

Curriculum Vitae
SUSAN MCGEARY, PHD

Department of Geological Sciences
University of Delaware
Newark, DE 19716-3140

smcgeary@udel.edu
☎ 302 831 8174
www.ceoe.udel.edu/our-people/profiles/smcgeary

EDUCATION

Post-Doc Geophysics, 1984-1987, Cambridge University (Drummond H. Matthews, Advisor)
PhD Geophysics, 1984, Stanford University (George A. Thompson, Advisor)
MS Geophysics, 1982, Stanford University
BS Geology, 1979, Stanford University

CURRENT POSITION

Associate Professor, Department of Geological Sciences, University of Delaware, Newark, DE

PROFESSIONAL HISTORY

Department of Geological Sciences, University of Delaware, Newark, DE	1987 - present
Coordinator of Undergraduate Program, 2013-present	
Chairperson, 2007 – 2012	
Interim Chairperson, 2006 – 2007	
Associate Professor, 1994 – present	
Assistant Professor, 1987 – 1994	
Joint Faculty, College of Marine Studies, University of Delaware	1987-2001
Associate Research Scientist, Lamont-Doherty Earth Observatory	1995-1996
Research Fellow and Post-Doctoral Scholar, Cambridge University, UK	1984-1987
Chief Scientist, Salar de Uyuni Seismic Experiment, Bolivia	2000
Co-Chief Scientist, Pacific/Bering Sea Seismic Cruise, R.V. Ewing	1994
Chief Scientist, Inner Delaware Shelf Experiment, R.V. Cape Henlopen	1992
Chief Scientist, Middle Delaware Shelf Experiment, R.V. Cape Henlopen	1990

HONORS AND ELECTED POSITIONS

Fellow of the Geological Society of America (GSA) (1999).
Chair, GSA Geophysics Division Board (1999)
Secretary of IRIS (Incorporated Research Institutions for Seismology) (1991-1993)
Chair, UD Chair's Caucus (2011-2012)
Vice-President UD University Faculty Senate (1998-2000)

ACCOMPLISHMENTS AS DEPARTMENT CHAIR (OVER 6 YEARS 2006-2012)

Department as a Whole: Worked with Dean Targett to facilitate merger of Department of Geological Sciences into new college – the College of Earth, Ocean, and Environment (CEOE) in 2006. This move gave departmental faculty new opportunities to collaborate and allowed faculty to take advantage of the new emphasis on interdisciplinary environmental and energy research within the UD Strategic Plan.

Some specific accomplishments of department faculty during term as department chair include:

- **Undergraduate Program:** New undergraduate curriculum approved in 2012 for the B.S. Geological Sciences, B.A. Geological Sciences, and B.S. Earth Science Education degree programs – designed to be more flexible for both students and faculty, while providing better sequencing and structure. Number of Geology majors increased from 25 in 2006 to 41 in 2009. Increased participation of undergraduates in departmental research and activities.
- **Graduate Program:** Completely revised Graduate Student Policy document, “The Stone Tablets”, with new Ph.D. Qualifying Exam procedures.
- **Faculty Development:** Implemented a mentoring program for assistant professors. Successfully hired 2 new faculty, both assistant professors [H. Michael in 2008 and C.Chan in 2009]. Both were awarded NSF CAREER grants in 2012. Revised P&T document. Joined the UD Advance group in 2012 and am currently in process of developing workshops for CEOE on the effective techniques for excellence and diversity in faculty recruitment.
- **Research:** The department’s research expenditures increased from \$ 187,499 in FY 2006 to \$ 809,648 in FY 2012, corresponding to an increase by a factor of 4.3 over six years, largely through the efforts of the junior faculty.
- **Public Relations:** Designed and installed new Drupal-based Department Website.
- **Development:** Worked with the college development officer to set up the Allan Thompson Field Experience Fund, an endowed fund to support the cost for undergraduate majors of attending field camp or participating in field courses or experiences.
- **Facilities:** Oversaw the renovation of much of Penny Hall to create a “research wing” faculty cluster, a new geobiology lab, a hydrogeology lab, a geovisualization lab, new departmental offices, and renovated bathrooms.
- **Managed the department and the budget:** Currently 8.2 faculty members, 2 staff members, and approximately 30 graduate students and 50 undergraduate students.

RESEARCH GRANTS/CONTRACTS

Principal Investigator and Co-Principal Investigator

NSF: The World in a River: Redesigning an Entry Level Earth Science Course for Pre-Service Elementary Teachers Through Authentic Investigations in a Local Watershed

Amount: \$290,308 (Co-PIs: Danielle Ford, UD, Jennifer Gallo-Fox, UD)

Date: 8/1/2016-7/31/2019

NSF: Neotectonics and Climate History of the Central Andes: High Resolution Seismic Reflection Imaging of the Salar de Uyuni, Bolivia

Amount: \$131,839 (Co-PI: Bruce Bills, NASA)

Date: 10/1/1999-9/30/2002

NSF: Pacific to Bering Sea Deep Seismic Reflection Experiment
Amount: \$850,000 (Delaware lead institution on cooperative grant with LDEO) UD share \$98,000
Date: 5/1994-11/1997

NSF: An Integrated Seismic Experiment Across a Continental Rift: The Newark Basin.
Amount: \$230,000 (w/Lead PI, A. Meltzer, Lehigh) UD share: \$84,124
Date: 5/1991-5/1993

NSF: Environmental and Quaternary Geophysics of Mid-Atlantic Region
Amount: \$12,000
Date: 7/1990-7/1991

Delaware Water Resources Center/USGS: Seismic Imaging of the Potomac Aquifer, New Castle County, Delaware.
Amount: ~ \$57k for 3 years Graduate Fellowship (w/P. McLaughlin as Co-PI)
Date: 8/2007-8/2010

Delaware Water Resources Center/USGS: Relationships Between the Geophysical and Hydrologic Characteristics of the Cocksfoot and Wissahickon Formations within the Delaware and Pennsylvania Piedmont.
Amount: \$42,405 (w/J. Madsen as Co-PI)
Date: 6/1990-6/1991

UD Ship Advisory Council: High-Resolution Seismic Study of the Quaternary Stratigraphy.
Amount: 4 days ship time (w/J. Madsen and J. Wehmler as Co-PIs)
Date: 6/1990-6/1991

University of Delaware Research Foundation, Inc.: Deep Structural Controls on Sedimentary Basin Evolution: The GRID Survey
Amount: \$12,000
Date: 4/1988-4/1989

College of Arts and Sciences, UD: Project Development – Archaeological Excavation Without Digging Using GPR: Santorini, Greece
Amount: \$1,000
Date: Summer 1995

UD Ship Advisory Council: Study of the Late Neogene Development of the Delaware Continental Shelf.
Amount: 4 days ship time (w/ Lead PI J. Madsen)
Date: 9/1991

RESEARCH MENTORING

Graduated Doctoral Students (4 total)

Claudia Velez Zullo, Ph.D. May 2012 (Now at Repsol, S.A.)

Dissertation: Seismic Imaging and Hydrogeologic Characterization of the Potomac Formation in Northern New Castle County, Delaware.

Joseph Dunbar, Ph.D. May 2011 (Now at U.S. Army Corps of Engineers)

Dissertation: The use of airborne geophysics for levee classification and assessment.

Michael J. O'Neal, Ph.D. January 1997 (Now at Loyola University)

Dissertation: Ground penetrating radar analysis of composite Quaternary coastal terraces on the northern margin of the Delaware Bay.

Peter Miller, Ph.D. May 1993 (Co-advised with J. Madsen)

Dissertation: A study of New Jersey coastal aquifers using high-resolution seismic reflection and well-log analysis methods.

Graduated Master's Degree Students (7 total)

Claudia Velez

Thesis: Using land-based seismic reflection methods to image the inner rim of the Chesapeake Bay impact crater on the southern Delmarva Peninsula.

Julia Daly

Thesis: Ground-penetrating radar investigation of Holocene and Pleistocene spit complexes in southeastern Delaware.

James Capasso

Thesis: A high-resolution seismic reflection experiment conducted under near-surface bedrock conditions: Central Newark Basin, New Jersey.

Jill Sotsky

Thesis: Ground-penetrating radar imaging of Quaternary stratigraphy in Delaware.

Kevin Garon

Thesis: A shallow seismic reflection survey of the Tertiary section in the Smyrna-Clayton area, Delaware.

Nigel Tindall

Thesis: Imaging the water table in an unconfined aquifer by seismic reflection and ground-penetrating radar.

Robert Genau (Co-advised with J. Madsen)

Thesis: Shallow land-based high-resolution seismic reflection techniques used to delineate paleochannels of the Susquehanna River system, Taylors Island, Maryland

Undergraduate Students Thesis or Special Project Advisement

Kelly Winters, Kristoffer Walker, Kristopher Crist, Kurt Goetz, Conrad Schaefer, Michael Schumacher

STEM EDUCATION ACTIVITY

Participated remotely in Earth Educator's Rendezvous 2017, Albuquerque, NM

Attended Earth Educator's Rendezvous 2016, Madison, WI

Attended HHMI/NAS Summer Institute on STEM Undergraduate Education, Harvard, June 2014

UD IT Technology in the Classroom Video and UDaily article

<http://www.udel.edu/udaily/2013/oct/classroom-tech-mcgeary-100212.html>

UD Summer Faculty Institute panel member and participant

TEACHING

Geophysics I GEOL 453/653 – Undergrad/graduate elective, 3 credits [8-15 students]

13 times: F88, F89, F90, F92, F94, S96, F97, F99, F02, F03, F05, S08, S16

Geodynamics GEOL 812 – Graduate, 3 credits [15-25]

4 times: S91, F94, F95, S98

Near Surface Geologic Systems Field Methods GEOL 604 – Grad required, 3 credits

1 time: F01

Geophysical Field Methods GEOL 451/667 – Undergrad/Graduate elective, 3 credits

2 times: F96, F98

Geological Sciences at Delaware GEOL 601 – Grad required, 1 credit

3 times: F02, F06, F12

Plate Tectonics & Geophysics GEOL 452 – Undergrad required, 3 credits
5 times: F93, S97, S98, S99, S00

Earth System Science GEOL 308 or 402 – Undergrad required, 4 credits
5 times: S00, S02, S03, S05, S07

Structural Geology & Tectonics GEOL 305 – Undergrad required, 4 credits [15-25]
4 times solo: F91, F09, F11, S19
3 times co-taught w/A. Thompson (1/3 course and 1/3 lab) F00, F01, F03

Earth Materials - Petrology GEOL 302 – Undergrad required, 4 credits [22 students]
1 time: S11

Earth Materials GEOL 202 – Undergrad required, 4 credits [23]
2 times co-taught w/C.Chan: F12, F13
2 times co-taught w/A.Wallace F14,

Senior Seminar GEOL 401 – Undergrad elective, 3 credits
4 times: S06, S08, S10, S14,

Geologic Hazards GEOL 105/115 – Introductory level, non-majors, 4 credits. [250-300 students]
12 times solo: F87, F08, S10, S11, F11, S12, F13, F14, F15, F16, F17, S18
2 times co-taught w/J. Pizzuto: F09, F10

Earth Science GEOL 113 – Intro level, required class for Elementary Ed, 4 credits. [150 students]
15 times: S05, S06, F12, W13, W14, S14, W15, S15, S16, S16, W17, S17, S18(2), S19

Earthquakes and Volcanoes GEOL 108 or 245 – Introductory level, non-majors, 3 cr [100-150]
7 times: S95, S99, Su03, S04, F04, F05, W06

Earth History GEOL 110 – Introductory level, majors and non-majors, 4 cr (75)
2 times: S15, F18

Historical Geology GEOL 106 – Introductory level, non-majors, 4 cr [103-165]
7 times: S88, S89, S90, S91, S92, S93, S95

Geowriting GEOL 433 – Undergrad required, 3 credits
2 times: S89, S90

Central Ideas of Physical Science GEOL 167 – Undergrad non-major, 3 credits
2 times co-taught w/K. Unruh and K. Theopold: F95, F96

Properties of Rocks and Minerals GEOL 204 – Undergrad required, 1 credit out of 4
9 times: S92, F92, F93, F94, F95, F96, F97, F98, F99

Special Courses and Seminars:

Continental Lithosphere Seminar, 3 cr, F87 (1 graduate students)
Geology of the Atlantic Coast, 3 cr F90 (1 undergraduate student)
Seismic Data Processing, 3 cr, F91 (1 graduate students)
Coastal Geophysics, 3 cr F2006 (1 graduate student);
Measurement Techniques for Mechanical Properties, 4 cr, winter 2006 (1 undergraduate student)
Computational Fracture Mechanics 3 cr, Spring 2006 (1 graduate student)

TEACHING GRANTS

UD IT Transformation Grant: Delivering Learning Experiences Online (2013). Group project.
Amount: \$1,000 per participant

CTE: Capstone Experience Development Grant (2007)
Amount: \$7,000

CTE: Instructional Improvement Grant: Central Ideas in Physical Science Course.
Amount: \$3000

1994: With K. Unruh (Physics) and K. Theopold (Chemistry)

UNIVERSITY SERVICE

University of Delaware

UD CURC member	2014-present
University Faculty Senate Undergraduate Committee	2013-2017
University Faculty Senator	2013-2017
Blue Hen Success Collab. Director Search Committee Member (Vice-Pres. Office)	2016
External Panel Member – Dept. Political Science 5-yr Academic Program review	2014
DENIN Director 5-yr Review Committee member	2013
NSF ADVANCE/UD President’s Diversity Initiative	2012
Chair, Chair’s Caucus	2011-2012
Chair’s Caucus Steering Committee	2010-2012
Chair’s Advisory Group to Human Resources	
DENIN Council of Fellows	
Vice President University Faculty Senate	1998-2000
University Faculty Senate Executive Committee	1998-2000
University Faculty Senate Committee on General Education	
University Faculty Senate Committee on Research	1995-1997

College of Earth, Ocean, and Environment

SMSP Director 5-yr Review Committee Member	2017-2018
Geological Sciences Department Chair	2006-2012
Chair, CEOE P&T Committee	2014-2015
CEOE P&T Committee	2013-2014
Geography Department Chair Search Committee Chair	2010
Academic Council	2006-2012
Transition Team	

College of Arts & Sciences

Physics Department Chair Search Committee	2012
College Steering Committee	1998-1999
Chair, Academic Planning & Program Evaluation Committee	1998-1999
Chair, Task force to evaluate BS Biotechnology Program	1998-1999
College Senator	1996-1998

Faculty Search Committees

Member, Geophysics Search	2018
Chair/Member, Visiting Assistant Professor Search	2018
Member, Visiting Assistant Professor Search	2013
Chair, Geochemistry Search	2012
Member, Geobiology Search	2008
Member, Hydrogeology Search	2007
Chair, Coastal Geology Search	2004
Member, Physics Search	1994-1995

Departmental Standing Committees

Coordinator of the Undergraduate Program	2013-present
P&T Committee member	2015
Safety Committee	2006-2012
Chair, Graduate Admissions	1991-2006
Ph.D. Qualifying Exam Committee	
Seminar Series Organizer	

Departmental Ad-Hoc Committees

Assessment Fellow	
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ACADEMIC SERVICE OUTSIDE THE UNIVERSITY OF DELAWARE

- External Examiner for Claire Price, Ph.D. Dissertation, Imperial College, London December 1999 (Advisor: J. Morgan)

PROFESSIONAL SERVICE

Leadership Roles

Geological Society of America (GSA) – Fellow

- Chair, Geophysics Division Board 1999
- Member, Geophysics Division Board 1997-1998
- National Meeting Joint Technical Program Committee Representative 1999

American Geophysical Union (AGU)

- Heads & Chairs Advisory Committee Member 2008-2010
- Near Surface Geophysics Focus Group Executive Committee Member 2008-2009

Incorporated Institutions for Seismology (IRIS)

- Secretary of IRIS (elected) 1991-1993
- IRIS Executive Committee Member 1993-1995
- UD Representative 1991-present

National Science Foundation (NSF)

- NSF Review Panel Member – Polar Programs 1996-1998
- NSF Geophysics Program – Member of Committee of Visitors 1992
- NSF Marine Geology & Geophysics Review Panel Member 1992-1993

A. Symposium Organizer at International Meetings

- *Co-organized Near Surface Geophysics sessions at AGU in Montreal* 2004
- *Organized science program of IRIS Workshop* 1993
- *Co-organized special session on Near Surface Geophysics AGU* 1995

B. Professional Memberships

- American Geophysical Union
- Geological Society of America
- National Association of Geoscience Teachers
- Incorporated Research Institutions for Seismology

PUBLICATIONS

McGeary, S., Ford, D., Gallo-Fox, J., Ackerman, C.M., 2017, Active Learning Within the Framework of the NGSS in a Large Earth Science Course for Pre-Service Teachers, AGU Fall Meeting 2018, Washington, D.C.

McGeary, S., Ford, D., Gallo-Fox, J., Ackerman, C.M., 2017, “The World in a River”: Redesigning an Earth Science course for pre-service elementary teachers within the framework of the NGSS, Geological Society of America *Abstracts with Programs*. Vol. 49, No. 6.

Calvert, A.J., and **McGeary, S., 2013, Seismic reflection imaging of ultra-deep roots beneath the eastern Aleutian island arc, *Geology*, 41, 203-206**

- Velez, C.C., McLaughlin, P.P., **McGeary, S.**, and Sargent, S.L., 2009, Land streamer seismic data from northern Delaware: A viable alternative for imaging aquifers in suburban areas, *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract NS13A-1136.
- Velez, C., **McGeary, S.**, Hole, J.A., Powars, D.S., and Catchings, R.D., 2004, High-resolution seismic imaging of the Chesapeake Bay impact inner crater rim stratigraphy, Geological Society of America *Abstracts with Programs*. Vol. 36, No. 5, p.144.
- Walker, K.T., **McGeary, S.**, and Klemperer, S.L., 2003, Tectonic evolution of the Bristol Bay basin, southeast Bering Sea: Constraints from seismic reflection and potential field data, *Tectonics*, 22, 19p., doi:10.1029/2002TC001359.
- Lizarralde, D., Holbrook, W.S., **McGeary, S.**, Bangs, N.L., and Diebold, J.B., 2002, Crustal construction of a volcanic arc, wide-angle seismic results from the western Alaska Peninsula, *JGR – Solid Earth*, 107, 22p., doi:10.1029/2001JB000230.
- O’Neal, M.L., and **McGeary, S.**, 2002, Late Quaternary stratigraphy and sea-level history of the northern Delaware Bay margin, southern New Jersey, USA: A ground penetrating radar analysis of composite Quaternary coastal terraces, *Quaternary Science Reviews*, 21, 929-946.
- Daly, J., **McGeary, S.**, AND Krantz, D.E., 2002, Ground-penetrating radar investigation of a late Holocene spit complex: Cape Henlopen, Delaware, *J. Coastal Research*, 18, 274-286.
- McGeary, S.**, Bills, B.G., and Jimenez, G., 2001, Near-surface reflection seismology study of Quaternary neotectonics and stratigraphy on the Bolivian Altiplano, Geological Society of America *Abstracts with Programs*. Vol. 33, No. 6, October 2001, p.2055
- Holbrook, W.S., Lizarralde, D., **McGeary, S.**, Bangs, N., and Diebold, J., 1999, Structure and composition of the Aleutian island arc and implications for continental crustal growth, *Geology*, 27, 31-34.
- McGeary, S.**, Daly, J., and Krantz, D.E., 1998, High-resolution imaging of Quaternary coastal stratigraphy using ground-penetrating radar, Proc. Seventh International Conf. On Ground Penetrating Radar (GPR '98), 273-277.
- Miller, P.T., **McGeary S.**, and Madsen, J.A., 1996, High resolution seismic reflection images of New Jersey coastal aquifers, *Groundwater Geophysics*, Ed. Carpenter, P., *Journal of Environmental & Engineering Geophysics*, 1, 1, 55-66.
- Genau, R.B., Madsen, J.A., **McGeary, S.**, Wehmiller, J.F., 1994, Seismic-reflection identification of Susquehanna River paleochannels on the Mid-Atlantic Coastal Plain, *Quaternary Research*, 42, 166-175.
- ACCRETE Workshop Steering Committee, 1991, ACCRETE: A Study of Continental Growth, *EOS*, 297, 301, 304.
- Flack, C.A., Klemperer, S.L., **McGeary, S.E.**, Snyder, D.B., and Warner, M.R., 1990, Reflections from mantle fault zones around the British Isles, *Geology*, 18, 528-532.

- McGeary, S.**, 1989, Reflection seismic evidence for a Moho offset beneath the Walls Boundary strike-slip fault, *J. Geological Society of London*, 146, 261-269.
- McGeary, S.**, 1987, Nontypical BIRPS on the margin of the northern North Sea – The SHET Survey, *Geophys. J. of the Royal Astron. Society*, 89, 231-237.
- McGeary, S.**, Warner, M.J., Cheadle, M.J., and Blundell, D.J., 1987, Crustal structure of the continental shelf around Britain derived from BIRPS deep seismic profiling, in *Petroleum Geology of North West Europe*, J. Brooks and K.W. Glennie eds, 33-42.
- Warner, M., and **McGeary, S.**, 1987, Seismic-reflection coefficients from mantle fault zones, *Geophys. J. Royal Astron. Society*, 89, 223-229.
- Cheadle, M.R., **McGeary, S.**, Warner, M.R., and Matthews, D.H., 1987, Extensional structures on the western U.K. continental shelf: A review of evidence from deep seismic profiling, in *Continental Extensional Tectonics*, Geological Society of London Special Publication No. 28, 445-466.
- Matthews, D., Hobbs, R., Klemperer, S.L., **McGeary, S.**, Peddy, C.P., Warner, M.R., and Smith, C.A., 1987, Some unresolved BIRPS problems, *Geophys. J. Royal Astron. Society*, 89, 209-215.
- BIRPS & ECORS, 1986, Deep seismic reflection profiling across the British Variscides and the Southwest Approaches: The SWAT profiles, *J. Geological Society of London*, 143, 45-52.
- McGeary, S.** and Warner, M.R., 1985, Nature, Seismic profiling the continental lithosphere, *Nature*, 317, 795-797.
- McGeary, S.** Nur, A., and Ben-Avraham, Z., 1985, Spatial gaps in arc volcanism – The effect of collision or subduction of oceanic plateaus, *Tectonophysics*, 119, 195-221.
- McGeary, S.** and Ben-Avraham, Z., 1985, The accretion of Gorgona Island Colombia: Multichannel seismic evidence, in *Tectonogratigraphic Terranes of the Circum-Pacific Region*, AAPG Special Publication 543-554.
- Cape, C.D., **McGeary, S.**, Thompson, G.A., 1983, Cenozoic normal faulting and the shallow structure of the Rio-Grande rift near Socorro, New Mexico, *GSA Bulletin*, 94, 3-14.
- McGeary, S.E.**, and Ben-Avraham, Z., 1981, Allochthonous terranes in Alaska – Implications for the structure and evolution of the Bering Sea Shelf, *Geology*, 608-614.