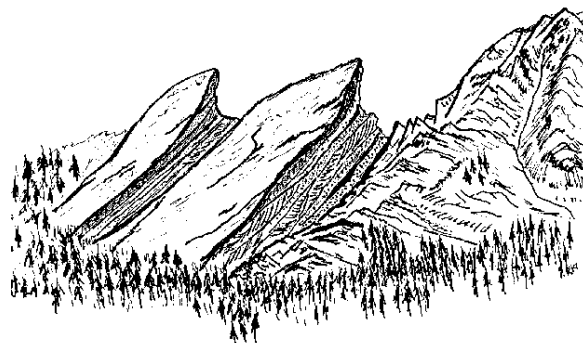
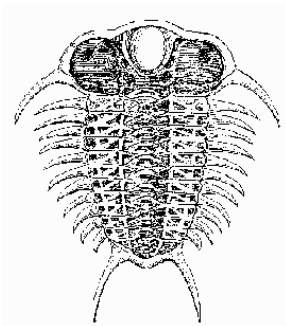
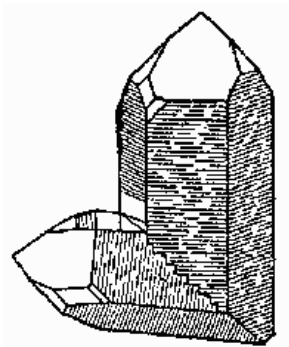


# Earth Science Undergraduate Handbook 2013-2014 Academic Year

Department of Earth Science  
Southern Connecticut State University



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## **Department of Earth Science**

The purpose of this handbook is to provide students with information concerning undergraduate programs in the Department of Earth Science at Southern Connecticut State University. This handbook will assist students with understanding and complying with university, departmental, and program policy and procedures. It is updated periodically to incorporate the most recent information available. Upon release of a new handbook, all information contained herein is superseded by the new student handbook. The University Student Handbook and the Undergraduate Catalog are the primary sources of regulations governing undergraduate studies. Information in this handbook does not take the place of those sources and students are responsible for consulting with each of those sources on a regular basis.

### **Mission Statement**

The Earth Science Department has undertaken as its mission the following:

1. Provide an opportunity for all undergraduates at SCSU to learn about their local environment, their planet Earth and its position in the Universe. Specifically, the sub-areas of Earth Science involved are Geology, Meteorology, Oceanography, Astronomy, and Environmental Geoscience, and the interrelationship between those areas.
2. Provide undergraduate students with the means to learn the methodology of science. In particular, they will learn how to plan, conduct, and validate experimentation and research in the sub-areas of Earth Science, to distinguish between valid research and that which masquerades as science, and to apply their knowledge of Earth Science to the understanding of commonly encountered problems of daily living.
3. Prepare undergraduate students for careers or graduate study in: Environmental Science, Geology, Meteorology, Oceanography, Earth Science Education, and a variety of fields for which a technical background in courses such as those taught by the Earth Science Department is appropriate, including but not limited to, Environmental Law, Science Writer, Laboratory Technician, and Engineering Aide.
4. Provide information about the Earth Sciences to the citizens of Connecticut, through consultation and visitation.

## People in the Department

	Office	Phone ext.	Campus E-Mail
<b><i>Full-time Faculty</i></b>			
Dr. Cynthia Coron, Professor	MO 214F	2-5840	coronc1
Dr. Thomas Fleming, Professor and Dept. Chairperson	MO 214A	2-5837	flemingt1
Dr. James Fullmer, Associate Professor	MO 207A	2-5841	fullmerj1
Dr. Michael Knell, Assistant Professor	MO 214D	2-5836	knellm1
Ms. Julie Rumrill, Instructor	MO 214C	2-5842	rumrillj1

### ***Part-time Faculty***

Mr. Christopher Balsley, Instructor	MO 214E	2-7211	balsleyc1
Mr. James Boyle, Instructor	MO 214E	2-7211	boylej4
Mr. Daniel Coburn, Instructor	MO 214E	2-7211	coburnd1
Ms. Jennifer Cooper, Instructor	MO 214C	2-5842	cooperj1
Mr. Keenan Golder, Instructor	MO 214E	2-7211	golderk1
Ms. Yolanda Lee-Gorishti, Instructor	MO 214E	2-7211	leegorishty1

### ***Department Secretary***

Ms. Christine Anderson	MO 214B	2-5835	andersonc30
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## Where to Get Help

If your question is related to a specific course or course-related content, contact the instructor of the course. You should contact the instructor in person or by phone during their posted office hours or via e-mail.

If your question is related to a general academic issue or non-course specific requirements, contact your academic advisor. You should contact your advisor in person or by phone during their posted office hours or via e-mail.

If you have questions or issues that require further attention, beyond that which would normally be given by the instructor or academic advisor, contact the Department Chairperson.

If you are having issues that cannot be resolved within the Earth Science Department, it is recommended that you consult with the Office of the Dean of the School of Arts and Sciences, Engleman Hall, Room A112, Phone number (203) 392-5468.

## Degree Requirements

### Liberal Education Requirements

Liberal education requirements for Earth Science majors are listed below. ESC - Education with secondary certification may have additional restrictions in some categories.

<b>LEP REQUIREMENTS</b>					
<b>Tier 1: Foundations (18 Credits)</b>					
FYE	Critical Thinking	Multilingual Communication	Quantitative Reasoning	Technological Fluency	Written Communication
INQ101	ANT 100; ART 106; ENV 101; GEO 105; HIS 150; JST 110; MDS 101; PHI 100, 215; PHY 111, 123; PSC 140, 150; SOC 102	ARB 200, CHI 200, FRE 200, GER 200, HBR 200, ITA 200, JPN 200, LAT 200, POR 200, RUS 200, SPA 200, 220	MAT 107, MAT 108, MAT 139, MAT 150	COM 135, 205; CSC 101, 104, 200; GEO 110; JRN 135; PHY 120; WMS 150	ENG 112
<b>Tier 2: Explorations (27 Credits)</b>					
American Experience		Creative Drive	Cultural Expressions	Global Awareness	Mind & Body
ANT 321; ENG 218; JRN 101; JST 210; HIS 110, 111, 248; PSC 210		ANT 211; ENG 201, 209; IDS 110; MAT 260; MKT 350; PHI 222; THR 227, 228	ART 104, 105; ENG 217; GEO 200; JST 200; MUS 110; THR 100	ANT 201; ECO 101; GEO 102; HIS 104, 105, 106; JST 204; MUS 115; PHI 211, 212; PSC 130, 230	ANT 204; EXS 212; PCH 201; PHI 120, 207; PSY 100, 208; SHE 203; SOC 265
Natural World I: Physical Realm		Natural World II: Life & Environment	Social Structure, Conflict & Consensus	Time & Place	
CHE 120		ESC 201  BS - ENV may also take ANT 102	ANT 101; ECO 100; EDU 200, 206; GEO 260; PSC 100, 200; SOC 203, 216, 235, 251; SWK 200	ANT 205; ESC 210; GEO 100; HIS 100, 101; PHI 296, 297	
<b>Tier 3: Connections (3 credits)</b>					
ANT 470; (ALL OF: CHE 301, 445, 496); EXS 403, 442; GEO 315; HIS 367; IDS 401; JRN 490; MDS 294; MKT 425; NUR 443; PCH 353; PHI/WMS 309; PSY 306; WLL 403					

### Math Requirement for All Earth Science Degrees:

All Earth Science students must complete one of the following two MAT options:

Option A:       MAT 108 — Mathematics for the Natural Sciences  
and one of MAT 107 — Elementary Statistics, MAT 221 — Intermediate Applied Statistics

Option B:\*       MAT 150 — Calculus I  
and one of MAT 151 — Calculus II, MAT 107 — Elementary Statistics, MAT 221 —  
Intermediate Applied Statistics

\* Option B is recommended for those preparing for graduate school.

## **Bachelor of Science Degree – Geology Concentration**

Required cognate courses:

BIO 102 — Zoology or BIO 103 — Botany

CHE 120 and 121 — General Chemistry I and II

PHY 200 — General Physics I or PHY 230 — Physics for Scientists and Engineers I

PHY 201 — General Physics II or PHY 231 — Physics for Scientists and Engineers II

Required Earth Science courses:

ESC 200 — Physical Geology

ESC 201 — Historical Geology

ESC 210 — Principles of Astronomy

ESC 220 — Physical and Chemical Oceanography

ESC 311 — Mineralogy

ESC 312 — Petrology

ESC 315 — Geomorphology

ESC 325 — Stratigraphy and Sedimentation

ESC 350 — Structural Geology and Tectonics

ESC 420 — Earth Resources

ESC 430 — Field Methods

Choose two courses from:

ESC 205 — Principles of Meteorology

ESC 303 — Environmental Earth Science

ESC 421 — Marine Geology

ESC 457 — Hydrology

ESC 458 — Soil Science

Thesis Requirement:

ESC 492 – Undergraduate Thesis Proposal

ESC 493 – Undergraduate Thesis

or

HON 494 — Honors Prospectus

HON 495 — Honors Thesis

or

Two additional Earth Science courses above the 200 level.

## **Bachelor of Science Degree – Environmental Earth Science Concentration**

Required cognate courses:

Two BIO courses from: BIO 102 — Zoology, BIO 103 — Botany, or BIO 120 — Basic Microbiology  
CHE 120 and 121 — General Chemistry I and II  
PHY 210 — College Physics  
PCH 202 — Introduction to Public Health  
CHE 340 — Environmental Chemistry, or PCH 359 — Environmental Health, or BIO 327 — Field  
Natural History  
ENV 401 — Pollution Prevention and Controls, or PCH 441 — Water Supply and Waste Water  
Treatment  
GEO 460 — Geographic Information Systems I

Required Earth Science courses:

ESC 200 — Physical Geology  
ESC 205 — Principles of Meteorology  
ESC 220 — Physical and Chemical Oceanography  
ESC 303 — Environmental Earth Science  
ESC 311 — Mineralogy  
ESC 325 — Stratigraphy and Sedimentation  
ESC 404 — Air Pollution Meteorology  
ESC 430 — Field Methods

Choose two courses from:

ESC 312 — Petrology  
ESC 315 — Geomorphology  
ESC 350 — Structural Geology and Tectonics  
ESC 420 — Earth Resources  
ESC 421 — Marine Geology  
ESC 457 — Hydrology  
ESC 458 — Soil Science

Thesis Requirement:

ESC 492 – Undergraduate Thesis Proposal  
ESC 493 – Undergraduate Thesis  
or  
HON 494 — Honors Prospectus  
HON 495 — Honors Thesis

or

Two additional Earth Science courses above the 200 level.

## **Bachelor of Arts Degree in Earth Science**

Required cognate courses:

BIO 102 — Zoology,  
or BIO 103 — Botany  
CHE 120 and 121 — General Chemistry I and II  
PHY 210 — College Physics

Required Earth Science courses:

ESC 200 — Physical Geology  
ESC 201 — Historical Geology  
ESC 205 — Principles of Meteorology  
ESC 210 — Principles of Astronomy  
ESC 220 — Physical and Chemical Oceanography  
ESC 303 — Environmental Earth Science  
ESC 311 — Mineralogy  
ESC 430 — Field Methods

Choose two courses from:

ESC 312 — Petrology  
ESC 325 — Stratigraphy & Sedimentation  
ESC 350 — Structural Geology and Tectonics  
ESC 420 — Earth Resources  
ESC 421 — Marine Geology

Choose two courses from:

ESC 315 — Geomorphology  
ESC 404 — Air Pollution Meteorology  
ESC 457 — Hydrology  
ESC 458 — Soil Science

## **Minor in Earth Science**

Required cognate courses:

CHE 100 — Challenge of Chemistry or CHE 120 — General Chemistry I  
PHY 200 — General Physics I or PHY 210 — College Physics

ESC 200 — Physical Geology  
ESC 205 — Principles of Meteorology  
ESC 210 — Principles of Astronomy  
ESC 220 — Physical and Chemical Oceanography

One additional Earth Science course at the 200-level or above.



## **Bachelor of Science Degree in Earth Science in Secondary Education (with 7-12 Certification)**

Required cognate courses:

BIO 102 — Zoology, or BIO 103 — Botany  
CHE 120 and 121 — General Chemistry I, and II  
PHY 210 — College Physics

Required Earth Science courses:

ESC 200 — Physical Geology  
ESC 201 — Historical Geology  
ESC 205 — Principles of Meteorology  
ESC 210 — Principles of Astronomy  
ESC 220 — Physical and Chemical Oceanography  
ESC 303 — Environmental Earth Science  
ESC 311 — Mineralogy  
ESC 430 — Field Methods

Choose two courses from:

ESC 312 — Petrology  
ESC 325 — Stratigraphy and Sedimentation  
ESC 350 — Structural Geology and Tectonics  
ESC 420 — Earth Resources  
ESC 421 — Marine Geology

Choose two courses from:

ESC 315 — Geomorphology  
ESC 404 — Air Pollution Meteorology  
ESC 457 — Hydrology  
ESC 458 — Soil Science

Education Requirements:

PSY 370 — Educational Psychology  
PHI 370 — Philosophy of Education  
HIS 110 or HIS 111 or HIS 112 — United States History  
SHE 203 — School Health  
EDU 201 — Introduction to Teaching Professions  
EDU 413 — Secondary Education  
SED 482 — Teaching Exceptional Students in Secondary Education Classrooms  
IDS 470 — Literacy in Content Areas  
IDS 471 — English Language Learners in the Classroom  
SCE 490 — Science (Secondary School)  
SCE 494 — Student Teaching (Science)  
SCE 496 — Student Teaching Seminar - Science

## **Department Communications**

It is important to keep in mind that faculty and staff are not on call 24 hours a day, 7 days a week. You should plan on a minimum of 24 hours for message turn-around via phone or e-mail during the regular work/class week (Monday through Friday) not including weekends and holidays. Most faculty are not employed over the summer or winter break so you should expect longer response times during those periods.

### **Department Office**

The Department Office is located in Morrill Hall, Room 214. The office is currently staffed from 8:00 am to 4:30 pm, Monday through Friday. The phone number is 203-392-5835. The fax number is 203-392-6885.

### **Mailboxes**

Every Earth Science major is provided with a mailbox that is located in Morrill Hall, Room 214. If you do not have a mailbox, please contact the Department Secretary to have one created for you. Please check your mailbox on a regular basis and dispose of unwanted materials.

### **E-mail**

The Earth Science Department will use your University e-mail address (lastname#@owls.southernct.edu) to contact you when there are important announcements. If you do not check this account on a regular basis, you should configure the account to forward mail to your preferred e-mail address.

### **Departmental Cell Phone Policy**

As a general rule, cell phones, pagers, and instant messaging devices must be turned off during class (both lecture and lab). Repeat offenders will be dismissed from class and/or administratively withdrawn from the course. If you have an emergency situation that requires access to a cell phone, please discuss your situation with the instructor. Electronic devices such as digital media players (ipods, zunes, etc), CD players, electronic dictionaries, and spell checkers are also not allowed in class except where provisions are required and approved by the Disability Resource Office. Cell phones with calculator functions may not be used in class as a substitute for a stand-alone calculator.

## **Academic Advisement**

### **Academic Advisors**

Upon entering the Earth Science Department, each student in the Earth Science program is assigned an academic advisor based on their degree program. Each semester department advisors will distribute registration PIN numbers and provide guidance for course selection. We encourage you to consult your advisor well ahead of the beginning of your registration period. Each advisor handles the advisement process differently; please consult with your advisor regarding how to set up an appointment and what materials will be needed during the advisement session. Current advisement assignments are given in the

table below. Upon mutual arrangement between faculty and student, students are also free to choose any other full-time faculty member as their advisor.

<b>Degree Program</b>	<b>Advisor</b>	<b>Contact Information</b>
New and Transfer Students (initial contact)	Dr. Thomas Fleming	MO 214A, ext. 2-5837
Bachelor of Arts	Dr. Thomas Fleming	MO 214A, ext. 2-5837
Bachelor of Science, General	Dr. Cynthia Coron	MO 214F, ext. 2-5840
Bachelor of Science, Geology	Dr. Michael Knell	MO 214D, ext. 2-5836
Bachelor of Science, Environmental Earth Sciences		
Student Last Name A – M	Dr. Cynthia Coron	MO 214F, ext. 2-5840
Student Last Name N – Z	Dr. James Fullmer	MO 207A, ext. 2-5841
Bachelor of Science, 7-12 certification	Dr. Thomas Fleming	MO 214A, ext. 2-5837

### Monitoring Your Progress

The information that you need to monitor progress toward your degree can be found in the Bannerweb degree evaluation module. You can experiment with different degree options by using the “what if” feature. It will be helpful to bring a printed copy of your degree evaluation to your academic advisor during your advisement sessions.

### Course Rotation

Not all ESC courses are taught every semester or every year. This is important to keep in mind as you plan your degree program. The table below provides a guide to the Earth Science Department’s planned course rotation over the next several years. Be advised that, as a result of student demand or instructor availability, the department may need to deviate from this planned long-term schedule.

<b>Course Number</b>	<b>Title</b>	<b>Offered</b>
ESC 200	Physical Geology	Every semester
ESC 201	Historical Geology	Spring semester, every year
ESC 205	Principles of Meteorology	Spring semester, every year
ESC 210	Principles of Astronomy	Fall semester, every year
ESC 220	Physical and Chemical Oceanography	Every semester
ESC 298	Special Topics in the Earth Sciences	as needed to meet demand
ESC 303	Environmental Earth Science	1 semester/year
ESC 311	Mineralogy	Fall semester, every year
ESC 312	Petrology	Spring semester, odd years only
ESC 315	Geomorphology	Fall semester, even years only
ESC 325	Stratigraphy and Sedimentation	Spring semester, even years only
ESC 350	Structural Geology and Tectonics	Fall semester, even years only
ESC 398	Advanced Topics in Earth Science	as needed to meet demand
ESC 404	Air Pollution Meteorology	Fall semester, even years only
ESC 420	Earth Resources	Spring semester, odd years only
ESC 421	Marine Geology	Spring semester, even years only
ESC 430	Field Methods	Fall semester, odd years only
ESC 457	Hydrology	Fall semester, odd years only
ESC 458	Soil Science	Spring semester, even years only
ESC 497	Internship in Earth Science	as needed, arranged by individual student
ESC 498	Advanced Topics in Earth Science	as needed to meet demand
ESC 499	Independent Study and Research	as needed, arranged by individual student

Even/odd = last digit of calendar year

## **Computer Requirement**

For ESC courses numbered 300 and above, the Earth Science Department requires that all students own or have access to a netbook or notebook computer that they can bring to class. The computer must be capable of accessing the University wireless internet service, have at least one USB port, and have installed Microsoft Office 2007 (or greater). Both Windows and Apple computers are acceptable although we recommend Windows-based computers for those who are planning a new or future purchase.

For those who do not already have a portable computer, the University has arranged discounts through a number of vendors including: Dell, HP, Sony, Lenovo, and Apple. Details of these discounts can be found at the following link: <http://www.southernct.edu/oit/softwareandhardware/>. If you shop around, you can also find similarly good deals with other vendors on the internet and at local stores.

The minimum requirements are filled by a less than \$300 netbook computer (typically equipped with an Intel Atom processor, 1 GB or more of DDR2 RAM, >160 GB hard drive, wireless G, 10" LCD screen, and Windows XP SP3 or Windows 7 or 8, and 2 or more USB ports). Typically these computers do not have disk drives with removable media (CD, DVD, Floppy) built in to the computer. The department will have a USB-based DVD drive for students to borrow if needed to install software. The requirements outlined are a minimum configuration and students may find it useful to consider a more enhanced netbook or laptop computer for other personal, academic or professional reasons.

The University provides members of the University community with a low cost copy of Microsoft Office 2010 (Word, Excel, Access), and MacAfee antivirus software. You should not have to purchase these items with your computer. The software can be downloaded at the following link: <http://www.southernct.edu/oit/softwareandhardware/>.

The University does not support or maintain personally owned computers so it is the student's responsibility to provide appropriate maintenance.

## **Praxis II Exam Graduation Requirement**

All students entering the ESC program after the Fall 2008 semester must take, and pass the Praxis II Earth and Space Sciences Content Knowledge Test that is administered by the Educational Testing Service. The exam is offered several times a year. Information for the exam is available at the following web site: <http://www.ets.org>. Appointments to take the exam must be made well in advance of the test date. Scores must be submitted to the ESC Department Chairperson prior to the beginning of the semester that the student intends to graduate. A passing score for the State of Connecticut is currently a 157 (possible scores can range from 100-200).

## **Professional Presentation Graduation Requirement**

All students entering the ESC program after the Fall 2008 semester must give a professional quality presentation. The presentation must be scheduled no later than the first week of the semester that the student intends to graduate. For students that have completed an undergraduate thesis, the presentation should consist of a synopsis of the thesis research results. For students in non-thesis programs, the topic must be preapproved by the student's academic advisor and Department Chairperson. The presentation should be approximately 30-40 minutes in length with additional time for questions. Alternatively, the requirement can be filled by primary authorship of a peer-reviewed research presentation at a scientific meeting (such as Geological Society of America Meeting, Long Island Sound Research Conference, etc).

In such cases, the student should provide a copy of the abstract and meeting circular/announcement to the Department Chairperson.

### **Senior Thesis Graduation Requirement**

It is recommended that students begin their senior thesis project no later than the beginning of their final year in the Earth Science Department. The thesis process consists of two separate courses that are graded separately and must be completed in consecutive semesters. These include Undergraduate Thesis Proposal (ESC 492) and Undergraduate Thesis (ESC 493). The faculty mentor will normally be the same person for both ESC 492 and ESC 493. The thesis requirement can be waived by taking two additional Earth Science courses above the 200 level.

#### ***ESC 492 Undergraduate Thesis Proposal (1 credit)***

Students will work independently on their thesis proposals with the guidance of a faculty mentor. Faculty mentors will be determined by mutual arrangement between the student and a full-time faculty member in the Earth Science Department. It is the student's responsibility to find a faculty member willing to serve as the project mentor. The Earth Science Department cannot guarantee any student a thesis mentor. An alternative non-thesis option (consisting of additional course work) is available for the completion of degree requirements.

Students are expected to meet with the faculty mentor at least bi-weekly throughout the semester. The faculty mentor will provide advice, direction, and support in the process of designing a viable undergraduate thesis proposal. The thesis proposal should outline original work that adds to the Earth Science discipline. The written proposal should include an outline of the research problem based on careful review of the scientific literature, a discussion of proposed research methodologies, a budget, and a time-table for completion of various tasks. It is expected that the student would work through several iterations in the process of developing the final version of the proposal and the final product should be reflective of at least 45 hours of work. Normally the final proposal would consist of 8-12 pages of double-spaced text plus additional supporting figures, tables, and references.

The course will be graded only on a Pass/Fail basis. Students will be evaluated based on the final version of the senior thesis proposal. Successful completion of the course will allow students to register for ESC 493 and follow through on the research project in a subsequent semester.

#### ***ESC 493 Undergraduate Thesis (3 credits)***

The ESC 493 course consists of completing the undergraduate thesis project which was developed during ESC 492 (Undergraduate Thesis Proposal). Students will work independently on their undergraduate thesis projects with the guidance of a faculty mentor. Students are expected to meet with the faculty mentor at least bi-weekly throughout the semester. The faculty mentor will provide advice, direction, and support in the process of completing the thesis project. The final written thesis should minimally include the following elements: Title Page, Abstract, Introduction, Methods, Results, Conclusions, Acknowledgements, and References Cited. It is expected that the student would work through several iterations in the process of developing the final version of the thesis and the final product should be reflective of at least 135 hours of work (including data collection, data analysis, literature review, and writing). Typically the final thesis would consist of 20-30 pages of double-spaced text plus additional supporting figures, tables, and references. Students will also be expected to give a public presentation on their research as part of an Earth Science colloquium series. That presentation will fulfill the professional presentation graduation requirement.

## **Application to Graduate**

Degrees are awarded three times a year—January, May, and August (fall, spring, and summer). Students must apply for graduation online through the Registrar’s Office website, [www.SouthernCT.edu/registrar](http://www.SouthernCT.edu/registrar) one year prior to their anticipated graduation date. The deadline for submission is April 15. For current information please refer to the “Are You Ready To Graduate” link on the Registrar’s Office website. There is no formal commencement at the end of the fall or summer terms. However, students completing degree requirements in the summer or fall may participate in the commencement ceremony held the following May. Diplomas are mailed approximately two months after the degree has been awarded.

## **Academic Honesty (From SCSU Student Handbook)**

### **University and Department Academic Honesty Policy**

Academic honesty is the cornerstone of higher education. An honest approach to one’s work is the only approach - in the laboratory, in research, or in examinations. Cheating of any kind is, and must be, condemned by all members of a college community.

Behavior that falls under the heading of academic dishonesty includes the following:

- A. The use of illicit aids during examination periods;
- B. The giving and receiving of aid on any examinations;
- C. Copying from another student’s examination, term paper, laboratory report, etc.;
- D. The falsification of work or records;
- E. The theft of course materials;
- F. Plagiarism: Plagiarism is using the words or ideas of another writer and presenting them as your own. It is a kind of academic theft, and is, therefore, dishonest. Once your name appears on an essay or term paper, you are stating that the ideas and language in the paper that are not attributed to another are entirely your own, and the reader assumes that these are your work. An obvious form of plagiarism is copying the exact words from your source without providing quotation marks and without giving credit to the source, usually in a footnote. A less obvious, but equally dishonest form of plagiarism, is the changing of a few words (paraphrasing) or using of an author’s original idea without properly introducing and documenting that change or usage. The ideas, interpretations, and words of an author belong to the author. They are the author’s property. They are protected by law and they must be acknowledged whenever you borrow them.

## Department Writing Standards

### Recommended Format for Papers Written for Earth Science Courses

- Papers should include a title page with the title of your paper, your name and the date.
- The main body of the paper should be double-spaced and include the appropriate number of pages of text (excluding graphics/figures, title page and references).
- Margins should be one inch on each side, top and bottom.
- Fonts should be Times New Roman, no smaller than 10 pt. and no larger than 12 pt.
- If you wish to include them, figures and tables should be numbered consecutively and appear in the page sequence adjacent to where they are first discussed in the paper (they may be on separate pages from the text). Figures should have captions below the figure and tables should have captions above the table.
- All figures or tables must be referred to in the text of the paper by a notation such as “(see Figure 1)” and should have appropriate captions and citations.
- The main text of the paper should be followed by a list of references in the style outlined for use in journals published by the Geological Society of America (see below). Only references cited in the text of the paper or sources of figures or other data may be listed.

### Citation/Reference Style

Direct quotes are very rarely used in scientific writing and should be only used if absolutely necessary. You should avoid direct quotations in your papers. Scientific ideas and data should instead be paraphrased so that you demonstrate a working understanding of the information. If it is important to include another author’s exact words, there should be an in-depth analysis of their statements that reflects the need for the direct quote.

The Geological Society of America (GSA) publications use a form of in-line citation. References to sources of information or ideas are noted in the body of the text by the author’s last name and date of publication in parenthesis such as “(Fullmer, 2007)”. These are usually placed at the end of the sentence or paragraph that contains information to be cited. Up to two authors can be listed such as “(Fleming and Elliot, 2004)”. If there are more than two authors, only the first author and the Latin word “et al.” (meaning “and others”) are placed in the text such as “(Coron et al., 2007)”. The complete list of references cited is given at the end of the paper. References are listed in alphabetical order by first author. For multiple author papers, all of the authors are listed in the order that they are given in the paper.

Examples of references for a map, journal article and book from the GSA style guide are given below:

- Ernst, W.G., 1993, Geology of the Pacheco Pass quadrangle, central California Coast Ranges:  
Geological Society of America Map and Chart Series MCH078, scale 1:24 000, 1 sheet, 12 p. text.
- Leigh, D.S., 1994, Roxana silt of the Upper Mississippi Valley: Lithology, source, and paleoenvironment:  
Geological Society of America Bulletin, v. 106, p. 430–442.

Twiss, R.J., and Moores, E.M., 1992, Structural geology: New York, W. H. Freeman and Company, 532 p.

More examples of the GSA citation style can be found at this web page:

<http://www.geosociety.org/pubs/geoguid5.htm>

### **Notes on Internet Sources**

Websites are generally not considered scholarly sources of information and you should only use them sparingly as citation sources when there are no other options. Internet web pages can provide an important starting point in your search for information for your paper but should definitely not be the only source that you use. Joe-Bob's Rock Shop may have some useful information on its web page but this would not be an appropriate reference for a serious scholarly paper. Follow the trail of information that these types of sources provide to more reliable sources which may be found in the peer-reviewed literature. Wikipedia and other open-source encyclopedias should not be considered scholarly sources of information. Anyone can create and/or edit a Wikipedia web page. If it is necessary, citations of web pages should include the author(s) of the web page, the title of the page, the date it was published, the appropriate URL (<http://...>), and the date the information was accessed. If you cannot identify this information, you should probably be questioning the reliability of the source. Many web pages are merely reproductions of material that was originally published in more formal literature sources. When that is the case, you should always use the formal citation for the original material.

Example of an internet citation:

Fleming, T. H., 2006, June 16, X-ray Laboratory. Retrieved November 6, 2007, from <http://www.southernct.edu/~fleming/XRAYhome.htm>.

### **Getting Involved**

The Earth Science Department urges each and every student to seek and create opportunities to work outside of the classroom.

### **Earth Science Seminars**

Everyone is welcome to attend any and all of the Earth Science Department's seminars. The seminars provide students with a snapshot of what's going on in the department and the science community.

### **Internships**

Internships are offered year-round by many businesses and governmental agencies. Declared Earth Science majors may earn credits from internships toward graduation through enrollment in ESC 497. Notifications of internship opportunities received by the Earth Science Department are posted on the bulletin board inside the Earth Science Department office.



## **Earth Science Club**

The Earth Science Club is a University-sanctioned student organization that promotes interest in the Earth Sciences. The club meets regularly in the Earth Science Department and frequently sponsors field trips, community service, and other activities.

### ***Club Officers***

President: Brian Mocci  
Vice President: Mario Turriago  
Secretary: Matt Ormrod  
Treasurer: Sara Merrick-Albano

### ***Club Advisor***

Dr. Cynthia Coron

### ***Club Members***

Members of the Earth Science Club can be contacted by e-mail.

Facebook address: SCSUearthscienceclub@groups.facebook.com  
e-mail: scsu\_earthscienceclub@yahoo.com

## **Summer Field Camp**

Field camp is a tradition in the education of Earth Scientists. It is an intensive summer course that applies classroom and laboratory training to solving problems in the field. Although we do not offer a traditional summer field camp at SCSU, students are encouraged to participate in a summer field course as an elective. Notifications of summer field camp opportunities offered at other universities are posted on the bulletin board inside the Earth Science Department office.

## **Employment**

### **Employment Opportunities**

Notifications of job opportunities received by the Earth Science Department are posted on the bulletin board inside the Earth Science Department office. In addition, information on Earth Science jobs can be found on the following web sites:

<a href="http://www.earthworks-jobs.com/">http://www.earthworks-jobs.com/</a>	Earth Science job postings
<a href="http://www.monster.com">http://www.monster.com</a>	General job postings including Earth Science jobs
<a href="http://www.cea.org/jobs/vacancies.cfm">http://www.cea.org/jobs/vacancies.cfm</a>	K-12 teaching positions in Connecticut