

# Department of Geology

## Undergraduate Student Handbook

### GENERAL INFORMATION

The *Geological Sciences* curriculum provides a comprehensive background in each of the major areas of modern geology through a required sequence of courses in geology and basic undergraduate courses (such as chemistry, physics, and calculus). In addition to the core courses in geology, a wide range of geology electives offers exposure to more specialized topics.

Because fieldwork and observation are important aspects of geology, field trips are an essential part of many courses. Students have the option of participating in faculty-supervised, inter-semester field excursions (in the past we have traveled to Mexico, Great Britain and New England). Additionally the annual summer Geological Field Training course (field camp) in Wyoming, Utah, and Colorado serves as a rigorous and exciting part of the curriculum. The field camp complements the student's previous training and provides an opportunity to develop greater competence and self-confidence.

Faculty and students are active in research projects that study how and why features of the earth are formed, or what kind of threat they pose to communities. Active research in the department includes earthquake and volcanic hazard assessment; the study of debris flow and erosional landforms; site assessment for waste disposal and removal of toxic chemicals from the environment; analysis of tectonics related volcanism on Mars; the origin and characterization of faults and fractures; near-surface geophysical analyses; and the evolution, structural control, stratigraphy, and sedimentation of large continental basins.

### PROGRAMS IN GEOLOGY

The *BS in Geological Sciences* program is designed for students who will enter directly into geology-related employment upon graduation (energy resources, environmental consulting, State or National Geological Surveys, etc.), or will continue on to graduate school.

The *BA in Geological Sciences* program offers more flexibility in coursework and is designed for students interested in careers outside of geology that require a strong geological background, such as environmental law, high-school earth-science teaching, government policy, nature writing, etc.

The *Minor in Geological Sciences* will provide a good secondary area of concentration for all Civil, Structural or Environmental Engineering, Environmental Science, and Environmental Chemistry majors. In addition, The Geology minor offers broader exposure to the details of geology not available through the introductory sequences alone.

The *BA/MA Program* is designed to take five years, compared to the six years for a conventional BA (four years) followed by an MA (two years). This program is designed for students interested in careers outside of geology but requiring graduate-level schooling. Any geology major who meets the requirements may apply to the combined program during the second semester of their junior year. The student will receive a single BA/MA combined degree upon successful completion of the program.

The ***Geology Honors Program*** is in addition to the usual academic honors offered to students upon graduation by the university (baccalaureate degree with distinction, high distinction, etc.). Candidates accepted into the Geology Honors Program must have Junior status and a minimum GPA of 3.25 in Geology courses. Receipt of an Honors degree requires maintenance of a 3.25 or higher GPA, completion of a senior thesis and two additional 400 level courses in addition to the usual Departmental degree requirements. Additional information regarding application to the Honors Program is available from the Director of Undergraduate Studies.

The ***Hydrosciences Certificate Program*** consists of a sequence of courses in the Geography and Geology departments that is designed to familiarize the student with the movement of water on the earth's solid surface. Issues relating to the interactions of water flow with sediments, landforms and the earth's interior will also be treated. The program thus has significant components of geomorphology, hydrology and hydraulics, geohydrology, and fluvial processes. Interested students should speak with their advisor regarding the specific requirements.

## **GEOLOGY LIBRARY COLLECTIONS**

The Science and Engineering Library includes the Geology Collection of approximately 20,000 volumes, and a Map Collection of 100,000 sheet maps. The Map Collection includes large-scale topographic maps of the United States and Canada, and other areas of the world. Selected thematic maps of geology, gravity, seismology, nautical, and aeronautical charts are also available. Also located in this library are geological journals, books, and monographs. Indices and bibliographies are also housed there, as well as reserve materials requested by the department faculty. Bibliographic instruction is available from the Geology and Map Librarian on the use of the collection and on the method of searching for information in the geological sciences.

Michele Shular, Geology, Geography, & GIS Librarian

Telephone: 645-2947 ext. 223

E-mail: mshular@buffalo.edu

## **GEOLOGICAL COLLECTIONS**

The geological collections are maintained by the department curator, Peter Avery, who is available to assist individuals in the use of these resources. The collections consist of organized suites of rocks and thin sections from localities world-wide, the Church Mineralogical Collection, and special collections which include geological structures, meteorites, and other phenomena. The curator also maintains an inventory of rock and mineral material to support faculty and student research.

## **VISITING LECTURE SERIES**

In an effort to familiarize students and faculty with current research by specialists in the varied fields of geology, the Department has frequently scheduled lectures (collectively known as the Pegrum Lecture Series) presented by visiting scientists as well as members of this Department.

## **FACILITIES**

The Department maintains facilities for advanced study in the geological sciences. These include X-ray, geophysical, geochemical, sedimentation, clay mineralogy, petrographic, hydrologic, photogrammetric, volcanology, and morphometric shape analysis. The Department has a Sun image processing system for image processing and analysis. Active

sponsored research grants include those from NASA, the National Science Foundation, the U.S. Department of Energy, the American Chemical Society, The State of New York, and local industries.

### **THE UB GEOLOGICAL SOCIETY**

As a geology major, you are asked to join the UB Geology Club, an active undergraduate student organization that sponsors field trips, movies, visiting lectures, picnics and outings.

### **COMPUTERS**

The department maintains a 16 workstation PC computer laboratory in NSC 858. This laboratory primarily a teaching facility but is available to students outside of classtime. Students may enter the lab 24 hours per day via a UB card access system. To access the lab, students must be registered for a Geology course or request access from the Geology office. There is absolutely **NO DRINKING OR EATING ALLOWED IN THE LAB**. Students who are caught with food or drink in the laboratory will lose access privileges. Problems with computers and software in the lab should be forwarded first to Science and Engineering Node Support (SENS) via [nodehelp@nsm.buffalo.edu](mailto:nodehelp@nsm.buffalo.edu).

### **COMPUTER ACCOUNTS**

When you first register for classes, University at Buffalo Computer and Information Technology (CIT) supplies you with a computer account that will allow you to use several University computer facilities, such as e-mail, BIRD, SOAR, and access the Internet. For more information visit CIT's website ([www.cit.buffalo.edu](http://www.cit.buffalo.edu))

SENS (Science and Engineering Node Services) This computer account is needed for access to the departmental workstations, (which you will need for your classes and labs). You need to go to Rm. 101 in Bell Hall, with your student ID, and request a SENS account. We suggest that you make your SENS account name and password the same as your University account name and password.

**IMPORTANT:** You will have two e-mail accounts, one for each server (Possibly three, if you have one at home). To avoid missed messages, it is important that you forward your mail to one account.

### **E-MAIL**

The University supplies all of your professors and the departments with your e-mail address. **You must check this account daily** or set a forwarding address to an account that is checked daily (Your Internet Service Provider at your residence such as AOL, Adelphia, or Hotmail). The website **to set up a forwarding address** is [www.cit.buffalo.edu/mail](http://www.cit.buffalo.edu/mail).

### **DEPARTMENTAL REGULATIONS**

**Copy Machine:** The departmental Control Numbers (available in the main office) may be used by students at a cost of \$.05 a copy and \$.35 for transparencies.

**Departmental Equipment:** All students expecting to use department equipment must be certified either by an instructional technician or the faculty member in charge as to their qualifications. Field equipment is available and can be signed out by contacting the faculty, staff member, or student assigned that responsibility.

**Home Address and Phone Number:** Students are required to inform the department office of current residence address and phone number upon arrival, and any changes that occur thereafter. A forwarding address is required when leaving for a long period of time.

**Folders:** All undergraduate students a folder inside the office door. Often this is the only way of notifying students of important messages. **Check it daily.**

**Paychecks:** All paychecks must be picked up in the main office each payday. University regulations require that unclaimed checks be returned to Payroll immediately.

**Resources:** There are several binders available for your use in the office. Including Awards & Grants, Internships, Scholarships, and Associations & Professional Societies. You may borrow them for a period not to exceed 24 hours.

**Safety Training Seminar:** All students participating in laboratory research in our department MUST attend a yearly safety-training seminar that lasts approximately an hour. This training is coordinated by one of our Instructional Support Technicians.

## **ACADEMIC INFORMATION**

### **Advisor:**

At the time of your acceptance into the Geology Department, the Director of Undergraduate Studies will become your academic advisor.

### **Advisement:**

You **must** meet with your advisor at least once a semester prior to registering for the following semester. You should contact your advisor for an appointment or sign up during “Advisement Week”.

At the time of your advisement appointment, your DARS report (all University, General Education, and Departmental requirements) will be reviewed and satisfactory/unsatisfactory progress will be noted. The advisor will try to answer any questions you might have.

All areas of your DARS report will be reviewed and any concerns should be discussed. Any errors on your DARS report should be brought to the attention of the office staff so that a change request form may be submitted to have corrections made in time for degree conferral. (No changes can be made to DARS report after the conferral of a degree).

Any **exceptions** to the departmental requirements require the completion of the **Department of Geology Undergraduate Petition Form.** This form requires the approval and signature of the Director of Undergraduate Studies.

When the appointment is concluded both you and your advisor will sign the advisement record and the form will be returned to the office to be kept in your file.

### **Forced Registration:**

If the need arises for a student to be forced into a course, a forced registration form must be completed, signed by the professor teaching the class, and submitted to the office. The office can only force register a student into a geology course and only after all windows of registration have closed. If a student wishes to be forced into a class offered by another department, the student must contact that department and follow their rules.

**Transfer Credit:** To receive credit for a course taken at an accredited university or college, you must request an official transcript from the school where you took the course be sent

directly to the Office of Admission, 17 Capen Hall, SUNY Buffalo, Buffalo, NY 14260. The office of admissions will evaluate the course and have it added to your UB record.

**Before you take a course, check with CAS advisement to make sure that is equivalent to the course offered here at UB.**

### **OFFICIAL RECORDS:**

Your official records are kept in the office and it is extremely important that the office has copies of every aspect of your education at UB. This includes information about awards received, research being conducted, all nominations for awards, grants, fellowships and scholarship, placement in internship programs and other significant achievements. This sort of information is beneficial when the faculty review students' records for departmental awards and writing letters of recommendations.

### **BS DEGREE REQUIREMENTS**

#### **Acceptance to the Department:**

Applications should be made **after completion** of the first introductory course (GLY 101 Global Environmental Science or GLY 103 Evolution of the Earth and Solar System). A grade of C or better in that course and an overall average of at least 2.0 are required.

#### **Required Courses (54 cr)**

GLY 101-102 Global Environmental Science **or** GLY103-104 Evolution of the Earth and Solar System  
GLY 106 Geological Mapping Techniques  
GLY 215-216 Soft Rock: Sedimentology/Paleontology/Stratigraphy  
GLY 305-306 Mineralogy/Petrology  
GLY 312 –313 Surface Processes and Hydrology  
GLY 325 –326 Structure/Geophysics/Tectonics  
GLY 407 - Geological Field Training (To attend the UB summer field camp students must have a 2.0 average in geology courses.)

#### **Required Electives (6 cr)**

An additional six credit hours of 400 level geology courses (**not** GLY 493 or GLY 499)

#### **Required Courses Outside Geology (28 cr)**

CHE 101 – 102 General Chemistry  
MTH 121 – 122 Survey of Calculus and its Applications I & II  
PHY 101 – 102 College Physics I & II  
PHY 151 – 152 College Physics Lab I & II

**NOTE: A GPA of 2.3 is required in all courses required for the degree.**

### **BA DEGREE REQUIREMENTS**

#### **Acceptance to the Department:**

Applications should be made **after completion** of the first introductory course (GLY 101 Global Environmental Science or GLY 103 Evolution of the Earth and Solar System). A grade of C or better in that course and an overall average of at least 2.0 are required.

#### **Required Courses (34 cr)**

GLY 101-102 Global Environmental Science **or** GLY 103-104 Evolution of the Earth and Solar System

GLY 106 Geological Mapping Techniques

**Three of the following four sequences must be completed**

GLY 215-216 Soft Rock: Sedimentology/Paleontology/Stratigraphy

GLY 305-306 Mineralogy/Petrology

GLY 312 -313 Surface Processes and Hydrology

GLY 325 -326 Structure/Geophysics/Tectonics

### **Required Courses Outside Geology (14 cr)**

MTH 121(or higher) Survey of Calculus and its Applications

PHY 101 (or higher) College Physics

PHY 151 (or higher) College Physics Lab

CHE 101 General Chemistry

### **Recommended Courses (6 cr)**

GLY 407 Geological Field Training (To attend the UB summer field camp (GLY 407), students must have a 2.0 average in geology courses.)

**NOTE: A GPA of 2.3 is required in all courses required for the degree.**

## **BA/MA DEGREE REQUIREMENTS**

### **Acceptance Criteria:**

**Required Courses:** Any two of the following: GLY 215 (Soft Rock I: Sedimentology), GLY 305 (Mineralogy), GLY 312 (Surface Processes), GLY 325(Geophysics/Tectonics).

**Required GPA:** 3.0 in all courses required for the major

**Two letters of recommendations from faculty.**

### **Required Undergraduate Courses in Geology (40 cr)**

GLY 101-102 Global Environmental Science **or** GLY 103-104 Evolution of the Earth and Solar System

GLY 106 Geological Mapping Techniques

GLY 407 Geological Field Camp

**Three of the following four sequences must be completed**

GLY 215-216 Soft Rock: Sedimentology/Paleontology/Stratigraphy

GLY 305-306 Mineralogy/Petrology

GLY 312 -313 Surface Processes and Hydrology

GLY 325 -326 Structure/Geophysics/Tectonics

### **Required Courses Outside Geology (14 cr)**

MTH 121(or higher) Survey of Calculus and its Applications

PHY 101 (or higher) College Physics

PHY 151 (or higher) College Physics Lab

CHE 101 General Chemistry

### **Required Graduate Credit Hours in Geology (30 cr)**

Three (3) Credit Hours in each of the following areas: Environmental Geology, Volcanology, General Geology

Six (6) credit hours of Elective Geology Graduate Courses to be selected in consultation with advisor

Fifteen (15) additional credit hours to be selected to support career objectives with the advice and approval of advisor.

## **MINOR IN GEOLOGY REQUIREMENTS**

### **Acceptance to the Department:**

Applications should be made **after completion** of the first introductory course (GLY 101 Global Environmental Science or GLY 103 Evolution of the Earth and Solar System). A grade of C or better in that course and an overall average of at least 2.0 are required.

### **Required Courses (26 cr)**

GLY 101-102 Global Environmental Science **or** GLY 103-104 Evolution of the Earth and Solar System

GLY 106 Geological Mapping Techniques

GLY 215-216 Soft Rock: Sedimentology/Paleontology/Stratigraphy

**One of the following two sequences must be completed**

GLY 312 -313 Surface Processes and Hydrology

GLY 325 -326 Structure/Geophysics/Tectonics

### **Recommended Courses (6 cr)**

GLY 407 Geological Field Training (To attend the UB summer field camp (GLY 407), students must have a 2.0 average in geology courses.)

## **HONORS IN GEOLOGY REQUIREMENTS**

### **Admission Requirements:**

Candidates accepted into the honors program must have at least junior status in the BS program, a minimum GPA of 3.25 in geology courses (including the Chemistry, Math, and Physics courses required for the major), and have completed at least three courses in geology.

### **Apply in Writing:**

To the Undergraduate Committee, list the courses that you have taken within the major and grades received. You should have made preliminary contact with a potential senior thesis advisor and indicate in your letter to whom you have spoken and whether the faculty member has agreed to supervise your research. You will receive written notification of your acceptance into the Honors Program.

### **Requirements:**

Maintenance of a 3.25 GPA, completion of two additional 400 level Geology, and final approval of a senior thesis, as well as the usual departmental degree requirements.

## **GRADUATION REQUIREMENTS:**

- ❖ **A student must be formally admitted into the department**
- ❖ **A GPA of 2.3 or better is required in courses required for the degree**
- ❖ **Complete all of the University Requirements**
  - A. Formal admission to the university as a matriculating student.

- B. Acceptance to the department.
- C. Satisfactory completion of all academic requirements
- D. Minimum of 120 credit hours, 30 of these hours must be completed at UB.
- E. Departmental major requirements
- F. General Education requirements
- G. 2.0 GPA both overall and at the University at Buffalo.
- H. **Filing of an Application for Degree card with the Student Response Center**
- I. Clearance of financial obligations and return of all library book

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