



Earth & Environmental Sciences

Understanding the Composition, Structure and Dynamics of Earth and Its Environments

Welcome!

- Introductions
- Department Culture
- Opportunities
- Expectations
- Advisory Process
- Teaching
- Facilities
- Safety
- Course selection
- Recent changes



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Introductions (graduate students)

New Students

- Tamara Carley
- Prakash Dhakal
- Jenny Murphy
- Ayla Pamukcu
- Andrew Roberts
- Mohammad Ullah

Continuing Students

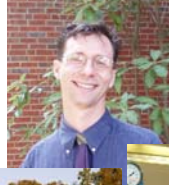
- Aaron Covey
- Susan Howell
- Lily Claiborne
- Daniel Flanagan
- Timothy Peters
- Kimberly Rogers
- Stacey Worman
- Maria Takahashi
- Beth Weinman
- Sarah Krentz
- Laura Robertson
- John Roseberry
- Lindy Colombini



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Introductions (faculty)



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Department Culture

- Size: We are a small (but fierce!) geoscience department by national standards, with 25-30 majors/minors and ~20 graduate students
- Intellectual setting: A strong, shared sense of community and mission aimed at the highest standards of scholarship at both the undergraduate and graduate levels
- Teaching: We place a premium on quality education, where graduate students have substantive, critical roles at the undergraduate level
- Research: Students and faculty together pursue fundamental questions aimed at steering the course of scientific thinking in our fields
- Citizenship: The Department thrives from enthusiastic participation of *all* of its members



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Department Citizenship

- To profession - this is a major time commitment!
 - D. Furbish, K. Savage, C. Miller have been or are serving on NSF grant review panels this year or last
 - S. Goodbred, D. Furbish, M. Miller = Editors, *Sed Record*
 - M. Miller is candidate for president of Paleontological Society
- To university community - this is a major time commitment!
 - D. Furbish developing environmental program, K. Savage on Chancellor's Committee on Environment
 - To broader community - school visits - B. Bream and S. Goodbred, J. Ayers
 - Jonathan Gilligan - newspaper editorials, public lectures



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Opportunities

- The intellectual freedom, and the necessary time commitment, of “graduate studenting”
- Campus resources, tangible and intellectual
- Taking courses from diverse disciplines
- Interacting with world-class colleagues and visitors
- Engaging in professional activities
- Volunteering for research projects



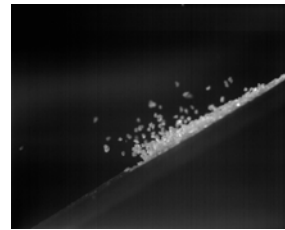


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Expectations

- Strive for excellence in scholarship – in studies and in teaching
- Participate in departmental activities (colloquia, field trips, etc.)
- Participate in hosting our visitors – internal and external – remembering that they leave our department as diplomats
- Engage intellectually with colleagues
- Participate in professional activities
- Aim at funding opportunities
- Take care of space, facilities, equipment
- Be engaged - 100%+

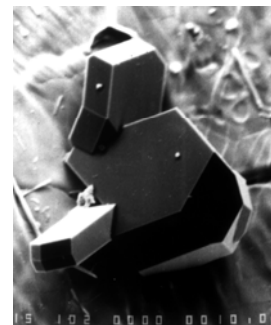


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Advisory Process

- DGS and faculty as a resource
- Selecting a supervisory committee
- Committee meetings each semester
- Program of study and selection of courses
- Developing a research project
- Progress toward degree requirements
- Aiming at the future





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Teaching

- The importance of EES lab courses to the mission and philosophy of the Department and University
- The substantive, critical role of graduate students
- Working with faculty responsible for the courses
- Enthusiasm, sensitivity to student needs in the learning process
- Reasonable and enthusiastic accessibility to students outside the classroom



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Facilities

- Computational equipment and resources
- Sample preparation and analytical equipment
- Field equipment
- Safety training, and the care and feeding of equipment
- Hancock Biological Station
- Vanderbilt resources
- Facilities of the national community



Personal Safety

<http://police.vanderbilt.edu/crprtips.htm>

- Walk or jog in groups of three or more.
- Avoid isolated or dark areas.
- Travel with confidence and purpose.
- Do not wear earphones while walking or jogging.
- Know the locations of emergency phones.
- Do not use ATMs at night.
- Stay alert, and plan ahead for "What if...?"

WORKPLACE SAFETY

- Know your neighbors or coworkers; you are the best one to determine who does not belong.
- Do not prop open exterior doors.
- If you come in through an electronic key card access door, do not allow strangers to enter with you on your code. They should have their own cards and codes.
- Always lock your door when you leave.
- Lock your door while you sleep or when you work late.
- Get involved. If you see someone you consider suspicious or out of place, CALL VANDERBILT POLICE IMMEDIATELY.

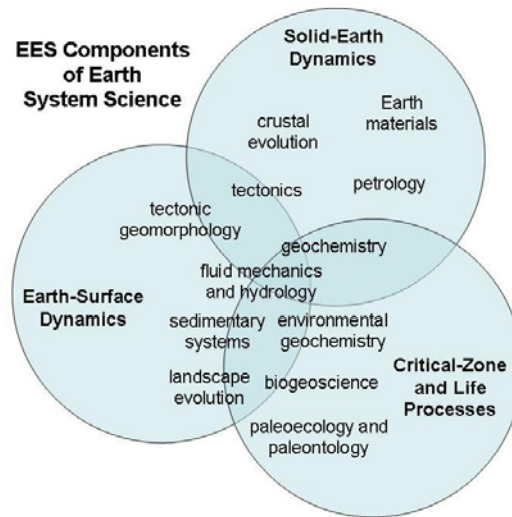
PROTECTING YOUR PROPERTY

- Register your bicycle with the Police Department.
- Mark and record your belongings with the Police Department through Operation ID.
- Keep your car locked. Store items of value in the trunk.
- Coats, backpacks, and purses should remain with you or be locked up

Objectives of EES Graduate Education

- The goal of the EES graduate programs is to help students develop as:
 - scientists
 - teachers
 - independent thinkers
- Rather than detailed knowledge, the most valuable class outcomes will be:
 - how to solve problems
 - how to communicate effectively
 - an understanding of how subfields are related

How research fields and courses are related



Objectives of EES Graduate Education

- The geosciences are becoming increasingly interdisciplinary, and most geoscientists engage in many different types of work over the course of their careers, so our graduates should:
 - be broadly trained
 - become “lifelong-learners” who will know how to obtain needed skills and apply them to solve any problem. This gives them flexibility that allows them to adapt to changes in job requirements and to move beyond the narrow fields of their original research discipline.
 - have a thorough understanding of the scientific method and of how scientists conduct research.
 - have a knowledge base grounded in Geology and supplanted by the relevant supporting subjects including Math, Chemistry, Biology Physics. A broad range of knowledge and skills provides the flexibility to adapt in the future to the increasingly interdisciplinary nature of geologic research.

Graduate-level courses offered this Fall

- EES 390-1 Sp. Topics: Constructing Earth's Crust (C. Miller)
- EES 279-1: Problems in Sedimentology and Paleobiology (M. Miller)
- EES 260 and 262: Geochemistry and Lab (Ayers)
- ENVE 262: Hydrology (LeBoeuf)
- ENVE 264: Environmental Assessments (Clarke)

Graduate-level courses offered this Spring

- EES 320: Aqueous Geochemistry (Ayers)
- EES 390-1: Environmental Mineralogy (Savage)
- EES 390-2: Advanced Mineralogy (Gualda)
- EES 390-3 TIES: Bangladesh (Gilligan and Goodbred)
- ENVE 270-1: Environmental Thermodynamics (Sanchez)
- ENVE 273-1: Environmental Characterization and Analysis (Clarke)

Recently offered 300-level classes (through 2006)

- Marine Geosystems (Goodbred)
- Geochemistry of the Early Earth (Ayers)
- Antarctica (M. Miller)
- Volcanic Processes (C. Miller)
- Environmental Mineralogy (Savage)
- Quaternary Environments (Goodbred)
- Environmental Applications of Geochemical Modeling (Ayers)
- Geomorphology (Furbish)
- Magmatic Processes (C. Miller)
- Aqueous Geochemistry (Ayers)
- Earth Fluids (Furbish)
- Sediments: Source-to-Sink (Goodbred)

200-level classes that Grad students can take for credit

- Science, Risk and Policy (Gilligan)
- Life through Time (M. Miller)
- Earth Materials (Gualda)
- Petrology (Ayers)
- Sedimentology (Goodbred)
- Structural Geology and Rock Mechanics (Bream)
- Hydrogeology (Savage)
- Environmental Geochemistry (Ayers)
- Geochemistry (Ayers)
- Methods in Environmental Geology (Savage)
- Problems in Sedimentology and Paleobiology (M. Miller)

Other courses to consider

- In addition to EES courses, EES graduate students should consider taking courses to bolster their general problem-solving skills:
 - Differential equations and linear algebra
 - Statistics and data analysis
 - Geographic analysis and mapmaking (GIS)
 - Methods courses (chemical analysis, field methods)

Resources

- <http://www.vanderbilt.edu/gradschool/>
- <http://www.vanderbilt.edu/ees/>
- <http://www.vanderbilt.edu/ees/resources>