Hawaiian language. The placement exams are commonly scheduled two weeks prior to the beginning of a semester or just prior to registration for continuing students. Find out when the exams will be given as soon as possible, then arrange to take the exam. A delayed placement exam could cost you an extra semester or two in school. For more information, contact the department directly and consult the most current Schedule of Classes booklet.

COMPLETE MATH & SCIENCE PRE-REQUISITES EARLY

A solid foundation in mathematics, physics, and chemistry is essential to your success in this program. Prepare by taking course prerequisites early on so that you will be adequately prepared to move on to the next level of courses. Backtracking can result in loss of credits toward your program. Backtracking is defined in the UHM catalog as: *Completion of a lower-level or prerequisite course after (or while) taking an advanced course. Additional credit and grade points are not awarded for lower-level courses if they are taken after or concurrently with the advanced course for which they are explicitly or implicitly prerequisites.*

GRADE POINT AVERAGE

To ensure continuation in the GG program, students are required to maintain at least a 2.00 cumulative grade point average. Failure to meet this requirement will result in being placed on probation. If a student's cumulative GPA does not rise above a 2.0 while on probation, the student may be suspended. Rules governing these academic actions are found in the UHM General Catalog.

A minimum grade of C (not C-) in chemistry, mathematics, physics, and biology is required majors in Geology and Geology.

STEPS TOWARD GRADUATION

Gaining clearance for graduation is a multi-step process.

- ✓ Inform an undergraduate faculty advisor of your graduation plans at least two semesters prior to the semester in which you plan to graduate and obtain a Graduation Checklist form from Leona Anthony or your faculty advisor.
- ✓ Complete the Graduation Checklist with your faculty advisor submit the completed form to Leona Anthony no later than two semesters before you plan to graduate.
- ✓ Schedule an exit interview with Leona Anthony.
- ✓ Complete the "Application for Graduation" form after your exit interview.
- ✓ Pay Application for Graduation Fee via MYUH or at the UHM Cashier's Office.

Commencement announcements, cap and gown, and other detailed information will be sent to you in the mail.

HANDY UHM WEBSITES

-  Geology & Geophysics
www.soest.hawaii.edu/gg
-  SOEST Bulletin
<http://www.soest.hawaii.edu/Illust/bulletin.html>
-  SOEST
www.soest.hawaii.edu
-  Admissions & Records
www2.hawaii.edu/admrec/
-  UHM Financial Aids
www.hawaii.edu/fas
-  University of Hawaii
www.hawaii.edu:80/uhinfo.html
-  UH Manoa Catalog
www.catalog.hawaii.edu/
-  UH Registration Homepage
www.hawaii.edu/myuh/manoa/
-  UH Transfer Articulation Web Site
www2.admrec.hawaii.edu/transfer/CreditTransfer.asp
-  UH Student Employment & Cooperative Education
<http://sece.its.hawaii.edu:9442/login.do>

GAIN EXPERIENCE...GET INVOLVED

GET INVOLVED

As mentioned earlier in this booklet, this department urges each and every student to seek and create opportunities to work outside of the classroom. Several fellowships are available to undergraduates on a competitive basis to encourage their participation in research and geologic field courses.

SEMINARS

Everyone is welcome to attend any and all of the department's seminars. For starters, it will provide students with a snapshot of what's going on in the science community. SURF (Seminar for Undergraduates on the Research of Faculty members). Seminars are given every Friday at noon. "Reports from the Field", an informal brown bag seminar about employment by gainfully employed alumni. During the academic year (fall and spring), a TGIF seminar series is presented every Friday at 4:00 pm and exhibits some of the on-going research by SOEST faculty and visitors. Following the TGIF seminars, attendees gather outside of the building for further discussions, fellowship, and refreshments.

GEOLOGY CLUB

The Geology Club was started many years ago by GG majors to help fund the GG 305 Field Methods field trip to Death Valley each spring. The club also plans field trips around the island and conducts other creative fundraising programs. If you have a desire to bring undergraduate GG majors together, enjoy being with other students who enjoy the outdoors, or just want to be involved in a worthwhile cause in your area of study, then the Geology Club may be for you.

UNDERGRADUATES' ROOM

POST 714 has been designated as a room for undergraduate majors to congregate and study. GG Undergraduates are responsible for the keeping this room clean and safe. Students are responsible for following the rules and regulations set forth by the Department prior to receiving an individual door key code. Access to the lab is monitored 24 hours a day, 7 days a week.

COMPUTER LAB

GG Undergraduates are provided with access to the GG Computer Labs at all times provided that the POST Building is accessible. Students are responsible for following the rules and regulations set forth by the Department prior to receiving an individual door key code. Access to the lab is monitored 24 hours a day, 7 days a week. Application for is available from the Geology & Geophysics Department Office in POST 701.

STUDENT ASSISTANTSHIPS ON RESEARCH GRANTS

Many faculty employ GG undergraduates on research projects. Students interested in working on a research project should consult with the appropriate faculty members.

INTERNSHIPS

Internships are offered year round and student may earn credits from the internship toward graduation. An Internship binder is available in the SOEST Student Academic Office (POST 713).

OTHER OPPORTUNITIES

AGATIN T. ABBOTT MEMORIAL AWARD

This award is given to an outstanding senior each year based on academic record. Contributions to the department's programs may also be considered. Awarded each spring.

WILLIAM T. COULBOURN FELLOWSHIP IN MARINE GEOLOGY

The William T. Coulbourn Fellowship in Marine Geology is offered yearly on a competitive basis to undergraduate or graduate students in the Department of Geology and Geophysics. The purpose of this award is to support student research in sedimentary marine geology. Both graduates and undergraduates may apply. As much as \$1,000 in support is available per year. Those receiving a Coulbourn Fellowship are required to present, within one year, an oral summary of their results at a regularly scheduled meeting of the Geology Club, or other public forum. Application deadline is April 1.

HAROLD T. STEARNS FELLOWSHIP

Undergraduate and graduate students in the Geology and Geophysics Department may apply yearly for Harold T. Stearns funds to support research in fields that Dr. Stearns was active in researching. The awards shall be for research in the following areas.

- 1) Studies of limestone and ancient emerged and submerged shorelines related to eustatic and tectonic changes in sea level on islands in the central Pacific, other Pacific Islands, and along shores bordering the Pacific Ocean.
- 2) Geologic mapping of Pacific Islands for which no adequate geologic maps are available.
- 3) Hydrologic studies of Pacific Islands.
- 4) Studies of limestone and ancient emerged and submerged shorelines related to eustatic and tectonic changes in sea level on islands in the central Pacific, other Pacific Islands, and along shores bordering the Pacific Ocean.
- 5) Geologic mapping of Pacific Islands for which no adequate geologic maps are available.
- 6) Hydrologic studies of Pacific Islands.
- 7) Geochemical, petrologic and radiometric studies of limestone and volcanic rocks on Pacific Islands.
- 8) Analysis of geophysical data of submerged terraces bordering Pacific Island.

Those receiving a Harold T. Stearns Fellowship are required to present, within one year, an oral summary of their results at a regularly scheduled meeting of the Geology Club, or other public forum. Application deadline is April 1.

SPACE GRANT UNDERGRADUATE FELLOWSHIPS

The University of Hawaii Space Grant College, as a participant in the national Space Grant College and Fellowship Program, invites applications for NASA Undergraduate Space Grant Fellowships to support studies in fields related to space (this means scientific disciplines or fields of study including astronomy, geology, meteorology, oceanography, math, physics, engineering, computer science and life sciences).

All full time undergraduates enrolled at either the University of Hawaii at Manoa or University of Hawaii at Hilo who have declared a major and propose study or research with a strong space component are eligible to apply for two-semester fellowships. In rare instances, a one-semester project may be considered. Fellowship applicants must be U.S. citizens, and each applicant must be sponsored by a mentor who is willing to advise the student for the duration of the award. Awards will be based on academic qualifications of the student, quality of proposed research, appropriateness of proposed research to NASA's goals, and feasibility of proposed research within the planned academic time-frame. Fellows are expected to work 10-15 hours a week on their project. Financial support includes a stipend of \$1750 per semester and up to \$500 for supplies and/or travel pertinent to their project. Women, under-represented minorities and physically challenged students are particularly encouraged to apply.

For further information contact the Space Grant Office in the basement of Sinclair Library, Room 6. Applications should arrive by 15 June for fall semester proposals, or 1 December for spring semester proposals.

FIELD CAMP STIPENDS

The Department of Geology and Geophysics offers field camp stipends to undergraduate Geophysics majors. Award stipends of up to \$750 per successful candidate will be offered. Fellowships will be awarded based on the quality of the application and availability of funds.

UNDERGRADUATE THESIS

Students are encouraged to carry out a scientific project of small to moderate scope with one or more chosen faculty researchers. Students must complete a document in the style of scientific journal article. For possible research topics, visit the department website or discuss options with an advisor. Course credits are also available.

TUITION SCHOLARSHIPS

The School of Ocean and Earth Science and Technology offers a limited amount of funds toward tuition waivers each semester. These merit-based awards are determined by the previous semester's grades of full time majors in Geology & Geophysics, Global Environmental Science, and Meteorology. Waivers are awarded by the Associate Dean of SOEST. No application is required.

G&G UNDERGRADUATE ADVISOR'S CHECKLIST FOR BS REQUIREMENTS
Fall 2006

STUDENT'S NAME: _____
 EMAIL ADDRESS: _____
 OAHU ADDRESS: _____
 OAHU TELEPHONE NUMBER: _____

I.D. NUMBER: _____
 ADVISOR: _____
 SEMESTER & YEAR ENTERED: _____
 CLASS STATUS UPON ENTRY: _____

GG REQUIRED(40 credits)

		GRADE	SESSION	YEAR
GG 101/103	Dynamic Earth/Geology of the Hawaiian Islands (3) and GG 101L Dynamic Earth Lab (1) <u>OR</u>	_____	_____	_____
GG 170	Physical Geology (4)	_____	_____	_____
• GG 200	Geological Inquiry (4)	_____	_____	_____
• GG 250	Scientific Programming (3)	_____	_____	_____
• GG 301	Mineralogy (4)	_____	_____	_____
• GG 302	Igneous & Metamorphic Petrology (3)	_____	_____	_____
• GG 303	Structural Geology (3)	_____	_____	_____
• GG 304	Physics of Earth and Planets (4)	_____	_____	_____
	OR GG 450 Geophysical Methods			
• GG 305	Geological Field Methods (3)	_____	_____	_____
• GG 309	Sedimentology & Stratigraphy (4)	_____	_____	_____
• GG 325	Fundamentals of Geochemistry (3)	_____	_____	_____
• GG 410	Research Seminar (2)	_____	_____	_____

+11 credits of approved electives; GG elective courses listed below. With advice and consent of advisor, courses in other natural sciences, mathematics, or engineering may be substituted as electives.

• GG 300	Volcanology (3)	_____	_____	_____
• GG 312	Geomathematics (3)	_____	_____	_____
• GG 313	Geophysical Data Analysis I (3)	_____	_____	_____
• GG 399	Directed Reading (V)	_____	_____	_____
• GG 401	Introduction to Mineral Physics (3)	_____	_____	_____
• GG 402	Hawaiian Geology (3)	_____	_____	_____
• GG 407	Energy & Mineral Resources (3)	_____	_____	_____
• GG 420	Sea Levels, Ice Ages and Global Change (3)	_____	_____	_____
• GG 421	Geological Record of Climate Change (3)	_____	_____	_____
• GG 423	Marine Geology (3)	_____	_____	_____
• GG 425	Environmental Geochemistry (3)	_____	_____	_____
• GG 426	Sedimentary Isotope Geochemistry (3)	_____	_____	_____
• GG 430	Geology & Mineral Resources of Asia (3)	_____	_____	_____
• GG 444	Plate Tectonics (3)	_____	_____	_____
• GG 451	Earthquakes (3)	_____	_____	_____
• GG 454	Engineering Geology (3)	_____	_____	_____
• GG 455	Hydrogeology (4)	_____	_____	_____
• GG 460	Geological Remote Sensing	_____	_____	_____
• GG 466	Planetary Geology (3)	_____	_____	_____
• GG 499	Undergraduate Thesis (3)	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

•Denotes non-introductory course

(over, please)

OTHER SCIENCE & MATH REQUIREMENTS

	GRADE	SESSION	YEAR
CHEM 161 General Chemistry (3)	_____	_____	_____
CHEM 161L General Chemistry Lab (1)	_____	_____	_____
CHEM 162 General Chemistry II (3)	_____	_____	_____
CHEM 162L General Chemistry Lab II (1)	_____	_____	_____
•MATH 241 Calculus (4)	_____	_____	_____
•MATH 242 Calculus II (4)	_____	_____	_____
•MATH 242L Calculus I Lab (1)	_____	_____	_____
PHYS 170 General Physics I (4)	_____	_____	_____
PHYS 170L General Physics Lab I (1)	_____	_____	_____
•PHYS 272 General Physics II (3)	_____	_____	_____
•PHYS 272L General Physics Lab II (1)	_____	_____	_____
ONE OF THE FOLLOWING:			
BIOL 171+ L Introductory Biology and Lab (4)	_____	_____	_____
ZOOL 101 Principles of Zoology (3)	_____	_____	_____
BIOL 103 Principles of Zoology (3)	_____	_____	_____
MICRO 130 General Microbiology (3)	_____	_____	_____

OTHER SCIENCE & MATH REQUIREMENTS

	GRADE	SESSION	YEAR
CHEM 161 General Chemistry (3)	_____	_____	_____
CHEM 161L General Chemistry Lab (1)	_____	_____	_____
CHEM 162 General Chemistry II (3)	_____	_____	_____
CHEM 162L General Chemistry Lab II (1)	_____	_____	_____
•MATH 241 Calculus I (4)	_____	_____	_____
PHYS 151 Non-calculus Physics I (3)	_____	_____	_____
PHYS 151L Non-calculus Physics Lab I (1)	_____	_____	_____
PHYS 152 Non-calculus Physics II (3)	_____	_____	_____
PHYS 152L Non-calculus Physics Lab II (1)	_____	_____	_____
ONE OF THE FOLLOWING:			
BIOL 171+ L Introductory Biology and Lab (4)	_____	_____	_____
ZOOL 101 Principles of Zoology (3)	_____	_____	_____
BIOL 103 Principles of Zoology (3)	_____	_____	_____
MICRO 130 General Microbiology (3)	_____	_____	_____

**2006-2007 GENERAL EDUCATION
UHM Core Requirements**

Note: Foundation and Diversification Courses must come from different departments

Foundations (12 credits)	Course taken															
Written Communication (FW): 3 credits (1 course) English 100, 100A English 101+101 Lab English Language Institute 100	FW:															
Symbolic Reasoning (FS): 3 credits (1 course) BUS 250 ECON 301 ICS 141, 241 MATH 111, 140, 203, PHIL 110, 110A, 111 MATH 100, 100A MATH215, 215A, 241, 241A, 251A REM 203	FS:															
Global & Multicultural Perspectives (FG): 6 credits, 2 courses from different groups <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><u>Group A</u></td> <td style="width: 33%;"><u>Group B</u></td> <td style="width: 33%;"><u>Group C</u></td> </tr> <tr> <td>Anthropology 151</td> <td>American Studies 150</td> <td>Geography 151, 151A</td> </tr> <tr> <td>Art 175</td> <td>Anthropology 152</td> <td>LLL 150</td> </tr> <tr> <td>History 151</td> <td>Art 176</td> <td>Music 107</td> </tr> <tr> <td>History 161A</td> <td>Geography 102</td> <td>Religion 150, 150A</td> </tr> </table> <p>History 152, 155, 162A External transfer students who transfer a Western Civilization course to UHM may take one FG course to satisfy the FG requirement. If the transfer course covered a particular time period, their FG course must cover a different time period.</p> <p>IMPORTANT message for students: Diversification courses must come from different departments than the courses used to satisfy the Foundations Global & Multicultural Perspectives requirement. For example, a student who takes ANTH 151 and ART 176 for her FG requirement cannot use Anthropology or Art courses to satisfy her Diversification requirement.</p>	<u>Group A</u>	<u>Group B</u>	<u>Group C</u>	Anthropology 151	American Studies 150	Geography 151, 151A	Art 175	Anthropology 152	LLL 150	History 151	Art 176	Music 107	History 161A	Geography 102	Religion 150, 150A	1. 2.
<u>Group A</u>	<u>Group B</u>	<u>Group C</u>														
Anthropology 151	American Studies 150	Geography 151, 151A														
Art 175	Anthropology 152	LLL 150														
History 151	Art 176	Music 107														
History 161A	Geography 102	Religion 150, 150A														
Diversification (19 credits)																
Arts (DA), Humanities (DH), & Literatures (DL): 6 credits from two areas (2 courses total)	1. 2.															
Biological Sciences (DB), Physical Sciences (DP), Science Laboratory (DY): 7 credits (1 course from DB, 1 course from DP, 1 course from DY)	DB: DP: DY:															
Social Sciences (DS): 6 credits from two departments	1. 2.															
UHM Graduation Requirements																
Focus* (Double Dipping with Diversification & Major OK) Contemporary Ethical Issues (E): one course Hawaiian, Asian, & Pacific Issues (H): one course Oral Communication (O): one course Writing Intensive (W): five courses, 2 upper-division level	E: H: O: W: W: W: W: W:															
*Transfer students from outside of the UH System have a pro-rated schedule. See UHM catalog or SOEST Student Academic Services (POST 713) for details.	W:															
Hawaiian or Second Language (competence at the 102 level) for SOEST Students Students must show competence at the 102 (or equivalent) level in Hawaiian or a second language by either completing a two-semester course sequence, demonstrating competence by exam, or receiving a waiver. Procedures have also been established by which students may earn "back credits" for experience with a language other than English.	101: 102: 															
06/06/06																

