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Summary

The graduate program in Environmental Studies program admitted its first students in fall of 2008. Originally established as an MA degree program, it was redesignated as an MS in the fall of 2013.

Currently, the MS in Environmental Studies curriculum consists of 33 total credit hours. Fifteen of those credit hours comprise the core of the program. An additional three credit hours of applied learning are required. The remaining 15 credit hours is within the student’s concentration, either Coastal Management, Environmental Management, Environmental Education and Interpretation, Marine and Coastal Education, or Individualized Study. Apart from the addition of the Marine and Coastal Education concentration and transition to an MS degree, the program structure has remained essentially unchanged since inception. As of fall 2014, the MS in Environmental Studies is a healthy, vibrant program enrolling nearly 40 students.
General characteristics of and brief history of the academic unit

Departmental history

It is apparent that the health of global environment presents one of the most critical issues facing all nations independently, as well as the earth’s community as a whole. Growing population, greater consumption, increasing competition for resources and global impacts of resource use, combined with technological advances and new scientific discoveries, all play an important role in an applied understanding of the environment. Environmental studies is therefore a field wherein both the problems, and their solutions, require interdisciplinary approaches. It is a field where information is fast-flowing and technologies are rapidly evolving. With growing public concern over new regulations, particularly within coastal areas, there is a great demand for professionals with expertise in environmental assessment, management, and public outreach skills to understand and address these regulations. According to the Bureau of Labor Statistics (2014), “Employment of environmental scientists and specialists is projected to grow 15 percent from 2012 to 2022, faster than the average for all occupations. Heightened public interest in the hazards facing the environment, as well as the increasing demands placed on the environment by population growth, is expected to spur demand for environmental scientists and specialists” (see http://www.bls.gov/ooh/life-physical-and-social-science/environmental-scientists-and-specialists.htm).

The Department of Environmental Studies (EVS) was established in 2003 within the College of Arts and Sciences. Prior to this date, it had functioned as an interdisciplinary program since 1977, drawing upon faculty from across campus to teach relevant coursework, particularly from the departments of Geology and Geography, Biology and Marine Biology, Physics and Physical Oceanography, Public and International Affairs, and Health and Applied Human Sciences. Administration of the program shifted between various departments depending upon faculty interest and workload availability. Upon establishment as a department in 2003, four faculty positions were shifted from other departments to create the core of the faculty. At that time, the Environmental Studies curriculum consisted of BA and BS degrees as well as a Post-Baccalaureate Certificate.

Recognizing the latent demand for a masters-level program in environmental studies, the department began to plan for the repositioning of the existing Post-Baccalaureate Certificate as a degree-granting program in 2006. The rationale for the program was, and is, justified by the Bureau of Labor Statistics’ professional outlook for the field; “For most entry-level jobs, environmental scientists and specialists must have a bachelor’s degree in environmental science or a science-related field…However, a master’s degree may be needed for advancement” (see http://www.bls.gov/ooh/life-physical-and-social-science/environmental-scientists-and-specialists.htm). A master’s degree would make students more competitive in local, regional and national job markets, and provide them with a wider and deeper skill set than was currently available from any other public environmental master’s program regionally.

In 2008, an MA in Environmental Studies was established as a Professional Science Master’s Program at the University of North Carolina Wilmington and opened its doors to its first cohort of students. Four concentrations were available: Coastal Management, Environmental Management, Environmental Education and Interpretation, and Individualized Study. Many of
the first EVS MA admissions came from the Post-Baccalaureate Certificate student body.

In 2013, a request to change the designation of the MA to an MS was approved by UNC General Administration. The first students to receive the MS degree in fall of that year transferred from the MA. Additionally, in 2013, the Post-Baccalaureate Certificate program was discontinued as the EVS faculty determined that the department should focus its limited resources solely on the three degree-granting programs.

Since establishment of the department, student enrollment has grown quickly to a total of approximately 300 undergraduate majors in BA and BS programs, 25 minors, as well as approximately 40 graduate students in the MS (as of fall 2014). As of 2014, the Environmental Studies is the fastest growing department in terms of undergraduate majors, experiencing a 170% growth since 2009. Over the same period of time, faculty numbers have not seen comparable growth. As of fall 2014, the department is comprised of 7 tenure-track faculty members, 1 research associate professor, one full-time lecturer, and one half-time lecturer. Of the seven tenure-track faculty, three hold administrative lecturers, which limits their teaching contribution. Additionally, two have non-teaching duties, which limits their academic contributions as well. Two of the remaining tenure-track faculty will retire in 2015. The disposition of those faculty lines remains uncertain at this time.

**Philosophy**

The Department of Environmental Studies focuses on the relationship between humans, other organisms, and the physical, chemical, and biological aspects that influence both natural and engineered environments. Faculty study natural environmental processes to understand their effects on society and the effects society has on those processes.

The curriculum is designed to provide students with the scholarly background necessary to understand and address today’s environmental problems. It is an interdisciplinary curriculum drawing upon the resources of many related fields to provide the rigorous analysis necessary to understand environmental problems and formulate and implement environmentally sound solutions.

The faculty work closely with students both in and out of the classroom. In the process of teaching and guiding the students, the faculty build strong relationships with students through formal and informal interactions. These relationships often persist after the students enter the professional world, providing a professional network centered on the UNCW EVS MS experience.

**Mission**

The Department of Environmental Studies is a community of scholars dedicated to excellence in teaching, scholarship, research, and service. The department strives for excellence in teaching and offers a modern curriculum leading to Bachelor of Arts in environmental studies, a Bachelor of Science degree in environmental science, and a Master of Science in environmental studies. The department considers the use of experiential education, including internships and practica, honors projects and directed individual studies, to be essential for effective learning. The
department is committed to preparing its students for careers in the emerging knowledge-based economy and helping them become life-long learners.

The department seeks to enrich the learning environment through the active professional development of its faculty. This includes professional development in teaching, scholarship, research, and service. The department is committed to providing leadership in the use of emerging concepts, technologies, and techniques both on campus and in the surrounding region. The department regularly sponsors lectures and other activities to enrich the academic life of the campus and the community at-large.

The department supports the university’s values of diversity, global perspectives, community citizenship, and human integrity.

**Departmental goals**

Goal 1 – To provide a high quality graduate and undergraduate program.

*Strategies:*

A. By continually reviewing and revising the degree programs to ensure that theories, practices, and standards are consistent with professional practice and demands of the job market.

B. By improving student problem-solving skills using a combination of classroom, laboratory, and experiential activities.

C. By providing a modern learning environment for students to develop the latest techniques and applications in the field.

D. By providing state-of-the-art facilities for faculty and students.

E. By rewarding faculty efforts to create and offer new courses and experiment with new ways of teaching and learning.

F. By providing students with opportunities that will enhance their ability to become life-long learners.

Goal 2 – To increase faculty professional development opportunities.

*Strategies:*

A. By increasing travel support for seminar, workshop, and conference attendance.

B. By seeking external funding to sponsor professional development activities.

C. By encouraging faculty initiatives in consulting, short-course development, and other external activities for pay.

Goal 3 – To improve research opportunities for graduate and undergraduate students.

*Strategies:*

A. By involving students in ongoing basic and applied research and scholarly activities as part of the teaching-learning process.

B. By actively pursuing external funding aimed at graduate and undergraduate student research.
Goal 4 – To increase externally funded faculty research.

**Strategies:**
A. By encouraging and rewarding faculty involvement in scholarship and research activities.
B. By pursuing opportunities to obtain funding from off-campus agencies to sponsor research and other mission-related activities.
C. By encouraging faculty collaborations, seminars, and research groups.

Goal 5 – To share in the role of faculty governance through committee participation at all levels within the University.

**Strategies:**
A. By rewarding faculty service on departmental, college, and university committees.
B. By regularly offering faculty the opportunity to serve on ad-hoc and other special committee assignments.

Goal 6 – To support faculty service activities in the profession as well as to the community at-large.

**Strategies:**
A. By supporting service to the scientific and professional communities that contribute to the discipline of environmental studies.
B. By applying professional expertise to address regional, national, and international needs in environmental studies.
C. By creating internship experiences that provide education for students and serve the needs of regional environmental organizations and local municipalities.
D. By rewarding faculty who engage in significant service activities that enhance the departmental mission and bring an international perspective to the learning community.

Goal 7 – To improve awareness and sensitivity to diversity in both the faculty and student body.

**Strategies:**
A. By actively recruiting faculty and students from minority and other underrepresented groups.
B. By supporting and participating in university efforts to engage the community in diversity and social justice issues.

**Program planning, evaluation, and assessment**

The planning, evaluation, and assessment processes in the Department of Environmental Studies involve a variety of activities, including but not limited to:

- internal reviews (regularly scheduled department meetings throughout the year).
- external program reviews as directed by the university.
- comprehensive long-range planning as directed by the university.
- special reviews initiated by departmental faculty.
The Department of Environmental Studies has a comprehensive program planning and evaluation process. The planning process occurs at departmental meetings, both formal and informal. All faculty are involved in the planning process. Departmental meetings include a report by the department chair on the state of the department, including the number of majors; enrollment trends; spending by budget category; student internships and career placements; faculty and staff hiring updates; and summary figures on faculty and student achievements. The department chair establishes departmental faculty committees as needed.

Program evaluation is carried out in a variety of ways. Faculty are involved with external agencies for consultation on curriculum evaluation based on our internship and practicum programs as well as other schools’ both within and outside of the University of North Carolina system. As part of UNCW’s emphasis on program assessment, the Department of Environmental Studies has instituted learning outcomes assessment in conjunction with the university’s assessment office. The Chair keeps the current program/student outcomes assessments and evaluation on file and produces an annual report.

Findings of previous reviews

Recently established in 2008, the MS in Environmental Studies is a relatively new program, and therefore has had previous formal program reviews.

General program characteristics

The MS in Environmental Studies is a truly interdisciplinary graduate program by design. The curriculum not only reflects the complexion of the contemporary environmental profession, but grew from the interdisciplinary nature of the undergraduate Environmental Studies BA and BS curricula, as well as Post-Baccalaureate Certificate. The MS program focuses on creating environmental professionals who possess the skills and knowledge necessary to identify and critically analyze environmental issues, and effectively work to address those issues. To this end, the faculty believe that an interdisciplinary perspective is essential. Thus, apart from the core coursework in Environmental Studies, students take elective coursework in a wide range of content areas to enhance both the breadth and depths of their knowledge and skills. Departments offering coursework to support the MS in Environmental Studies include:

- College of Arts of Sciences
  - Department of Biology and Marine Biology
  - Department of Chemistry and Biochemistry
  - Department of Computer Science
  - Department of English
  - Department of Geography and Geology
  - Department of History
  - Department of Mathematics and Statistics
  - Department of Public and International Affairs

- Watson College of Education
  - Department of Early Childhood, Elementary, Middle, Literacy, and Special Education
  - School of Health and Applied Human Sciences
• College of Health and Human Services
  o Department of Instructional Technology, Foundations, and Secondary Education
• Cameron School of Business
  o Department of Economics and Finance
  o Department of Management and Marketing

In creating the graduate program, the growth and demands of the environmental profession were balanced with core strengths of the faculty of the Department of Environmental Studies. As such, four concentrations were initially defined: Coastal Management, Environmental Education and Interpretation, Environmental Management, and an Individualized Study concentration for those students wishing to delineate a unique curricular sequence, such as Applied Environmental Geographic Information Systems. In fall of 2014, a new concentration in Marine and Coastal Education was created to accommodate demands of both students and prospective employers.

Today, the MS in Environmental Studies is a robust program consisting of approximately 40 students spread between these concentrations. The graduate program has enhanced the intellectual climate of the department. Students are engaged within both the curriculum and faculty research and projects, which provides a new level of challenge and enrichment for students and additional opportunities for the faculty as well. Many of the students are also active in collegial activities, such as the Environmental Studies Graduate Association. Last, but not least, graduate students have become essential in supporting the undergraduate curriculum as teaching assistants, which in turn provides them with invaluable skills in management, education, and writing. In all, the Department of Environmental Studies has grown to be a much richer academic unit due to the integration of the graduate program.

**Concurrence with university mission**

The MS in Environmental Studies was designed with the University of North Carolina Wilmington’s mission in mind. In fact, the program supports and extends this mission. As stated:

The University of North Carolina Wilmington, the state’s coastal university, is dedicated to the comprehensive journey of learning through the integration of teaching and mentoring with research and service. Our commitment to the power of ideas and innovation engages students in creative inquiry, critical thinking, thoughtful expression, and responsible citizenship. High-quality academic programs are primarily at the baccalaureate and master’s levels and include doctoral programs in marine biology, educational leadership, and nursing practice as well as University of North Carolina inter-institutional degree programs that address state and regional needs and build upon institutional strengths. Substantial research and creative activity, recognized teaching excellence, and collaborative faculty-student scholarship shape a vibrant learning community and foster personal and professional accomplishment. We are committed to diversity and inclusion, affordable access, regional responsiveness, and global perspectives. We enrich the quality of life through scholarly engagement and application in areas such as marine and coastal issues, health, the environment, education, the arts, and the economy.

*UNCW modified, proposed Mission Statement December 15, 2013*
As evidenced by the following Student Learning Objectives, the MS in Environmental Studies emphasizes not merely a sound foundational knowledge, but perhaps most importantly, the development of critical thinking skills and the ability to utilize those skills in a manner that makes a positive impact in our society. The core of the program is to develop active and engaged environmental stewards. To accomplish this, the department provides relevant, stimulating coursework, combined with hands-on, minds-on skill development provided by exceptional faculty, through both coursework and collaborative scholarship. To ensure the transition from student to steward, the program requires at least one semester of Applied Learning, typically done within the context of a professional agency within the community. Upon graduation, our students are prepared to take their place in the profession and make an impact in “marine and coastal issues, health, the environment, [and] education.”

**Student learning outcomes**

In accordance with criteria of the UNCW Graduate School and the College of Arts and Sciences, the following student learning outcomes for the MS in Environmental Studies have been defined. These outcomes are in concurrence with UNCW’s Strategic Goals.

- The student will demonstrate an understanding of fundamental concepts, issues, and policies in environmental studies.
- The student will demonstrate the ability to critique ideas and opinions on advanced topics in environmental studies.
- The student will demonstrate the ability to utilize contemporary field research methods and equipment.
- The student will demonstrate the ability to investigate, evaluate relevant literature, and research an advanced topic in environmental studies.
- The student will demonstrate the ability to statistically analyze the data derived from environmentally-related research.
- The student will demonstrate the ability to present information on an advanced topic in environmental studies using contemporary techniques and technology.
- The student will demonstrate an overall knowledge and application of concepts related to environmental studies in a professional setting.

**Curriculum**

In its current incarnation, the program consists of a minimum of 33 graduate credit hours, distributed as follows (see Appendix A for a detailed curriculum):

**Environmental Studies Core Coursework (15 hours)**

*This coursework is required of all students enrolled in the program, and consists of:

Required courses (12 hours)
- EVS 501. Introduction to Environmental Problems and Policy (3)
- EVS 515. Field Methods in Environmental Studies (3)
- EVS 518. Research Methods in Environmental Studies (3)
- STT 501. Applied Statistical Methods (3)
One course from (3 hours):
- BIO 534. Advanced Topics in Ecology (3)
- ECN 525. Environmental Economics (3)
- ECN 530. Natural Resource Economics (3)
- EVS 505. Advanced Environmental Studies (3)
- EVS 564. Natural Resource Policy (3)
- EVS 570. Advanced Environmental Law and Policy (3)
- ENG 557. Theory and Practice of Technical Communication (3)
- HST 533. Seminar: U.S. Environmental History (3)
- PLS 543. Environmental Policy Analysis (3)
- PLS 544. Resource Economics (3)
- PLS 562. International Environmental Policy (3)

Applied learning (3 hours)
Those individuals with 3 or more years in the field will complete the Seminar/Final Project.
Those with less than 3 years will complete the Practicum in Environmental Studies. Students are required to complete a minimum of 3 credit hours of applied learning.

- EVS 595. Seminar/Final Project (3) or EVS 597. Practicum in Environmental Studies (3)

Concentration Coursework (15 hours)
Each student will select one of the following curriculum concentrations to complete, in addition to the required core coursework.

Coastal Management Concentration
- EVS 520. Foundations of Coastal Management (3)
- Concentration Electives: 12 hrs

Environmental Education and Interpretation Concentration
- EVS 525. Foundations of Environmental Education and Interpretation (3)
- Concentration Electives: 12 hrs

Environmental Management Concentration
- EVS 540. Foundations of Environmental Management (3)
- Concentration Electives: 12 hrs

Marine and Coastal Education Concentration
- EVS 525. Foundations of Environmental Education and Interpretation (3)
- Concentration Electives: 12 hrs

Individualized Study Concentration
- Concentration electives: 15 hrs (curriculum designed in conjunction with EVS faculty advisor)

Professional successes

The MS in Environmental Sciences, through a combination of hands-on coursework and applied
learning, has had great success in providing students with a marketable degree leading to successful employment in the environmental profession. Employment ranges from public, private, and NGO sectors at local, state, national, and international levels. Examples include (but are not limited to):

Public sector
- Carteret County Health Department
- Narragansett Bay Research Reserve
- North Carolina Aquarium at Fort Fisher
- North Carolina Division of Coastal Management
- North Carolina Division of Parks and Recreation
- North Carolina Department of Environment and Natural Resources
- North Carolina Department of Transportation
- Town of Wrightsville Beach
- Tennessee Department of Environment and Conservation
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Department of Agriculture
- U.S. National Oceanic and Atmospheric Administration
- U.S. National Park Service

Private sector
- AMEC Environment and Infrastructure
- Booz Allen
- CGI Federal
- Cody, Inc.
- Computer Sciences Corporation
- Dial and Cordy
- GAI Consultants
- Halliburton
- Land Management Group
- LCI Corporation
- McKean Defense Group
- Steven Winter Associates
- Waterborne Environmental

NGO sector
- Bald Head Island Conservancy
- Cape Fear River Watch
- National Audubon Society
- National Fish and Wildlife Foundation
- Pacific Whale Foundation
- Save the Bay
- Tar River Conservancy
- The Center for Climate Strategies
Although the primary focus of the MS in Environmental Studies has been upon professional practice, a small number of graduates do directly enter doctoral programs, including:

- North Carolina State University
- University of Louisiana at Lafayette
- University of Maryland, Baltimore County

**Certification**

There are no relevant organizations providing certification or accreditation for the MS in Environmental Studies program *per se*. However, as a component of the University of North Carolina Wilmington, this program is incorporated within the university’s accreditation by the Southern Association of Colleges and Schools (SACS).

**Facilities**

Since the fall of 2012, the Department of Environmental Studies has been housed in the new Teaching Lab Building. This building is a mirror image of McNeill Hall and is the second to be constructed in the Health Science Quadrangle. Currently, the departments of Environmental Studies and Psychology share the Teaching Lab building.

The Teaching Lab Building is a three-story building designed to be consistent with the campus-wide neo-Georgian style. It is intended to be a multi-purpose facility; housing classrooms, teaching laboratories, research laboratories, and offices.

The office suite of the Department of Environmental Studies is comprised of nine offices dedicated to faculty, two shared graduate teaching assistant offices, one storage room, the chair’s office, and main reception. As the research of departmental faculty is primarily field-based, no dedicated laboratories are required, other than those dedicated to teaching.

The Department of Environmental Studies’ classrooms include TL1007 (25 seats), TL1010 (75 seats), and TL 1025 (40 seats). The department also utilizes the College of Arts and Sciences’ classrooms within the building: TL1006 (36 seats) and TL1050 (36 seats). Two teaching laboratories are dedicated to the department as well: TL1013 (24 seats) and TL1023 (24 seats). Finally, a dedicated computer lab of 40 seats (TL2015) is shared between Environmental Studies and Psychology courses. Given the large number of students in the Environmental Studies program, however, courses may be taught outside of the Teaching Lab Building in order to accommodate demand.

Academic support for the program is generally sufficient. As the department has recently moved into the new Teaching Lab Building, the quantity and quality of classrooms is sufficient at this point. Library holdings, computer networks, and access to online resources are sufficient as well.

However, given proposed growth in the number of faculty, as well as potential demands of new or replacement faculty, additional office facilities may be required. At this time, all office spaces in the departmental suite are occupied, with some non-tenure track faculty sharing offices. Additionally, the 10 to 12 graduate students employed as teaching assistants are compressed into two offices of approximately 120 square feet each. This is problematic in that privacy
necessitated by their role as instructors is not possible. Therefore, significant additions to graduate student office space is a high priority. Similarly, no general space is available to the graduate students in the program as a whole, such as lounge or study facilities, that would be comparable to other departments, such as the Department of Psychology.

Other space needs include a lounge area for both faculty and graduate students, as well as a seminar room. Currently, the room originally designated as a departmental seminar room (TL 1007) is utilized as a classroom by both the Department of Environmental Studies and outside groups. See Appendix B for room utilization in the Teaching Lab Building.

Another facility need of the program is a dedicated GIS lab. Currently, the department shares a single computer laboratory (TL2015) with the Department of Psychology; Environmental Studies courses utilize the room on Mondays, Wednesdays, and Fridays with Psychology courses making use of the room on Tuesdays and Thursdays. This is clearly inadequate for current GIS course demands at both undergraduate and graduate level. As the room is heavily scheduled by both departments, as well as outside groups, time for students to work on projects and homework is particularly limited, as well. Further, the demands upon the room for Environmental Studies courses is projected to increase dramatically in the near future. All students are advised to take courses in GIS as this skill enhances their marketability upon graduation. To this end, GIS is a desired skill in recent and future hires within the department.

Most problematic, in both the short- and long-term is funding for equipment. Although the majority of equipment used for both teaching and research is of modest cost, maintenance and replacement of that equipment is increasingly difficult. This is particularly true given the increasing number of undergraduates in the program, as well as increasing demands by both graduate and undergraduate students to utilize field equipment for research purposes. An inventory of departmental equipment can be seen in Appendix C.

**Personnel**

The Department of Environmental Studies is comprised of 7 tenure track faculty (with 2 faculty committed to retire at the end of the 2015 academic year), one research associate professor (non-tenure track), one full-time lecturer, one half-time lecturer, and two part-time faculty. Graduate teaching assistants also support the departmental course load through both direct instruction and faculty support. One administrative assistant provides departmental support.

**Tenure track faculty (graduate faculty)**

Individuals meeting the following requirements are eligible for graduate faculty status at UNCW:

- An earned terminal degree in an appropriate discipline along with demonstrated effectiveness in teaching.
- A continuing record of productive scholarship. Scholarship shall be defined as the creation of factual, theoretical, or interpretive knowledge, including performances, showings, and other forms of artistic accomplishment, which:
  a. is subject to regional, national, or international peer evaluation,
  b. is disseminated regionally, nationally, or internationally in professional media, and
c. establishes a permanent record in a format appropriate to the discipline.

See Appendix D for vitae of full-time faculty.

Dr. Jack C. Hall, Professor (Department Chair and B.S. Degree Coordinator)
- Ph.D., Ohio State University
- Date of hire: 1979
- Expertise: Geology

Dr. Robert Buerger, Professor (on Phased Retirement)
- Ph.D., State University of New York
- Date of hire: 1992
- Expertise: Natural resource management

Robert Cutting, Associate Professor
- J.D., University of California at Davis
- Date of hire: 1996
- Expertise: Environmental law subjects

Dr. Devon Eulie, Assistant Professor (TA Coordinator)
- Ph.D., Eastern Carolina University
- Date of hire: 2013
- Expertise: Coastal processes and policy

Dr. Jeffery Hill, Professor (Graduate Coordinator)
- Re.D. Indiana University
- Date of hire: 1993
- Expertise: Human dimensions of natural resource management

Dr. James Rotenberg, Associate Professor
- Ph.D., University of California, Riverside
- Date of hire: 2006
- Expertise: Tropical environmental ecology

Dr. Anthony Snider, Associate Professor (Assistant Chair and B.A. Degree Coordinator)
- Ph.D., NC State University
- Date of hire: 2007
- Expertise: Policy and sustainability

Dr. John Taggart, Associate Professor (Internship Coordinator)
- Ph.D. University of North Carolina Chapel Hill
- Date of hire: 2006
- Expertise: Natural resource management

**Non-tenure track faculty (full- and part-time)**

Apart from the eight tenure track faculty, a combination of lecturers, part-time faculty, and research faculty support the functions of the department. These include:
Full-time
- Roger Shew, Lecturer (position split with the Department of Geology and Geography)
- Amy Long, Lecturer
- Dr. Paul Hearty, Research Associate Professor (time-limited)

Part-time
- Dr. Damian Maddalena
- Dr. Matthew Michel
- Dr. Sue Kezios
- Landis Bullock
- Megan Ennes
- Stan Harts

Graduate teaching assistants

Typically, between 10 and 12 Environmental Studies graduate students are supported as Graduate Teaching Assistants. These instructors provide support for large and/or writing intensive courses, introductory laboratories, and discussion sections. In the spring 2014 semester, the following courses were solely taught by Graduate Teaching Assistants:

- EVS 195L Environmental Studies Laboratory 12 lab sections
- EVS 495 Seminar in Environmental Studies 5 discussion sections

Additionally, Graduate Teaching Assistants provided the following academic support for the department:

- EVS 195 Introduction to Environmental Studies support
- EVS 195L Environmental Studies Laboratory support
- EVS 205 Global Environmental Issues support
- EVS 430 Tropical Environmental Ecology support
- EVS 450 Food and the Environment support
- Management of instructional equipment and supplies

Staff

All administrative support functions for the department are provided by one full-time administrative assistant, Angie Edwards. Typically, one part-time work assist student is available as well.

Graduate students

Trends in applications to the Environmental Studies MS program are reflected in the table below. It should be noted that the Department of Environmental Studies hosted a Post-Baccalaureate Certificate program prior to the establishment of the MA program. Therefore, many of the applicants in the initial two years of the program were sourced from the certificate program. This tends to skew the ratio between applications and rejections in the first year of the MA program as a large number of applicants were currently taking coursework in the certificate program. This
also tends to skew the time-to-graduation rate during this period as these same students enrolled in the MA degree may have had up to 18 certificate credit hours toward the MA.

**Admissions**

With the notable exception of 2009-10, the number of applications to the graduate program in Environmental Studies has remained fairly consistent. What has fluctuated widely, however, are both the number of rejections and enrollments. Since establishment of the graduate program, the faculty has had an informal rolling target of 25 to 30 students concurrently enrolled in the program. This implies admission of approximately 15 students each year, as the Environmental Studies MS is typically a 2 year program. The rationale for this restriction is the limited size of the departmental faculty and the significant size (and associated responsibilities) of the undergraduate student body. Therefore, to attempt to manage graduate enrollments to meet this target, a flexible process has been required. An initial cohort of students is offered admission into the program and as there is attrition in this cohort, supplemental offers of admission are extended.

The application review process is relatively straightforward, yet flexible, thereby meeting the needs of the department. All graduate, tenure-track faculty have the opportunity to participate in the application review process. As applications are submitted throughout the year, the graduate program coordinator forwards those materials to an ImageNow queue that is accessible by all committee members. However, no committee deliberations occur or subsequent invitations for admission are extended until the application deadlines are reached. In both the fall and spring semesters, two application deadlines exist. The first (April 15 and September 15) is the deadline for “priority consideration.” A second, final, deadline for application occurs one month later (May 15 and October 15).

However, fall and spring applications are reviewed differently as the bulk of the students are admitted in the fall. This is due to the sequencing of courses in the curriculum; all students have a set course load in the fall, consisting of EVS 501 Environmental Problems and Policies, EVS 515 Environmental Field Methods, and STT 501 Applied Statistical Methods. In the spring, students’ course load is relatively fixed, consisting of EVS 518 Research Methods in Environmental Studies (which requires STT 501 as a prerequisite), their concentration foundations course, and one elective. Therefore, students admitted in the spring semester will be slightly out of sync in their coursework until the subsequent spring. The only instance in which students are admitted in the spring semester is when there is attrition in the graduate student body in December, typically due to students graduating. In this case, students will be admitted to compensate for the attrition in order to equalize the student body numbers. This situation is emphasized to potential applicants, therefore the total number of applicants is significantly less in the spring than in the fall. Hence, the application review processes are somewhat differing.

In the fall, upon reaching the “priority consideration” deadline, approximately 2 to 3 weeks elapse while application materials for those who met the deadline are received (such as GRE scores, transcripts, and letters of reference). Once the bulk of the materials are received, the committee as a whole deliberates the merits of each applicant’s dossier and subsequently votes “yes” or “no” regarding whether to extend an offer of admission. Once voting is concluded, the vote total for each candidate is tallied and the top (approximately) 15 students are offered
admission.

This process repeats itself subsequent to the final deadline in each semester as well, however, the number of available cohort openings is determined by the number of students committing to enroll in the Environmental Studies MS program from those offered admission from the “priority consideration” pool. For example, if 15 students from the “priority consideration” pool are offered admission, and 13 commit to enroll, the top 2 students from the final pool would be extended the offer of admission. Should there be attrition from the total pool of students offered admission, the entire pool of remaining students would be reconsidered.

In the spring, given the significantly lower number of applicants as well as potential openings in the program, the review process is simplified. Again, there is a “priority consideration” deadline as well as a final deadline. Applications are forwarded to the ImageNow queue for committee review. Approximately 2 to 3 weeks subsequent to the “priority consideration” deadline, as application materials are received, the graduate program coordinator and department chair deliberate on the applicants’ dossiers. The names of the applicants who the graduate program coordinator and department chair agree should be offered admission are forwarded to the graduate faculty, who are able to review those candidates’ materials online and comment. Upon consensus by the majority of graduate faculty involved, those prospective students are offered admission. Again, should there be attrition from those offered admission from the “priority consideration” pool, the remainder of this pool is reconsidered as well those applicants in the final pool.

Applications vs. enrollments since program inception

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Degree</td>
<td>MA</td>
<td>MA</td>
<td>MA</td>
<td>MA</td>
<td>MA</td>
<td>MS</td>
<td>MS</td>
</tr>
<tr>
<td>Applicants</td>
<td>31</td>
<td>45</td>
<td>28</td>
<td>31</td>
<td>26</td>
<td>33</td>
<td>32</td>
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<tr>
<td>Rejected</td>
<td>1</td>
<td>22</td>
<td>12</td>
<td>16</td>
<td>6</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Offered admission</td>
<td>30</td>
<td>23</td>
<td>16</td>
<td>15</td>
<td>20</td>
<td>29</td>
<td>18</td>
</tr>
<tr>
<td>Enrolled</td>
<td>30</td>
<td>21</td>
<td>14</td>
<td>14</td>
<td>11</td>
<td>20</td>
<td>17</td>
</tr>
</tbody>
</table>

*Note: applicants who deferred are included in the semester in which they were accepted*

Statistics of current student cohort (as of fall 2014 semester)

Although not fully indicative of the quality of the current students in the MS in Environmental Studies program, quantitative metrics can provide insight into the student body as a whole.

Current MS cohort data (as of fall 2014 semester)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students</td>
<td>39</td>
</tr>
<tr>
<td>Average GPA in MS program</td>
<td>3.77</td>
</tr>
<tr>
<td>Retention rate</td>
<td>97.4%</td>
</tr>
<tr>
<td>Male/Female</td>
<td>9/30 (23%/77%)</td>
</tr>
<tr>
<td>Minority</td>
<td>4 (10%)</td>
</tr>
</tbody>
</table>
### Average GRE Scores

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Average Score</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average GRE (verbal)</td>
<td>516 (63%)</td>
<td></td>
</tr>
<tr>
<td>Average GRE (quantitative)</td>
<td>514 (18%)</td>
<td></td>
</tr>
<tr>
<td>Average GRE (analytic)</td>
<td>4 (45%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Average Score</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average GRE (verbal)- rev</td>
<td>155 (67%)</td>
<td></td>
</tr>
<tr>
<td>Average GRE (quantitative)- rev</td>
<td>152 (48%)</td>
<td></td>
</tr>
<tr>
<td>Average GRE (analytic)- rev</td>
<td>3.7 (38%)</td>
<td></td>
</tr>
</tbody>
</table>

### Average Undergraduate GPA

- Average undergraduate GPA: 3.39

### Current Cohort Concentrations (as of Spring 2014 semester)

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Management (CM)</td>
<td>12</td>
<td>31%</td>
</tr>
<tr>
<td>Environmental Education and Interpretation (EE)</td>
<td>11</td>
<td>28%</td>
</tr>
<tr>
<td>Environmental Management (EM)</td>
<td>6</td>
<td>15%</td>
</tr>
<tr>
<td>Marine and Coastal Education (MCE)</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>Independent Option (IO)</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>Dual Concentration</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>EE/CM</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>EM/IO</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>MCE/CM</td>
<td>1</td>
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</tbody>
</table>

### Recruitment

Recruitment of students for the MS in Environmental frequently occurs through traditional channels, including word-of-mouth, internet searches, viewing the program’s video on YouTube, perusal of the UNCW Graduate School website, and gradschools.com. A sizeable number of potential students are attracted to the program through familiarity with the department’s offerings while undergraduates at UNCW. Another source of applicants includes those that have moved to Wilmington for various reasons (e.g. work or military service) who wish to advance their education. The department reaches out to regional colleges and universities, as well. The faculty also maintain an active recruiting presence within courses, at professional conferences, and at regional events. To appeal to minority candidates, the department specifically targets students in the McNair Scholars program.

### Orientation and Advising

Several levels of orientation are available for incoming MS students. For first year MS students, the Graduate School hosts an orientation program prior to the beginning of the academic year. At this general orientation, all students are provided with an overview of the duties and responsibilities of being a graduate student, including academic standards. The same week, the Department of Environmental Studies hosts a welcome reception for incoming students wherein department-level information is provided, such as facilities, procedures, and student governance.

For new graduate teaching assistants, the Graduate School hosts a program at the beginning of the academic year. Each is directed to UNCW’s resource handbook for graduate teaching assistants, as well (http://uncw.edu/gradschool/graduateassistants/guidelines/manual.pdf). At the departmental level, the graduate teaching assistant coordinator provides general training at this
time, as well as throughout the semester. For graduate teaching assistants assigned unique roles (e.g. supporting tenure-track faculty or maintaining teaching laboratory equipment), the faculty member to whom that student is assigned provides specific, duty-related training.

All formal academic advising is performed by the graduate program coordinator. As each student’s course of study will be unique, these advising sessions are performed on a one-by-one basis prior to each semester, as well as on an as-needed basis. The university’s online-degree audit system allows each student to monitor his/her progress in meeting curricular requirements. Additionally, each student is provided with advising forms to help guide his/her curricular path (see Appendix E – Advising Materials). The graduate program coordinator monitors the progress of each student as well, and intervenes in those rare instances when inadequate progress is made. In the case of a student being placed on academic probation, which is fortunately infrequent, the graduate program coordinator works with the student to develop a personal course of action to regain good academic standing. To date, this strategy has been successful as those few students who have been placed on academic probation have regained good academic standing and subsequently graduated.

**Environmental Studies Graduate Student Association**

The Department of Environmental Studies supports a very active Graduate Student Association organization, with Dr. Anthony Snider currently serving as its advisor. This group is supported by, and a member of, the UNCW Graduate Student Association. The EVS GSA seeks to provide opportunities for graduate student collegiality, as well as professional development. Throughout the academic year, the EVS GSA hosts guest lecturers, potlucks, fundraisers, service projects, and educational activities. Additionally, the EVS GSA is able to provide graduate students with modest funds to support professional travel, conference registration, and research, which the department typically has limited means to provide.

The Environmental Studies Graduate Student Association enjoys substantial success and active participation. As of the beginning of the fall 2014 semester, approximately 25 of the department’s 39 graduate students were members of the organization.

**Student support**

A current limitation of the MS in Environmental Studies program is the relative inadequacy of graduate student support. Primary constraints can be seen in space availability for graduate students, as both full- and part-time faculty require the majority of office space. Further, financial support for graduate students is insufficient, as well. Students continually compete for too little funding.

All graduate teaching assistants, typically ranging from 10 to 13 per semester, are required to share only two offices of approximately 120 square feet each. This is obviously problematic in that not only is it impossible for more than a handful of students to work simultaneously, but holding confidential conversations with undergraduate students whom they are teaching in their courses is challenging.

Similarly, no common space is available for the EVS graduate student population as a whole.
The lack of lounge or seminar space drastically reduces scholarly interaction, and subsequent collegiality, among the students.

It is recognized that there is a paucity of financial support for graduate programs at UNCW. However, financial support for the EVS graduate program is inadequate. This is frequently cited as a primary reason that potential EVS graduate students ultimately decide to enroll at other universities.

Currently, the graduate student financial awards that the department is able to allocate each fall includes Out-of-state Tuition Remissions (2014: 2 @ $11,935), New Scholar Award (1 @ $1000), Graduate Tuition Scholarship (1 @ $3000). No funding for graduate student travel or research is available, except as available through the department or the Environmental Studies Graduate Student Association.

Additionally, although not considered financial awards, 10 teaching assistant positions (each earning $5500 per semester for 20 hours of work) are available and funded through the Graduate School. Although appreciated, this is a relatively noncompetitive level of funding. In fact, so modest is this level of pay that many of our graduate teaching assistants are required to work yet another position outside the university.

**Student performance measures**

As the MS in Environmental Studies is a non-thesis program, the focus of student performance measures is upon: 1) retention; 2) time to degree; 3) successful placement in and completion of the EVS 597 practicum; and 4) employment after matriculation.

**Retention**

The MS in Environmental Studies MS program has maintained a consistently high rate of student retention, having lost a total of only 6 students over the lifespan of the program. Of those who did leave the program prior to graduation, reasons included:

- Started private business
- Transferred to a different MS program
- Lost faculty grant funding
- Unsure if graduate school was the best course of action
- Dismissed due to academic performance
- Unknown

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<tbody>
<tr>
<td>Admitted</td>
<td>28</td>
<td>21</td>
<td>14</td>
<td>14</td>
<td>9</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>Retained</td>
<td>27</td>
<td>19</td>
<td>12</td>
<td>14</td>
<td>9</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Rate</td>
<td>96%</td>
<td>90%</td>
<td>86%</td>
<td>100%</td>
<td>100%</td>
<td>95%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Time to degree

The MS in Environmental Studies MS program has maintained a rate of time to degree consistent with a 33 hour program. Of course, nontraditional students will tend to skew the data. In the case of the first two years of the program, there was an additional confounding factor: several of the students admitted into the MS program had previously been enrolled in the pre-existing (and now defunct) Post-Baccalaureate Certificate in Environmental Studies. Therefore, these students began their MS program with existing course credit. Nonetheless, the overall time-to-degree trend for the MS in Environmental Studies program is relatively consistent and acceptable.

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<tbody>
<tr>
<td>Average time to degree</td>
<td>2.2 years</td>
<td>1.6 years</td>
<td>2.5 years</td>
<td>2.2 years</td>
<td>2 years</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Practicum

One critical element of the MS curriculum is practical experience. In designing the program, the faculty was cognizant of the fact that practicum experience not only enhances student marketability upon graduation, but also professional capability. To that end, the MS in Environmental Studies curriculum requires that all students who have completed fewer than three years of professional experience with progressive levels of responsibility to complete EVS 597 Practicum in Environmental Studies, which encompasses the vast majority of the students. Those with three or more years of professional experience are required to complete EVS 595 Final Project/Seminar. In this case, the rationale is that those with preexisting professional experience would not benefit as greatly from a practicum assignment, but would find greater value in a mentored research/project experience.

Given the competitive nature of quality practicum assignments, this curricular requirement therefore also serves as a valuable metric for the program. For this reason, the department’s practicum and internship coordinator monitors not only placement success rates but also completion rates. The practicum and internship coordinator works closely with graduate students in seeking practicum placements, throughout the assignment, and then debriefs the student at the conclusion of the assignment.

The department has had a great deal of success in the practicum setting. Since inception of the program in 2008, placement rates for students in quality practica has been 100%. Examples of recent graduate student practicum placements since 2012 include (but are not limited to):

- Bald Head Island Conservancy
- Cape Fear River Watch
- City of Wilmington Recycling/Waste Reduction Program
- City of Wilmington Stormwater Outreach Program
- Girl Scouts of North Carolina, Coastal Pines Camp
- Keep American Beautiful
Further, successful completion of the practicum by students has likewise tracked at 100%. In all, this aspect of the curriculum has proven to be an indicator of student performance, as well as enhancing student marketability upon graduation.

**Employment**

As noted previously, a vital measure of student performance is post-graduation employment. Although difficult to thoroughly track due to losing touch with students, records indicate that students do find employment in the environmental field upon graduation. A review of records indicate that as of May 2014, of the 76 students graduating from the program since inception in 2008, 59 were confirmed to have found subsequent employment in the environmental field, 2 enrolled in PhD programs, 2 enrolled in other masters level programs, 2 were seeking employment (from the May 2014 class), and 11 were unaccounted for. It thus appears that the EVS graduate program has been successful in leading to gainful employment in the environmental profession.

**The role of teaching assistants in the graduate program.**

Teaching assistants play a vital role in the Environmental Studies graduate program. Typically, between 10 and 12 Environmental Studies graduate students are supported as Graduate Teaching Assistants. These instructors provide support for large and/or writing intensive courses, introductory laboratories, and discussion sections. As previously noted, in the spring 2014 semester, the following courses were solely taught by Graduate Teaching Assistants:

- EVS 195L Environmental Studies Laboratory 12 lab sections
- EVS 495 Seminar in Environmental Studies 5 discussion sections

Additionally, Graduate Teaching Assistants provided the following academic support for the department:

- EVS 195 Introduction to Environmental Studies support
- EVS 195L Environmental Studies Laboratory support
• EVS 205 Global Environmental Issues support
• EVS 430 Tropical Environmental Ecology support
• EVS 485 Food and the Environment support
• EVS 485 Terrestrial Wildlife Field Methods
• Management of instructional equipment and supplies

Affirmative action

Increasing the diversity of the graduate cohort is a goal of the Department of Environmental studies, as it is of the University of North Carolina Wilmington (see Appendix F - Reaffirmation of Commitment to Equal Education and Employment Opportunity; additional information can be found at http://uncw.edu/hr/employment-affirmative.html). Nonetheless, this has proven to be challenging. Currently, the primary means of recruitment for the program is word-of-mouth. To attempt to expand the reach of advertisement of the program to minority candidates, the department has solicited applicants from the McNair Scholars each year, but with limited results to date.

Summary of research and scholarship of the academic unit

The Environmental Studies faculty are active in teaching, scholarship, and service. Many faculty efforts involve graduate students. Additionally, faculty are active in supporting graduate students in their own projects through EVS 591 Directed Individual Study. The following is not intended to be a comprehensive itemization of faculty efforts, but instead should provide the reader with representative accomplishments within the last five years. For a complete list of contributions, see Appendix D – Vitae of full time faculty.

Publishing, performances, or exhibitions


**Funded projects**


- The Peregrine Fund ($9,900)
- Protected Areas Conservation Trust of Belize (PACT) ($6,000)
- Natural Encounters Conservation Fund ($5,500)
- Columbus Zoo Conservation Fund ($7,000)
- Biodiversity Research Institute ($3,000)
- Optics for the Tropics ($2,500)


Taggart, J. (2009). *Continuation of deer impact research at the Bald Head Woods component of the North Carolina Coastal Reserve.* Village of Bald Head Island ($9,589).

Taggart, J. (2012). *Proposed monitoring of threatened and endangered species in the Sandy Run – Holly Shelter portion of the Progress Energy power line corridor of Onslow-Pender Counties, NC.* U.S. Army Corps of Engineers ($1,100).

**Presentations at refereed conferences**


Cutting, R. (2010). If the tide is rising, who pays for the ark? The Coastal Society’s TCS-22 International Conference.


XIII Congress of the Mesoamerican Society for Biology and Conservation.


Taggart, J. (2009a). Floristics and stewardship of Sandy Run Savannas State Natural Area, NC. Association of Southeastern Biologists Annual Conference.

31


Taggart, J. (2013). Are White-tailed Deer affecting the Bald Head Island maritime forest? Association of Southeastern Biologists Annual Conference.

**Leadership roles**


Hall, J. (2010). Reviewer, *Ecological Understanding as a Guideline for the Evaluation of Nonformal Education* (developed cooperatively by the US Forest Service, the Environmental Protection Agency, the University of Georgia, and the University of Michigan).

Hall, J. (2008-present). Trainer for Methods of Teaching Environmental Education. *Department


**Honors and awards**


**Community service related to program goals**


Hall, J. (1996-present). Member, *Cape Fear Community College Environmental Studies Advisory Council*.


Taggart, J. (2013). Assessment of rare species with detailed mapping of *Aristida condensate*, *New Hanover County Landfill*.

**Other evidence of faculty productivity important to the academic unit**

**Supervision of Student Directed Independent Study**


Taggart, J. (2010). Tim Gunter, *Review of a former copper mine cleanup in Alleghany County, NC.*

**Goals and objectives: Strengths and weaknesses**

Although enjoying great success in its initial 6 years, opportunities do exist for the program to grow and evolve. These changes are necessary in order to remain current with both student requirements and demands of the professional job market. Yet, there are obstacles to be addressed, as well.

**Immediate and long range problems to be overcome**

In the short term, resolution of several issues would allow for program growth. First and
foremost of these issues is faculty staffing. Currently, the Department of Environmental Studies is comprised of seven tenure track faculty, one of which serves as Chair, one as Graduate Coordinator, and one as BA Coordinator and Assistant Chair. As these administrative roles are accompanied by course releases, this equates to a potential 5.59 FTE teaching capability. Additionally, two faculty members serve in roles within the department that shift a portion of their duties to non-instructional duties: Graduate Teaching Assistant Coordinator (which reduces her teaching capability by .33 FTE per semester), and Internship Coordinator (which reduces his teaching capability by .67 FTE per academic year). The result is a realized teaching capacity by tenure-track faculty of 4.49 FTE per academic year. This teaching capability is intended to serve over 300 undergraduate majors and nearly 40 graduate students, as of fall 2014.

Obviously, the great number of Environmental Studies students served by such a limited number of tenure track faculty results is unacceptable. Further, given the rapid growth of the student body, this situation will only become increasingly problematic, continuing to compromise the quality of the education that can be provided. As of fall 2014, the department has an overall faculty/student ratio of 41 to 1, and a faculty/graduate student ratio of 6 to 1. This can be compared to other similar science programs at UNCW below.

<table>
<thead>
<tr>
<th>Department</th>
<th>Undergraduate students per faculty member</th>
<th>Graduate students per faculty member</th>
<th>Total students per faculty member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology and Marine Biology</td>
<td>19</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>Chemistry and Biochemistry</td>
<td>9</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Geography and Geology</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>36</td>
<td>6</td>
<td>41</td>
</tr>
</tbody>
</table>

*Note: undergraduate double majors are counted within their primary department*

To date, the department has addressed this deficiency in teaching capability through a combination of non-tenure track full- and part-time faculty, as well as graduate teaching assistants. This approach can compromise the quality of education, particularly at the graduate level. The shortage of tenure-track faculty teaching capability also affects the ability of current faculty to engage in collaborative research, scholarship, and creative activities with graduate students. Existing curricular demands on faculty, as well as individual scholarship and service demands required of university faculty, limit the opportunities to engage both graduate and undergraduate students in research, scholarship, and creative engagement.

Expanding the number of tenure-track faculty within the department would also allow for an increase in in-house course offerings as well. Currently, due to the limitations in teaching capability within the department, the graduate program is dependent upon other departments’ curricular offerings, many of which do not provide sufficient focus on current environmental issues. Given that the Environmental Studies MS is an interdisciplinary degree program, this is not necessarily unequivocally detrimental. However, with this also comes a loss of ability to ensure that essential coursework is offered on a consistent basis in those departments. We often find our students at a loss for courses to take due to the evolving nature of curricular offerings in other departments, as well as turnover in faculty. Additionally, as other graduate programs’ course offerings increasingly fill with that department’s own students, less space is available for the Environmental Studies MS students.
Finally, through expanding the number, and diversity, of faculty within the Department of Environmental Studies, the curricular offerings provided to both graduate and undergraduate students could be expanded as well. Within the current MS curriculum, needs exist in all concentrations. In order to provide a robust and well-rounded education to these students, sufficient course offerings are essential. For example, in the new (as of fall 2014) Marine and Coastal Education concentration, only one concentration-specific course is offered by a tenure-track faculty member. Additional coursework for students in this concentration is currently offered, and without additional faculty will continue to be offered, by faculty in other departments.

Another significant limitation to growth of the program is space. As previously discussed, the department’s 10 to 12 graduate teaching assistants occupy just two offices of approximately 120 square feet each. The remaining offices in the departmental suite are filled to capacity with faculty. If, as requested, additional faculty lines are extended to the department, the only option for housing these faculty members would be to displace graduate teaching assistants. This would be unacceptable in that, as teaching assistants, they would have no office space in which to meet and work with students in their courses. In matters of confidentiality, this would be a violation university policy.

Apart from office space, the department as a whole suffers from lack of support space. The department’s only seminar room (TL 1007) is frequently used as a teaching space (by the Department of Environmental Studies as well as others). This significantly limits opportunities for not only faculty meetings, but other critical activities such as DIS presentations, visiting scholar seminars, and research colloquia. Further, the department has no communal space for graduate students and faculty. There is no lounge or kitchen available to the department. Not only does this limit graduate student collegiality, it limits student-faculty interaction, as well.

A final space need that has been previously discussed is a GIS lab dedicated to the department. Given current and projected enrollment in GIS courses, the current shared space is clearly inadequate.

As previously discussed, a current limitation of the Environmental Studies MS program relates to funding levels for students. As of 2014, the department is able to award one $3000 Graduate Tuition Award, one $1000 New Scholar Award, and two $11,935 Out-of-State Tuition Remissions. Although the department is grateful for the funding of these awards by the Graduate School, this is insufficient in order to be competitive with other institutions. High-quality students are frequently lost to other institutions due to our inability to offer attractive financial award packages. An increase in both the number and amount of these awards would help to ensure that the Environmental Studies MS attracts the most highly qualified students.

Similarly, the department could easily employ an expanded number of graduate teaching assistant positions. Currently, ten graduate teaching assistant lines are assigned to the department. These students primarily teach undergraduate lab sections. However, as the number of undergraduate majors rapidly increases, these labs are increasingly full, thereby creating a potential obstacle to timely graduation. An expansion of graduate teaching assistant positions would help to remedy this situation. Additionally, if teaching assistant positions could be available during the summer, this would help the department to disperse the student course
overload throughout the academic year.

A related limitation of the current program, which also presents an opportunity, is the reliance upon traditional face-to-face courses. Faculty within the department have expressed support for developing select online or hybrid courses and/or a completely online or hybrid Environmental Studies MS degree program. This would allow the department to reach an underserved market: the non-traditional student. Frequently, Environmental Studies faculty are contacted by potential students who are interested in enrolling in the Environmental Studies MS program but due to obligations (such as current employment, family, or home ownership) are unable to do so. An online or hybrid Environmental Studies MS program would provide to be attractive as there is currently little competition from other public institutions. Given the enrollment parameters of online classes, the expansion of these offerings requires additional faculty positions to prevent cannibalizing the existing curricular program.

Finally, problematic in both the short- and long-term is funding for equipment. Although the majority of equipment used for both teaching and research is of modest cost, maintenance and replacement of that equipment is increasingly difficult. This is particularly true given the increasing number of undergraduates in the program, as well as increasing demands by both graduate and undergraduate students to utilize field equipment for research purposes. An inventory of departmental equipment can be seen in Appendix C.

New degree programs

At this point, the Department of Environmental studies does not have immediate plans to offer additional degree programs. As current staffing is insufficient to meet both graduate and undergraduate needs, it would not be prudent to propose additional curricula at this time. This is not to imply that the department does not intend to expand both graduate and undergraduate programs should additional faculty lines become available. For example, discussions have revolved around such emerging professional areas as sustainability and green business. However, until that time in which additional faculty lines are available, these planning efforts will not advance.

Future personnel needs

It is difficult to discuss departmental personnel needs without consideration of space needs. At this point, issues revolving around the inadequacy of space for both faculty and graduate students will need to be resolved concurrently with addressing personnel needs. Nonetheless, in order to bring personnel issues to the table, the department’s faculty have prioritized personnel needs and have submitted the following to the Dean of the College of Arts and Sciences.

1. Assistant professor (tenure-track) with expertise in natural resource and environmental management (replacement for Dr. Robert Buerger upon retirement in 2015)
2. Assistant professor (tenure-track) with expertise in coastal management (replacement for Dr. John Taggart upon retirement in 2015)
3. Assistant professor (tenure-track) with expertise in applied conservation biology
4. Assistant professor (tenure-track) with expertise in environmental geographic information systems
5. Lecturer (not tenure-track) lab coordinator, graduate teaching assistant coordinator, and student advising support
6. Assistant professor (tenure-track) with expertise in environmental education
7. Assistant professor (tenure-track) with expertise in environmental sustainability

**Long range goals and strategic plan for the academic unit**

The Department of Environmental Studies strives to establish an important leadership role in the instruction and development of new and emerging concepts in the environmental profession.

**Curriculum plans**

The department plans to undertake the following specific actions in its continued effort to maintain high quality graduate and undergraduate programs in EVS.

- Revise existing courses and curricula consistent with changes in existing and emerging practices in all environmental fields.
- Offer new, advanced courses with a wider range of course options in existing areas.

The department plans to continue to provide service courses for students majoring in disciplines.

The department will continue to encourage diversity in both faculty and students.

The department will continue to explore the creation of online classes and online programs.

**Outreach Plans**

The department plans to build on existing ties with the local government, NGOs and private industry for funding, endowed faculty positions, internship and other work opportunities for students and job placement after graduation.

**Plans to foster research activity**

The department plans to develop focus areas within EVS to foster research among faculty with common interests.

- Develop facilities to support instruction and research in specific focus areas.
- Hire new faculty to support instruction and research in existing and new areas.

The department plans to develop stronger ties with other programs on the UNCW campus.

**Long range hiring plans**

The Department anticipates several tenure-track faculty positions to be filled over the next five years. New faculty hires should have research interests in the areas that complement existing strengths of the Department and/or areas that the current faculty believe are a critical need for the advancement of the department.
The Department finds the predominant factor in the hiring decision will be teaching excellence. Thus, the Department will search for candidates who demonstrate potential for excellence in teaching. The Department also encourages and promotes diversity in its hiring procedures and student recruitment.
Appendix A – Detailed curriculum
Degree Requirements

The program requires the satisfactory completion of 33 credit hours of approved graduate level courses consisting of the following: 15 credit hours of core classes designed to provide a foundation in environmental studies; 3 credit hours of practicum or final project designed to link theory with practice; 15 credit hours in an approved concentration. A maximum of 6 total credit hours from any combination of EVS 591, EVS 597, and/or EVS 598 may be applied toward the degree.

Core Requirements (15 credit hours)

All students are required to complete the following classes:

- EVS 501 - Introduction to Environmental Problems and Policy Credits: (3)
- STT 501 - Applied Statistical Methods Credits: (3)
- EVS 515 - Field Methods in Environmental Studies Credits: (3)
- EVS 518 - Research Methods in Environmental Studies Credits: (3)

One course from:

- BIO 534 - Advanced Topics in Ecology Credits: (3)
- ENG 557 - Theory and Practice of Technical Communication Credits: (3)
- ECN 525 - Environmental Economics Credits: (3)
- ECN 530 - Natural Resource Economics Credits: (3)
- EVS 505 - Advanced Environmental Studies Credits: (3)
- EVS 564 - Natural Resource Policy Credits: (3)
- EVS 570 - Advanced Environmental Law and Policy Credits: (3)
- HST 533 - Seminar: U.S. Environmental History Credits: (3)
- PLS 543 - Environmental Policy Analysis Credits: (3)
- PLS 544 - Resource Economics Credits: (3)
- PLS 562 - International Environmental Policy Credits: (3)

Applied Learning (3 credit hours)

To ensure that students are able to employ skills and knowledge gained in the program within an applied, capstone setting, they are required to complete either the Seminar/Final Project or the Practicum in Environmental Studies. Both courses provide extended opportunities for fieldwork, research or creative projects and helps the student to bridge related theory with practical applications. Determination of which curricular direction will be taken is based upon the level of prior professional experience in the environmental field, requiring progressive levels of responsibility. Those individuals with 3 or more years in the field will complete the Seminar/Final Project. Those with less than 3 years will complete the Practicum in Environmental Studies. Students are required to complete a minimum of 3 credit hours of applied learning.

- EVS 595 - Seminar/Final Project Credits: (3) or
- EVS 597 - Practicum in Environmental Studies Credits: (1-6)
Concentrations (15 credit hours)

All students are also required to pursue a concentrated area of study in Coastal Management, Marine and Coastal Education, Environmental Education and Interpretation, or Environmental Management. Students can also elect to plan their own curriculum in the Individualized Study concentration. Students electing to pursue the Individualized Study concentration should consult with the Environmental Studies graduate coordinator. A maximum of 6 total credit hours from any combination of EVS 591, EVS 597, and/or EVS 598 may be applied toward the degree. For students pursuing a dual concentration, a maximum of 6 total credit hours may be shared between the concentrations.

Coastal Management

All students pursuing a concentration in Coastal Management must complete the following:

- EVS 520 - Foundations of Coastal Management Credits: (3)
- 12 credit hours of electives approved by the EVS graduate program advisor

Environmental Education and Interpretation

All students pursuing a concentration in Environmental Education and Interpretation must complete the following:

- EVS 525 - Foundations of Environmental Education and Interpretation Credits: (3)
- 12 credit hours of electives approved by the EVS graduate program advisor

Environmental Management

All students pursuing a concentration in Environmental Management must complete the following:

- EVS 540 - Foundations of Environmental Management Credits: (3)
- 12 credit hours of electives approved by the EVS graduate program advisor

Marine and Coastal Education

All students pursuing a concentration in Marine and Coastal Education must complete the following:

- EVS 525 - Foundations of Environmental Education and Interpretation Credits: (3)
- 12 credit hours of electives approved by the EVS graduate program advisor (3 hours must be in approved natural science courses and 3 hours must be in approved physical science courses)
- Note: EVS 595 or 597 placement of students in this concentration must be at an approved Marine and Coastal Education site
**Individualized Study**

All students pursuing an Individualized Study concentration must complete the following:

- 15 credit hours of electives approved by the EVS graduate program advisor
UNCW Master of Science in Environmental Studies Curriculum

Overview of Degree Requirements: (33 hours)

- Environmental Studies Core Coursework (18 hours)
  *This coursework will be required of all students enrolled in the program*

- Individual Concentration Coursework (15 hours)
  *Each student will select one of the following curriculum concentrations to complete, in addition to the required core coursework.*
  - Environmental Education and Interpretation Concentration
  - Coastal Management Concentration
  - Environmental Management Concentration
  - Individualized Study Concentration

Environmental Studies Core Coursework (18 hours)

Required core coursework:
- EVS 501. Introduction to Environmental Problems and Policy (3)
- EVS 515. Field Methods in Environmental Studies (3)
- EVS 518. Research Methods in Environmental Studies (3)
- STT 501 Applied Statistical Methods (3)
- EVS 595. Seminar/Final Project (3) or EVS 597. Practicum in Environmental Studies (3) [see departmental criteria]

Select one course from:
- BIO 534. Advanced Topics in Ecology (3)
- ECN 525. Environmental Economics (3)
- ECN 530. Natural Resource Economics (3)
- EVS 505. Advanced Environmental Studies (3)
- EVS 564. Natural Resource Policy (3)
- EVS 570. Advanced Environmental Law and Policy (3)
- ENG 557. Theory and Practice of Technical Communication (3)
- HST 533. Seminar: U.S. Environmental History (3)
- PLS 543. Environmental Policy Analysis (3)
- PLS 544. Resource Economics (3)
- PLS 562. International Environmental Policy (3)

Coastal Management Concentration (15 hours)

Required concentration coursework:
- EVS 520. Foundations of Coastal Management (3)
- Concentration Electives: 12 hrs

Potential concentration electives:
- BIO 534. Advanced Ecology (3)
- BIO 558. Biology of Recreational and Commercial Fishes (3)
- BIO 560. Estuarine Biology (4)
- BIO 561. Barrier Island Ecology (3)
- BIO 562. Wetlands of the United States and their Management (3)
- BIO 568. River Ecology (3)
- CHM 575. Chemical Oceanography (3)
- CHM 576. Chemical and Physical Analysis of Seawater (3)
- CHM 579. Role of the Oceans in Human Health (3)
• EVS 530. Tropical Environmental Ecology (3)
• EVS 572. Coastal Protected Areas Management (3)
• EVS 580. Research Diving (3)
• EVS 591. Directed Independent Study (1-3)
• EVS 592. Special Topics in Environmental Studies (1-3)
• EVS 598. Internship (1-3)
• GLY 503. Advanced Field Methods (4)
• GLY 552. Coastal Sedimentary Environments (4)
• GLY 558. Introduction to Coastal Management (4)
• GGY 522. Remote Sensing in Environmental Analysis (3)
• GGY 524. Geographic Information Systems (3)
• GGY 526. Environmental Geographic Information Systems (3)
• PLS 520. Seminar in Coastal Processes and Problems (3)
• PLS 521. Legal Foundations of Coastal and Environmental Management (3)
• PLS 522. Field Seminar in Coastal Management (3)
• PLS 524. Managing Coastal Hazards (3)
• PLS 525. Managing Coastal Ecosystems (3)
• PLS 527. Planning Theory and Planning Law (3)
• PLS 540. Environmental Management (3)
• PLS 543. Environmental Policy Analysis (3)

...and other courses as approved by department chair or graduate coordinator...

Environmental Education and Interpretation Concentration (15 hours)

Required concentration coursework:
• EVS 525. Foundations of Environmental Education and Interpretation (3)
• Concentration Electives: 12 hrs

Potential concentration electives:
• BIO 560. Estuarine Biology (4)
• BIO 561. Barrier Island Ecology (3)
• BIO 568. River Ecology (3)
• EDN 520. Instructional Development (3)
• EDN 544. The Teaching of Science (3)
• EDN 548. Inquiry- The Method of Science (3)
• EVS 560. Using Advanced Technologies to Teach about the Environment (3)
• EVS 591. Directed Independent Study (1-3)
• EVS 592. Special Topics in Environmental Studies (1-3)
• EVS 598. Internship (1-3)
• GLS 566. Documentary Film: Moving Images (3)
• GLY 520. Global Climate Change (3)
• GGY 524. Geographic Information Systems (3)
• HST 570. Introduction to Public History (3)
• HST 573. Public History Seminar (3)
• HST 580. Topics in Public History (3)
• LIC 506. Advanced Theory and Practice in Teaching Secondary Science (3)
• MIT 500. Instructional Systems Design: Theory and Research (3)
• MIT 510. Design and Development of Instructional Technology (3)
• MIT 511. Multimedia Design and Development (3)
• MIT 512. Computer Applications in Education (3)
• MIT 531. Assessment of Learning Outcomes (3)
• PLS 500. Managing Public and Nonprofit Organizations (3)
• PLS 505. Policy Analysis (3)
- PLS 506. Program Evaluation (3)
- PLS 531. Resource Development in Nonprofit Organizations (3)
- PLS 543. Environmental Policy Analysis (3)

...and other courses as approved by department chair or graduate coordinator...

**Environmental Management Concentration (15 hours)**

Required concentration coursework:
- EVS 540. Foundations of Environmental Management (3)
- Concentration Electives: 12 hrs

Potential concentration electives:
- BIO 534. Advanced Ecology (3)
- BIO 539. Advanced Topics in Population Biology (2–4)
- BIO 562. Wetlands of the United States and their Management (3)
- BIO 568. River Ecology (3)
- CHM 574. Aquatic Chemistry (3)
- CHM 578 Aquatic Toxicology (3)
- CSC 540. Advanced Scientific Computing (3)
- CSC 572. Scientific Visualization (3)
- EVS 530. Tropical Environmental Ecology (3)
- EVS 564. Natural Resource Policy (3)
- EVS 591. Directed Independent Study (1-3)
- EVS 592. Special Topics in Environmental Studies (1-3)
- EVS 598. Internship (1-3)
- GLY 503. Advanced Field Methods (4)
- GLY 520. Global Climate Change (3)
- GGY 522. Remote Sensing in Environmental Analysis (3)
- GGY 524. Geographic Information Systems (3)
- GGY 526. Environmental Geographic Information Systems (3)
- PLS 500. Managing Public and Nonprofit Organizations (3)
- PLS 506. Program Evaluation (3)
- PLS 507. Applied Management Tools, Skills, and Techniques (3)
- PLS 530. Management Practices in Nonprofit Organizations (3)
- PLS 540. Environmental Management (3)
- PLS 543. Environmental Policy Analysis (3)
- PLS 544. Resource Economics (3)
- STT 501. Applied Statistical Methods (3)

...and other courses as approved by department chair or graduate coordinator...

**Marine and Coastal and Education Concentration (15 hours)**

Required concentration coursework:
- EVS 525. Foundations of Environmental Education and Interpretation (3)

Potential concentration electives (Natural Science: 3 hrs):
- BIO 534. Advanced Ecology (3)
- BIO 539. Advanced Topics in Population Biology (2–4)
- BIO 558. Biology of Recreational and Commercial Fishes (3)
- BIO 560. Estuarine Biology (4)
- BIO 561. Barrier Island Ecology (3)
- BIO 562. Wetlands of the United States and their Management (3)
- BIO 568. River Ecology (3)
• BIO 560. Estuarine Biology (4)
• BIO 561. Barrier Island Ecology (3)
• BIO 568. River Ecology (3)
• EVS 530. Tropical Environmental Ecology (3)
• EVS 572. Coastal Protected Areas Management (3)
• PLS 525. Managing Coastal Ecosystems (3)
• ...and other courses as approved by department chair or graduate coordinator...

Potential concentration electives (Physical Science: 3 hrs):
• CHM 574. Aquatic Chemistry (3)
• CHM 575. Chemical Oceanography (3)
• CHM 576. Chemical and Physical Analysis of Seawater (3)
• CHM 578 Aquatic Toxicology (3)
• CHM 579. Role of the Oceans in Human Health (3)
• GGY 522. Remote Sensing in Environmental Analysis (3)
• GGY 522. Remote Sensing in Environmental Analysis (3)
• GGY 524. Geographic Information Systems (3)
• GGY 526. Environmental Geographic Information Systems (3)
• GLY 503. Advanced Field Methods (4)
• GLY 520. Global Climate Change (3)
• GLY 552. Coastal Sedimentary Environments (4)
• GLY 558. Introduction to Coastal Management (4)
• PLS 522. Field Seminar in Coastal Management (3)
• PLS 524. Managing Coastal Hazards (3)
• PLS 540. Environmental Management (3)
• ...and other courses as approved by department chair or graduate coordinator...

Potential concentration electives (6 hrs):
• EDN 520. Instructional Development (3)
• EDN 544. The Teaching of Science (3)
• EDN 548. Inquiry- The Method of Science (3)
• EVS 560. Using Advanced Technologies to Teach about the Environment (3)
• EVS 591. Directed Independent Study (1-3)
• EVS 592. Special Topics in Environmental Studies (1-3)
• EVS 598. Internship (1-3)
• GLS 566. Documentary Film: Moving Images (3)
• HST 570. Introduction to Public History (3)
• HST 573. Public History Seminar (3)
• HST 580. Topics in Public History (3)
• LIC 506. Advanced Theory and Practice in Teaching Secondary Science (3)
• MIT 500. Instructional Systems Design: Theory and Research (3)
• MIT 510. Design and Development of Instructional Technology (3)
• MIT 511. Multimedia Design and Development (3)
• MIT 512. Computer Applications in Education (3)
• MIT 531. Assessment of Learning Outcomes (3)
• PLS 500. Managing Public and Nonprofit Organizations (3)
• PLS 505. Policy Analysis (3)
• PLS 506. Program Evaluation (3)
• PLS 531. Resource Development in Nonprofit Organizations (3)
• PLS 543. Environmental Policy Analysis (3)
• ...and other courses as approved by department chair or graduate coordinator...
Individualized Study Concentration (15 hours)

Required concentration coursework:
  • Electives: 15 hrs (curriculum designed in conjunction with EVS faculty advisor)
Appendix B – Room utilization in the Teaching Laboratory Building (2013-14)
# 2013-2014 Academic Year Room Use

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Appendix C – Equipment list
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<td>Clipboards</td>
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<td>Hanna Multiparameter Water Quality Meter w/Probe 1 - 20m</td>
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Nikon SA/30 Roll Film Adapter w/Wheel 1
Nikon Scanner 1
Plastic sample bags 1 qt 2
Portable Tablets 20
Portable Tablets 5
Protractor 6" 24
Purple Nitrile Powder-Free Exam Gloves 1
Quad Squares Large 6
Quad Squares Small 6
Radio Transmitters 2
Range Poles 2
Recon Handheld 400 MHz Bluetooth Standalone 1
Regular Auger 7
Ruler 12" - Plastic 16
Safety Vests 20
Secchi Disc w/ calibrated line 1
Seco Range Pole 1
Short Auger Poles 3
Sieves - #140/18/60/35/270#'s 6
Small Leather Cases 2
Soil pH Kits 12
Soil Surveys 2
Soil Texture Kits 12
Survey Rods 12
Suunto Optical Height Meters 2
Tangent Height Gauges 16
T-Bar Digital Multi Stem Thermometers 1
Telemetry Receiver 2
Trimble Backpack mount 1
Trimble Office Software 1
Trimble RTK Unit #1 1
Trimble RTK Unit #2 1
Vernier CO2 Gas Sensor 1
Vernier Extra-Long Temperature Probe 1
Vernier Labquest Kits 20
Vernier Nitrate ION-Selective Electrode 1
Vernier Replacement Batteries 2
Vernier Thermocouple's 6
Appendix D – Vitae of full-time faculty
ROBERT B. BUERGER
Resume

Address
Department of Environmental Studies
University of North Carolina at Wilmington
601 South College Road
Wilmington, NC. 28403-3297
Office Phone: 910-962-3259
Office Fax: 910-962-7634
E-Mail: BUERGERB@UNCW.EDU
Web page: http://www.uncw.edu/people/buergerb

EDUCATION


Bachelor of Science - Park & Outdoor Recreation Management, College of Forestry and Natural Resources, Colorado State University, Fort Collins, CO 80523. August, 1974.

EXPERIENCE

July 1997 - Present: Professor Department of Environmental Studies (EVS); Coordinator of the Bachelor of Arts degree in Environmental Studies (1997-2012); Graduate Faculty (1997- present). The University of North Carolina Wilmington, Wilmington, NC 28403.

AWARDS

2012 University of North Carolina Wilmington Distinguished Teaching Professor

2011 University of North Carolina Wilmington Chancellor’s Teaching Excellence Award

PUBLICATIONS


PROFESSIONAL PRESENTATIONS


FUNDED GRANTS

I. Academic Status at UNCW
Present Rank: Associate Professor
Effective Date: July, 2008

II. Education
1973  J.D., Martin Luther King, Jr., Hall School of Law, U.C. Davis; emphasis on public law and policy and environmental law; upper one-third of class
1970  A.B., U.C. Santa Barbara, Political Science; emphasis on political thought and public policy, Blue Key Honorary.
1997  Duke Private Adjudication Center; North Carolina and nationally recognized Certificate in Mediation techniques.
2008  Courses in Global Climate Change and Ocean and Coastal Law, Vermont Law School

III. Teaching:
A. Courses Taught (all developed by Mr. Cutting):
1. Forensic Environmental Science: newly revised for undergrads 2014
3. Advanced Topics in Environmental Law (EVS 462 and EVS 570) [http://people.uncw.edu/cuttingr/EVS570.html] - revised 2014 to include intro to forensics
4. Practica/Internships: [http://www.uncw.edu/evs/internshipPractica.html] Mr. Cutting developed this internship/practicum program because, from its initiation, the Department has placed great emphasis on practical and field experiences as a method not only to learn the field but also to make our graduates more competitive.
5. DIS and Honors (Directed Independent Study): topics such as recent Supreme Court activity special topics. 4 so far in 2014
6. Business Concepts for Environmental Professionals: Developed by Mr. Cutting; this course is offered in fall, 2014, to provide business concepts, the basics of accounting and other managerial skillsets for environmental management
B. Awards:
   b. Advanced Topics in Environmental Law and Policy: 2004
   c. Environmental Law Research Module: created with funding from UNCCH, which was spent primarily on student assistance to create the web-based module.
2. IT Innovations Award 2005 with Dr. Cahoon for Forensic Environmental Science
3. Recognized by graduating seniors every semester as having had a significant impact on their academic careers. 1997-2012

IV. Professional History:
Admitted to California Bar November, 1973 (#056828), and North Carolina Bar, July, 1997 (#24650)
7/81-present Private practice, Santa Barbara, CA and Wilmington, NC, general civil business and business litigation practice, including trade regulation, real estate, advertising, business organizations (formation and operation), publishing and direct mail, construction, environmental, land use and planning law. Representative clients included County of Santa Barbara, Goleta Water District (primarily litigation), title insurance companies, specialty contractors and approximately 25 attorneys in their private lives; consultant for County of Santa Barbara Air Quality Attainment Plan.
11/97- present Mediator, certified by NC Administrative Office of the Courts including complex construction, property and personal injury cases.
7/88- present Principal, Cutting & Co., Inc., brokers and consultants (licensed real estate corporation incorporated 1997)
4/91-11/94 Administrative Assistant to State Senator Franklin Block and Representative Karen E. Gottovi. Duties included research, drafting, analysis and strategy concerning legislation; appearance before committees; analysis of legal issues; communications and correspondence with governmental agencies and constituents. Special projects included intensive livestock legislation, Smithfield processing plant, and the NC hazardous waste incinerator (ThermalKhem).
11/82 - 1990   
**Instructor, California, Southwest Regional Training Center** (Cal. State Dominguez Hills), developed and taught 40-hour seminar, "Investigation and Prosecution of White Collar Crime".

2/77 - 6/81   
**Deputy-in-Charge, Consumer/Business Law Section, Santa Barbara County District Attorney**, responsible for operation of entire white collar crime unit, including management of investigators, law students and paraprofessional personnel and responsibility for fiscal planning. Carried extensive civil and criminal caseload including trade regulation, complex fraud, (e.g., securities, real estate), sensitive investigations (including Secret Meeting Law, Political Reform Act, grand jury). Responsible for public relations and extensive presentations to citizens as well as trade groups such as Apartment Association of SB County. Created countywide Economic Crime Project and training of local law enforcement; worked with state, local and federal agencies; award for Outstanding Service ’81.

1/75 - 1/78   
**Director, Legal Aid Foundation of Santa Barbara**, County, responsible for extensive caseload (family violence, tenant rights, general litigation); reported to board of directors; responsible for public and private fundraising and fiscal operations, relations with agencies and bar; managed professional staff and both attorney and lay volunteers.

Additional Licenses   

V. Research and Scholarship

A. Refereed Publications

1. Published:

   2012 "Location, Location, Location should be Environment, Environment and Environment." Symposium, City as Ecosystem, Golden Gate Environmental Law Review Fall 2012

   2011 'If the Tide is Rising, Who Pays for the Ark?'. Coastal Management, 39: 3, 282 — 295, To cite this Article Cutting, Robert H., Cahoon, Lawrence B. and Hall, Jack C.(2011) http://dx.doi.org/10.1080/08920


   2007 Requirements For A Workable Intern/Practicum Program In The Environmental Sciences: Experience For Careers & Grad School, Journal of Geoscience Education, with Jack C. Hall.


   2005 Thinking Outside the Box, 21 Pace Environmental Law Review 1 (Spring 2005). Robert H. Cutting and Lawrence B. Cahoon


   2001 “One Man’s Ceiling is Another Man’s Floor: Property Rights as the Double-Edged Sword”, 31 Environmental Law 819-900 (December 2001). Robert H. Cutting
1977 “The Integration of Air Quality/Land Use Strategies: Legal Considerations”, Office of Environmental Quality, County of Santa Barbara (1977) Robert H. Cutting


B. Publications: Not refereed:
2012 Legislation: research resulted in introduction of legislation to protect citizens against SLAPP suits that are designed to curtail free speech.
2012 Argument submitted for North Carolina League of Conservation Voters to N.C. Division of Air Quality and N.C. Division of Water Quality concerning major project siting.

Beta Website for Environmental Issues in Residential Real Estate, realsafeenvironment.com

2005-2009 UNCW Department of Environmental Studies Research Website
2004-2009 EPA Enforcement Data: State Enforcement Data
2006 Survey of Counsel on Environmental Issues
1982 "White Collar Crime", course materials including student manuals for course certified by the California Peace Officer Standards and Training (POST) and taught through California State University at Dominguez Hills

C. Research Grants or Research Fellowships
• Vermont Law School: Summer Tuition Grant, Summer 2008 (@$8,000)
• Applications to North Carolina League of Conservation Voters for environmental justice presentations 2013
• Applications to numerous entities for conference funding 2013-2014
• EVS: Travel to International Environmental Conference in Athens, Greece, 2006.
• MALSA Request for Funds for Forensic Environmental Science: 2006 (with Dr. Cahoon).
• “IT Innovations Award” with Dr. Cahoon for instruments actually used in Forensic Environmental Science Course, including Vernier Lab-Pro units and PDA’s with GPS for fieldwork (2005).
• EPA Grant for equipment to be used in Forensic Environmental Science: 1998 - $5,000.

D. Presentations (representative):
Moderator: Panel on Coastal Policy for TCS-22 International Meeting, 2010
2. Thinking Outside The Box: Using Property Rights To Protect Public Resources presentation to WRRI, October 8, 2008.Lawrence B. Cahoon, Robert H. Cutting and Michael Mallin
6. Geological Society of America, 2005 National Meeting, Salt Lake City, Utah Property Rights as a Key to Environmental Protection, Abstract #95491
7. Lower Cape Fear River Project (2005): a presentation on Alternative Dispute Resolution in environmental cases which involved preparation with several local industries
8. Offshore Oil Development in California: Numerous presentations
9. Alternative Dispute Resolution in Housing: Numerous presentations

E. Ongoing Research: Constitutional law issues, enforcement issues, trade regulation, property law issues

F. Membership in Professional Associations
   1973-2014 California State Bar
   1997-2014 North Carolina State Bar
   1997-2014 Certified Mediator, North Carolina Courts
   1991-2004 American Arbitration Association Panel of Neutral Arbitrators
   1994-2014 National Association of Realtors®
   1994-2014 Wilmington Regional Association of Realtors®
   1981-2014 Arbitrator, California and North Carolina Courts
   1979-1981 California District Attorneys Association, Chair, Consumer Protection Council (statewide umbrella organization of white collar prosecutors)
   1978-1981 Chair, Santa Barbara County Economic Crime Project: created umbrella organization of economic/environmental crime officers to share resources, improve enforcement efforts and train person

G. Attendance at Professional Meetings (representative):
   - 2013 Legislative Reform Round Up
   - Environmental Law Section Annual Meetings current to 2013 meeting and ready for 2014
   - Shifting Shorelines: Adapting to the Future: The Coastal Society 22nd International Conference, June, 2010
   - Bound by Water, Tulane University School of Law, Annual Environmental Law Conference, New Orleans 2010
   - Ethics Issues for Construction and Real Property: NC Bar Association 2010
   - Shape of the Coast 2009: UNCCCH Conference, October 2009
   - State of the State: Playing by the New Rules and NC DENR Update, NC Bar Association 2008
   - Think Globally, Act Locally: NC Bar Association - January 2007
   - Landfills and Technology and Brownfields, Oh My! NC Bar Association - April 2007
   - Conservation Council of North Carolina: Green Tie forum featuring Joe Hackney Speaker of the NC House, and honoring numerous legislators for their environmental legislation.

H. Continuing Education, workshops, etc., Law: (current as of 2014) Virtually all of the professional meetings listed above have also provided continuing education credit (12 hours per year); Real Estate (8 hours per year):

I. Professional Consultancies:
   a. University:
      2009-2014 Invited reviewer, Kubasek & Silverman, Environmental Law & Policy (6th, 7th and 8th editions) Pearson,
   b. Law (maintain current bar status)
      (1) Legal Work: Paid and extensive Pro Bono: working with NGO's, community groups and legislators on legislation, litigation and other issues (1970-2014)
      (2) Alternative Dispute Resolution: court-appointed mediator and arbitrator (1997-2013)
      (3) Consulting – pro bono: for example, the Town of Sandyfield, NC (2004-2006)
   b. Real Estate: Paid and pro bono transactions 1997-2014

VI. Service
   A. Service to the University:
      2. College of Arts and Sciences: Internships Committee (2005-2007)
4. Department: *Designed and supervised the construction of the extensive Department Environmental Studies web page (www.uncw.edu/evs), and supervised maintenance and upgrading including hiring and supervision of student assistants. (http://fire.cis.uncw.edu/EVS/module) (1998-2007)
   *Coordinator of all internship and practicum activities (administrative appointment for one-half time) (1996-2012)
   *Serving as UNCW coordinator for forum for environmental professionals on new Wetlands regulations co-sponsored by UNCW, The US Army Corps of Engineers and the NC Division of Water Quality (November 2007)
   *Served on search committees 2005-2013
   *Developed web-to-database system for: (1) delivery of data on EPA enforcement cases and on state records, (2) a system to enable interns to file logs and other assignments through a secure website; and (3) instrument to conduct, tally and display online surveys and polls in cooperation with student assistants from the Computer Science Department
   * Skype Classroom: used early and continuously through 2014
   *Arranged for the Department to co-sponsor Dr. Robert Bullard’s Martin Luther King Day talk
   *Public Appearances, such as hosting public radio panel after “An Inconvenient Truth” for WHQR

B. Community Service (representative sampling): Law-Related

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<tr>
<th>1970-2014</th>
<th>Pro bono representation of NGOs, individuals, PACs and political figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2012</td>
<td>Elected Board member, North Carolina League of Conservation Voters</td>
</tr>
<tr>
<td>2005-2010</td>
<td>Elected Board member, Conservation Council of North Carolina,</td>
</tr>
<tr>
<td>1973-2000</td>
<td>Judge pro tem, Santa Barbara County courts</td>
</tr>
<tr>
<td>1986</td>
<td>Winner First Annual Schwartz-Seed Award by Santa Barbara County Bar Ass'n. for pro bono work with legal services</td>
</tr>
<tr>
<td>1978-1981</td>
<td>Chair, Santa Barbara County Economic Crime Project: created umbrella organization of economic/environmental crime officers to share resources, improve enforcement efforts and train personnel</td>
</tr>
<tr>
<td>1977-1983</td>
<td>Legal Aid Foundation, Board of Directors, including terms as Vice President and President</td>
</tr>
<tr>
<td>1979-1981</td>
<td>California District Attorneys Association, Chair, Consumer Protection Council (statewide umbrella organization of white collar prosecutors)</td>
</tr>
<tr>
<td>1978</td>
<td>Santa Barbara County Barristers Club Board of Directors</td>
</tr>
<tr>
<td>1980</td>
<td>Santa Barbara County Bar Association Board of Directors</td>
</tr>
</tbody>
</table>

Community Activities

| 2000-2014 | *PTA Volunteer of the Year 2001 Wrightsville Beach School and 2008 Gregory School of Math, Science & Technology, Coach, Odyssey of the Mind Team, School Improvement Team Member |
| 2003-2014 | Science Olympiad volunteer event coordinator and assistant coach |
| 2000-2006 | UTOTES Environmental Education volunteer, New Hanover Co. Schools |
| 2002-2005 | Grade parent for Gregory School of Math, Science and Technology |
| 1989      | Co-author: Balanced Growth Initiative on city ballot for Santa Barbara |
| 1985      | Environmental Defense Center, volunteer counsel in several cases, including air pollution cases and land use issues |
| 1985      | Co-author, Measure A, The Oil Initiative: countywide ballot initiative to restrict onshore activities related to offshore oil production |
| 1983-1989 | Santa Barbara Rape Crisis Center: volunteer counsel, fundraising, etc. |
| 1983-1986 | Summer Solstice Celebration Board of Directors and Counsel |
| 1974-1977 | City of Santa Barbara, Community Relations Commission, Vice Chair 1976-77; |
| 1974-1977 | Volunteer Counsel, COASTWATCH: |
| 1969      | Volunteer cleanup, Santa Barbara Oil Spill |
Devon Olivola Eulie  
Department of Environmental Studies  
University of North Carolina Wilmington  
601 South College Road ● Wilmington, NC, 28403 ● 910-962-3230 ● eulied@uncw.edu

Education
East Carolina University, Greenville, NC  
Ph.D. Coastal Resources Management; May 2014  
Primary concentration in Geosciences  
Secondary concentrations in Coastal & Estuarine Ecology and Social Science & Coastal Policy  
Field of Study: Coastal Processes and Policy
University of North Carolina Wilmington, NC  
M.S. Geology; May 2008  
Field of Study: Wetland Sediment Dynamics
University of North Carolina Wilmington, NC  
B.S. Environmental Sciences, Physical Science Concentration with University Honors; May 2005  
Field of Study: Environmental Geology and Wetland Sediment Dynamics

Research Interests
My scientific research focuses on understanding coastal processes through the use of innovative remote sensing technologies, field sampling, and computer modeling. I am especially interested in shoreline processes along protected (estuarine) coastlines and sedimentary processes in estuarine and wetland environments. I am also interested in coastal management and the interaction of human activities and coastal processes.

Experience

Professional Experience
UNC Wilmington, Department of Environmental Studies, starting July 2014  
- Assistant Professor  
- Introductory Laboratory Coordinator (EVS 195L)

UNC Wilmington, Department of Environmental Studies, 2013 – Present  
- Lecturer  
- Introductory Laboratory Coordinator (EVS 195L)
UNC Wilmington, Department of Environmental Studies, 2012 – 2013

- Lecturer
- Introductory Laboratory Coordinator (EVS 195L)

East Carolina University, Department of Geological Sciences, 2008 – 2011

- Doctoral Researcher under the direction of Principle Investigators Drs. J.P. Walsh and Reide Corbett, on “Estuarine Shoreline Mapping: Creating a Digital Shoreline for the Albemarle-Pamlico Estuarine System”
- Responsibilities: managing undergraduate GIS technicians, providing technical assistance, GIS digitizing, quality control, and submission of monthly progress reports

Teaching Experience – University of North Carolina Wilmington

- EVS195 Introduction to Environmental Science
- EVS 476 Topics and Issues in Environmental Sustainability
- EVS 491 Directed Independent Studies
- EVS 495 Senior Seminar in Environmental Studies
- EVS 515 Graduate Field Methods in Environmental Studies
- EVS 592 Special Topics: Geospatial Techniques for the Coastal Zone
- GLY 120L Environmental Geology Lab (Teaching Assistant, 2005-2007)
- GLY 220 Geology Methods (Teaching Assistant, 2006-2008)

Teaching Experience – East Carolina University

- COAS 4025 Society and the Sea (Co-lecturer, 2012)

Teaching Initiatives – University of North Carolina Wilmington

- Revised EVS 195L curriculum and manual
- Revised EVS 476 curriculum
- Developed new course in applied geospatial techniques (EVS 592 Special Topics)

Research Projects

University of North Carolina Wilmington

- Analysis of Shoreline Change and Wetland Loss at Zeke’s Island, NC (2013-Present)

East Carolina University

- Rates and Processes of Vital Wetland Habitat Loss (2010-2011)
- Estuarine Shoreline Mapping Project (2008-2011)

University of North Carolina Wilmington

- Sediment Deposition and Availability in Riparian Wetlands of the Lower Cape Fear River Estuary (2003-2008)
Awards and Honors

- Presentation Award from East Carolina University for best Natural Sciences Oral Presentation at the annual Research and Creative Achievement Week, 2012
- Student Travel Award, Southeastern Geological Society regional meeting, Spring 2011
- Summer Research Grant from the Institute for Coastal Science and Policy, $10,000, 2010
- Inducted into Sigma Gamma Epsilon, 2008
- Student Teaching Award, Department of Geology and Geography UNC Wilmington, 2008
- Student Teaching Award, Graduate School UNC Wilmington, 2008
- Department of Geology and Geography Research Award UNC Wilmington, 2006
- Department of Geology and Geography Research Grant UNC Wilmington, 2006
- Schwartz Fellowship, UNC Wilmington, 2006-2007

Publications


Presentations

- “High-Resolution Observations of Shoreline Change and Applications of Balloon-Aerial Photography” Oral Presentation at the East Carolina University Research and Creative Achievement Week conference, 2012
- “High Resolution Observations of Wetland Shoreline Change in the Albemarle-Pamlico Estuarine System (APES)” Oral Presentation at the 21st International Conference of the Coastal and Estuarine Research Federation, Daytona Beach, Florida 2011
- “Short-term Erosion of Wetland Shorelines in the Albemarle-Pamlico Estuarine System” Oral Presentation at the Southeastern Section of the Geological Society of America regional meeting, Wilmington, North Carolina 2011
- “Surface Elevation and Sediment Deposition in Riparian Wetlands of the Lower Cape Fear River Estuary” Oral presentation at the 19th International Conference of the Estuarine Research Federation, Providence, Rhode Island 2007
- “Short-term Sediment Deposition rates in Riparian Marshes and Swamps along the Lower Cape Fear River” Poster presented at the 18th International Conference of the Estuarine Research Foundation, Norfolk, Virginia 2005
- “Short-term Sediment Deposition rates in Riparian Marshes and Swamps along the Lower Cape Fear River” Poster presented at the Colonial Academic Alliance conference for undergraduate research, New York, 2004

Membership in Professional Societies

- The Coastal Society
- The Coastal and Estuarine Research Federation
- North Carolina ArcGIS Users Group, Inc.
- Association for the Sciences of Limnology and Oceanography
Education:
- Grand Valley State University, Allendale, Michigan; Geology; 1973-1977; B.S.
- University of North Carolina, Chapel Hill, North Carolina; Geology; 1977-1981; M.S.
- The Ohio State University, Columbus, Ohio; Geology; 1981-1986; Ph.D.

Academic Experience:
- Chair, Department of Environmental Studies-2003-present
- Adjunct Professor, University of Belize-2009-present
- Associate Research Scientist-Center for Marine Science Research-1987-present
- Professor of Environmental Studies-2004-present
- Research Diver-NURC/UNCW Center for Marine Science-1993-present

Contributions to Teaching:

Courses Taught:
- EVS 195-Introduction to Environmental Studies
- EVS 431-International Field Experience
- EVS 491-Directed Individual Study in Environmental Studies
- EVS 498-Internship in Environmental Studies
- EVS 499-Honors in Environmental Studies
- EVS 591-Directed Individual Study in Environmental Studies
- EVS 592-Special Topics in Environmental Studies

Special Initiatives/Incentives in Teaching:
- Instructor for Field Methods for Science Educators taught by Dr. Dennis Kubasko, 2013
- Senior Science Advisor for NC Aquarium: Development of the Megalodon exhibit, 2012
- Instructor for workshop: Meeting the Standards for Environmental Education Certification in North Carolina (with J. Hill), 2011
- Workshop for NC Aquarium staff: Paleoenvironments of North Carolina, 2010
Instructor for workshop: Meeting the Standards for Environmental Education Certification in North Carolina (with J. Hill), 2009


Efforts to Improve Teaching:

- Environmental Education Advisory Council sponsored by the Office of Environmental Education, North Carolina Department of Environment and Natural Resources.

- Development of course content materials (lecture and laboratory) for Studying and Teaching about our Natural World-Earth and Environmental Science Teaching and Learning Modules.

Grants and Fellowships Related to Teaching:

- “North Carolina Integrated Geoscience Modules: From the Beach to the Blue Ridge”, National Science Foundation (in review), $145,748, (J. Hall, PI with W. Kawczynski, CO-PI).

- “REU Site: Research Experiences for Undergraduates in Biodiversity Conservation”, National Science Foundation (in review, $535,320, (J. Hall with P. Kelley, G. Dietl, and M. Posey).

Honors, Listings, or Awards:

- Cited in Empire Who’s Who Among Executives and Professionals in Education
- Listed by one or more of the 1989 through present UNCW graduating classes (every year, every semester) as a person who had significant impact on their college career.

Membership in Professional Societies:

- North Carolina Science Leadership Association
• North Carolina Science Teachers Association

• Mid-Atlantic Marine Education Association

Attendance at Professional Meeting or Sessions Primarily Devoted to Teaching:


• Attended Annual Meeting of the Southeastern Section of the Geological Society of America, K-12 Education Session, 2011.


Research and Scholarship Related to Teaching:

Papers Published:


Research and Scholarship:

Papers Published:


Research Grants or Research Fellowships Awarded:

- Geologic Environments, Mineralogy and Natural Resources of North Carolina, North Carolina Mining Commission (J.C. Hall with W. Kawczynski, $2,000). 2009.

Honors or Awards for Research:

- Cited in Empire Who’s Who Among Executives and Professionals in Education.

Special Initiatives in On-Campus Scholarly or Professional Development:


Leadership Positions, or Administrative Duties:

- Member, NC Aquarium Advisory Board, 2007-present
• Member, UNCW Sustainability Committee, 2007-present.

• Member, North Carolina Advisory Committee for the North Carolina Aquarium at Fort Fisher, Appointment by Secretary of NCDENR, 2005-present.

• Cape Fear Community College Environmental Studies Advisory Council, 1996-present.

• Teacher Education Council, 1996-present.

Other Service:

• Chief Science Consultant and Editor for Ecology Communications.

• Author, Carolina Academic Press.

• Weekly Dive Show at the North Carolina Aquarium at Fort Fisher.

• UNCW Representative at Cape Fear Museum's "Spring Science Celebration", 2000-present.


Leadership in Seminars or Short Courses:

• Textbook Editor, Worth Publishers, Inc., 1984-present.

• Textbook Editor, John Wiley & Sons, Inc., 1987-present.

• Textbook Editor, Ward Educational Publishing Co., Inc., 1988-present.

• Mentor, New Hanover County Advanced Studies Program.

• Consulted with students from Noble, Roland-Grise, Hoggard, New Hanover, Jacksonville, Laney, Myrtle Grove and Trask Schools on a variety of Paleontologic, Oceanographic, and Marine Geology science projects.

• Coach, Hoggard High School Science Olympiad Team, 1996-present.

• Judge, North Carolina Regional Science Fair, 2003-present.
Paul J. Hearty, Ph.D.
CURRICULUM VITAE (8/2014)

Educator, Scientist, and Environmental Consultant

Research Associate Professor
Department of Environmental Studies
UNC Wilmington, NC 28403
heartyp@uncw.edu
Phone: 910.962.7675

ACADEMIC HISTORY:
B.A. (Human and Cultural Geography) AND M.Sc. 1978 (Geography and Geomorphology):
Department of Geography. University of Nebraska Omaha, Nebraska. M.Sc. Thesis topic: “The
biogeography and geomorphology of the Niobrara River Valley, Nebraska.”

PH.D. DEGREE: 1987 Institute of Arctic and Alpine Research (INSTAAR) and Department of
Geology, University of Colorado, Boulder. PhD Thesis: “Age and Aminostratigraphy of
Quaternary shoreline deposits in the Mediterranean basin”. (Thesis committee: G. Miller, J. T.
Andrews, J. T. Hollin, P. Birkeland, & C.E. Stearns)

UNIVERSITY AND CONSULTING HISTORY:
o Research Associate Professor, Department of Environmental Studies, University of North
Carolina at Wilmington, Aug 2009 - present.
o Consultant for Village of Bald Head Island on barrier island dynamics and conservation,
groundwater development, and wetland protection. Director of Conservation, Bald Head
Island Conservancy (1 yr contract 8/2008- 7/2009).

AWARDS AND FELLOWSHIPS:
o Nomination for Secretary’s Research Prize, Smithsonian Institution, Jan 2011.
o Secretary’s Research Prize, Smithsonian Institution, Sept 2010.

SYNERGISTIC ACTIVITIES
REVIEWER FOR PROFESSIONAL JOURNALS AND FUNDING AGENCIES:

Geological Society of America Bull.  Quaternary Research
Geology  Journal of Quaternary Science
Paleobiology  Quaternary International
Marine Geology  National Undersea Research Project (NOAA) proposals
Sedimentary Geology  Hawaii Undersea Research L. (HURL)
Sedimentology  International Journal of Earth Sciences
Geochimica et Cosmochimica Acta  Global and Planetary Change Palaeoecology
Journal of Sedimentary Research  U.S. National Science Foundation Quaternary Science
Earth Science Reviews  Reviews
AAAS Science  Natural Environment Research Council

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EDUCATION AND OUTREACH: SCIENCE FOR THE PUBLIC
   o Presentations of Scientific Material in Public Venues
     ▪ Bald Head Island Conservancy, numerous public lectures on barrier island geology and processes, 2008-2009.
     ▪ Kid’s Geology, Childcare Network, 41st St. Wilmington, 2009
     ▪ Kid’s Geology, Alderman Elementary School, Wilmington, 2010, 2011
     ▪ Kid’s Geology, Codington Elementary School, Wilmington, 2012, 2013

LEADER OF FIELD PROGRAMS, EXPEDITIONS AND WORKSHOPS:
   o “Project Curaçao” Undergrad and graduate course, Netherland Antilles (Mar, 2014).
   o Expedition Science Leader, PLIOMAX project, Republic of South Africa (June, 2012).
   o PLIOMAX expedition to South and Western Australia to find geological evidence of mid-late Pliocene sea-level highstands (July 2009; May 2010).

INVITED SPEAKER/SCIENTIFIC VENUES:
   o Plenary Speaker, “Paleontology in Atlantic Islands” Azores, Portugal, 19-29 June 2014
   o Invited speaker, Iziko Museum, Cape Town, South Africa, 8 June, 2012.
   o Keynote speaker, Mallorca 2012! Sea level change into MIS 5: from observations to predictions (NSF), April 9-15, 2012
   o Academy of Natural Sciences of Philadelphia, September 2010.
   o Invited speaker, USGS Reston VA. 26 August 2009.
   o Invited speaker, PALSEA workshop, Woods Hole Oceanographic Institute, Sept. 2009.

INTERNATIONAL TRAVEL AND LANGUAGE:
   Traveled to seven continents and published science and natural history articles related to six of them. Led research and tourist expeditions in USA, Asia, Europe, Africa, Antarctica, and Australia. When in practice, conversational in French, Spanish and Italian, and have a good working knowledge of German and Latin.

OTHER PROFESSIONAL SKILLS AND QUALIFICATIONS:
   • Nearly 10,000 hours of boat operation and crewing on seagoing vessels ranging from Zodiacs, 25 m SuperCat with 2x 160 hp diesel engines, and 75-100 m ice rated research vessels in Antarctica and Pacific crossings.
   • Queensland boat operator’s license
   • Skilled at all aspects of computer operation, software, and skills including writing, graphics (PowerPoint, Corel Draw, Adobe Photoshop, Canvas).
   • Professional photographer: publications in professional journals, periodicals, and magazines (examples provided upon request).
   • Power Point presentations on a variety of academic, tourism, and natural history subjects are available.
   • Several thousand digital images of corals, birds, and exotic places around the world.
Certified Advanced PADI SCUBA diver
Certified Ocean Rescue

PUBLICATIONS (past 5 years; PDF papers available at https://www.researchgate.net/profile/Paul_Hearty/contributions/?ev=prf_act):


• http://www.pages-igbp.org/products/newsletters/nl2007_1lores.pdf


**Hearty Contributions and Accomplishments at UNCW**

**University Instruction:**

- I created “Coastal Environmental Change” (EVS 485/592) and instructed this upper level course for the past three years (Fall 2012-2014)
- I created “Time Dimensions in Natural Systems” (EVS 485/592) and instructed this course in Spring 2013.
- I created “Project Curaçao!” and instructed this course in Curaçao, Netherlands Antilles during Spring Break 2014, and plan a repeat in Spring 2015.
- I have supervised three Master’s degree students, and several DIS and Honors students during my tenure.
- With Lecturer Amy Long, I organized and initiated the “Friday Seminar Series” beginning in Fall 2014.
- Student opinions/evaluations of these courses are generally very good to excellent.

**Performance Evaluations:**

- I have received exclusively “Superior” evaluations from Prof. Hall, Chairman of EVS in both research and teaching during each of the past several years.

**UNCW and Hearty in the media (see also [www.pliomax.org](http://www.pliomax.org):**

- Hearty as PLIOMAX Principle Investigator (PI) featured in *New York Times* Science and Environment cover article 21 Jan 2013 *(attached).*
- Featured on several occasions in UNCW articles and web pages.
• Featured on cover of Star News (March 2014).
• Featured nationally on “Academic Minute” on NPR Radio (Spring 2014)
• Hearty at UNCW, together with PLIOMAX research team PIs from Columbia U.,
  Harvard U., Penn State U., and U. Mass, have been featured in dozens of international
  articles and programs.
• Hearty and research colleagues are featured “Sea Change” series and other documentaries
  with international circulation (link: https://www.youtube.com/watch?v=dXzA_gmBtw&list=PL3F9E439EF215096D)
• Hearty has presented and/or been invited as national and international workshop
  participant or Plenary Speaker every year since arrival at UNCW.
• Hearty is a peer-reviewer for a host of international journals and organizations (see CV
  for current list) including Science, Geological Society of America Bulletin and Geology,

Research Grants:
• **Current** (5 years: Sept 2012-Aug 2016): FESD Type 1, “PLIOocene MAXimum sea
  level (PLIOMAX): Dynamic ice sheet-Earth response in a warmer world”;
  National Science Foundation, Total amount funded $2.26 million (5 PIs); at
  UNCW $648,127 including $125K in overhead.
• **Pending** (3 years: Feb 2015-Jan 2018): “Collaborative Research: Polar Ice Sheet
  Dynamics During MIS 5e: A combined Field Data and Modeling Approach”;
  NSF: Total amount requested (3 PIs): $800K; 3 years $135,372 including $28K overhead.
• **2009-2010** – USGS PRISM and NSF funding of PLIOMAX field expedition to South
  and Western Australia. Led by Hearty and Raymo (Co-PIs). $80K
• **2005-2007** (subcontract w/G. Goodfriend, S.J. Gould, J. Harasewych) – National Science
  Foundation (USA), Evol. of Bahamian landsnails (EAR #0106936), $250K.

Research Statistics at UNCW (link:
• On Research Gate, Hearty has ranked either #1 or in Top 5 among 407 researchers at
  UNCW as the “most downloaded” and “most viewed” publications for a majority of the
  past year. Panels from 18 August 2014 are pasted below.
Jeffery Martin Hill  
hillj@uncw.edu  
http://people.uncw.edu/hillj/  

Office  
University of North Carolina Wilmington  
601 S. College Rd.  
Wilmington, NC  28403-5949  
Voice/FAX: (910)962-3264  

Formal Education  

MS (Master of Science in Outdoor Education - Minor: Instructional Systems Technology), Department of Recreation and Park Administration, School of Health, Physical Education, and Recreation, Indiana University. (1990).  


BA (Bachelor of Arts in Psychology - Minor: Mathematics and Computer Science), Department of Psychology, College of Arts and Sciences, Indiana University. (1979).  

Professional Experience  
University of North Carolina Wilmington, Wilmington, NC  

Rank  
- Professor (tenured) of Environmental Studies (2006-present)  
- Associate Professor (tenured) of Environmental Studies (2003-2006)  
- Associate Professor (tenured) of Parks and Recreation Management (1998-2003)  
- Assistant Professor of Parks and Recreation Management (1993-1998)  

Administrative Positions  
- Environmental Studies Graduate Program Coordinator (2005-present)  
- Associate Dean of Technology and Infrastructure (2000-2005)  
- Parks and Recreation Management Curriculum Coordinator (1997-2000)  

Teaching  
University of North Carolina Wilmington, Wilmington, NC  

Department of Environmental Studies  
• EVS 595 Seminar/Project in Environmental Studies  
• EVS 592 Methods of Teaching Coastal Science  
• EVS 592 Field Methods in Environmental Studies  
• REC 591 Directed Individual Study  

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• EVS 525 Foundations of Environmental Education and Interpretation
• EVS 495 Seminar in Environmental Studies
• EVS 499 Honors Work in Environmental Studies
• EVS 485 Field Methods in Environmental Studies
• EVS 463 Environmental Education and Interpretation
• EVS 360 Natural Resources Recreation Management
• EVS 292 Natural Resource Management in Wales- Study Abroad
• EVS 292 Special Topics in Natural Resource Management in Wales - Study Abroad
• EVS 195 Introduction to Environmental Studies

Department of Health and Applied Human Sciences
• REC 498 Internship in Leisure Services
• REC 491 Directed Individual Study
• REC 465 Park Planning and Design
• REC 430 Advanced Leisure Service Management
• REC 360 Natural Resources Recreation Management
• REC 348 Field Experience in Recreation
• REC 292 Natural Resource Management in Wales - Study Abroad
• REC 292 Special Topics in Natural Resource Management in Wales - Study Abroad
• REC 266 Applications of Computers in Parks and Recreation Management
• REC 280 Experiential Techniques for Interpreting Outdoor Recreation Resources
• REC 270 Programming and Leadership
• REC 265 Introduction to Recreation and Parks
• REC 103 Cape Fear River: Issues and Experience

Graduate Directed Independent Studies

Masters theses
• Committee member, MS Marine Science (2013).
• Outside Representative, Dept. of Creative Writing (2001).
• Outside Representative, Dept. of Earth Sciences (1998).
• Outside Representative, Dept. of Biological Sciences (1997).

Honors committees
• Chair, Dept. of Environmental Studies (2011, 2012, 2013).
• Committee member, Biology and Marine Biology (2010).
• Committee member, Geology and Geography (2008, 2009).
• Committee member, Watson School of Education (2007).

Master of Arts in Teaching portfolio review committee
• Committee member, Watson School of Education (2010).

Honors and Awards
Distinguished Teaching Professorship, University of North Carolina Wilmington (2014).

Chancellor’s Teaching Excellence Award, University of North Carolina Wilmington (2013).
Exemplary Post-Tenure Review Award, University of North Carolina Wilmington (2011).

**Current Research**

Methodologies to quantify annual visitation to dispersed access coastal reserves

Impacts of red fox density and distribution on the disturbance of loggerhead sea turtle nests in southeastern North Carolina

Wildlife training and education outreach to build capacity for environmental conservation in Belize

Enhancing primary school science education in Belize using field-based education in shade-grown cacao agroforestry

Assessing the efficacy of global climate change education

Analysis of citizen science participants

Constraints to visitor access in coastal natural resource settings

Assessment of human physical impacts and mitigation on coastal resources

**Publications**

**Peer reviewed articles and proceedings**


| --- | |
| Presentations | **International** |
| Grant Activity | Development of a methodology to quantify annual visitation on North Carolina Coastal Reserve sites (2012). North Carolina Dept. of Environment and Natural Resources/Division of Coastal Management ($12,000 - with Simmons, S., Snider, A., Buerger, R., & Herstine, J.). |
|  | Wildlife training and education outreach to build capacity for environmental conservation in Belize (2012). UNCW Cahill Award ($12,994 - with Rotenberg, J.). |
| Service | **Professional Service** |
|  | Education committee, Belize Foundation for Research and Environmental Education (2013-ongoing). |
|  | Reviewer, Oxford University Press (2013). |

Committee member, Environmental Education Certification Committee, Department of Environment and Natural Resources’ Office of Environmental Education and Public Affairs (2011-ongoing).

Host State Environmental Education Student Scholarship Committee, North American Association for Environmental Education (2010-2012).

Reviewer, *Ecological Understanding as a Guideline for the Evaluation of Nonformal Education* developed cooperatively by the US Forest Service, the Environmental Protection Agency, the University of Georgia, and the University of Michigan (2010).

**University Service**

Parking Appeals Committee (2012-ongoing).


Marine Science Graduate Program Review Committee (2010-2012).


Chair of Ev-Henwood Planning Committee (2005-ongoing).

Faculty Hearings Committee (2007-2010; 2013-2015).

**College and Departmental Service**

*College of Arts and Sciences service at University of North Carolina Wilmington*

International Degree Program Committee (2007-2009).

*Departmental service at University of North Carolina Wilmington*

Graduate Program Coordinator (2005-ongoing)
AMY E. K. LONG
236 Brightwood Road -- Wilmington – NC -- 28409
910.616.1027
longa@uncw.edu  aek.long@gmail.com

EDUCATION:
University of Pittsburgh
   B.S., Ecology and Evolution, April 1996
   Minor in Chemistry
   Certificate in West European Studies (German)
Rutgers University
   M.S., Graduate Program in Ecology & Evolution, October 2005

PROFESSIONAL EXPERIENCE:
August 15, 2013 to present
Contract Faculty
UNC Wilmington, Department of Environmental Studies, Dr. Jack Hall chair
   • EVS195 – Introduction to Environmental Science
   • EVS485 – Environmental Conservation
   • EVS540 – Foundations of Environmental Management
   • UNI101 – First Year Seminar, EVS cohort in the Science and Engineering Learning Community

Slated to teach in 2014-15:
   • EVS195 – Introduction to Environmental Science
   • EVS 205 – Global Environmental Issues
   • EVS485 – Environmental Conservation
   • EVS 4xx - Analysis of Current Environmental Issues
   • EVS 463 - Environmental Education & Interpretation

March 2013 – present
Editor and Writer, Ecological Restoration
   • Copy edit and proof edit the accepted peer-reviewed manuscripts
   • Write quarterly science news abstracts summarizing the latest research for practitioners

September 1, 2010 to March 2014
Education Coordinator
New Hanover Soil & Water Conservation District, Ms. Dru Harrison supervisor
• Develop, implement and promote educational programs to county school groups (preK through 12th grade)
• Schedule, staff and participate in community outreach events (Earth Day, Pet Waste Awareness, etc.) and restoration projects
• Facilitate NC Environmental Education workshop curriculum for adult groups
• Conduct, manage and maintain monthly rain barrel sale program
• Maintain website and social media accounts to promote education programs, contests and competitions, outreach events and volunteer opportunities
• Support Director as needed in preparing and writing informational publications (newsletters, brochures, announcements, fliers, quarterly and annual reports), funding proposals and marketing material
• Undertake office administrative activities including facilitating monthly district meetings, processing cost share payments and travel vouchers, etc.
• Answer inquiries from public citizens concerning stormwater issues and conservation

August 15, 2010 to May 2013
Adjunct/Contract Faculty (part-time lab teaching)
UNC Wilmington, Department of Biology and Marine Biology, Leslie Moore supervisor
• Teach biology 201 and 202 lab courses
• Revised and edited 2012-13 Bio 201 manual
• Revised and edited 2012-13 Bio 202 manual

August 2008 - May 2009
Research Assistant
McGill University
Biological Sciences, Drs. Michel Loreau and Claire deMazancourt supervisors
• Monitor grant spending (equipment and travel purchases, payroll, contracts, etc.) on 10 different grants. Run monthly and annual reports for internal and funding agency requirements.
• Assist in scientific endeavors of lab members – literature searches, graphing, reference library maintenance, virtual library creation and maintenance, manuscript editing and proof reading, copyright permission requests
• P-card reconciliation every month
• Create and file travel advances, requests and reports for all lab members
• Maintain, prepare and organize all laboratory equipment and computers
• In charge of office and computer security

February 2008 – June 2009
Laboratory Instructor/Technician
English Montreal School Board, Montreal, Quebec
• Maintain, prepare and organize all laboratory materials (i.e., chemicals, invertebrate populations, equipment and laboratory rooms)
- Develop new labs for science courses
- Classroom support for course instructors and lab room instruction
- Skilled in laboratory techniques of physics, physical science, chemistry, ecology and biology

AWARDS AND GRANTS:

Long, Amy E. K. 2013. Foundation for Soil & Water Conservation Districts, Inc. Outdoor Education Learning Center Program. Funding for the construction of an outdoor educational learning center (OELC) extension. Total requested and received $2500.00. Funding was for New Hanover County elementary school, Mary C. Williams.

Long, Amy E. K. 2013. Work on Wilmington, 2014 site winner. Wrote the nomination and proposal for New Hanover County elementary school, Rachel Freeman, to receive an outdoor education learning center and campus beautification work. Total project estimated at over $10,000, but plan has not been finalized for 2014 installation.

Nominated as a “Woman to Watch” by Wilma magazine for 2014.

Long, Amy E.K. and Beth Carter. 2012. Foundation for Soil & Water Conservation Districts, Inc. Outdoor Education Learning Center Program. Funding for the construction of an outdoor educational learning center (OELC) and for stormdrain stabilization. Total requested and received $2456.79. Funding was for New Hanover County charter school Cape Fear Center for Inquiry.

Long, Amy E. K. and Claire Doyle. 2006. North Carolina Urban and Community Forestry Program. Funding for Champion Tree Inventory and Educational Tree Brochures for general public and construction industry. $2024.00. Funding was for non-profit CC-TAG (Carteret Community Tree Awareness Group).

PUBLICATIONS AND PUBLIC PRESENTATIONS:


Long, Amy E. K. Model Tree Preservation and Tree Planting Ordinance of Carteret County, North Carolina. Presented to County Planning Board. September 13, 2006


TECHNICAL REPORTS:


Recommendations for an Ecological Restoration of Native Vegetation on the Fresh Kills Landfill Site, Staten Island, New York. Submitted to NYC DOS.

CERTIFICATIONS:
- Erosion and sediment control selection, inspection, and installation
- EPA Pesticide safety training
- CPR and First Aid (completed June 2009)
- North Carolina Environmental Educator certificate (enrolled September 2011, 170 of 200 hours completed as of March 2014)

PAST MEMBERSHIPS:
- Society for Ecological Restoration International
- Ecological Society of America

SERVICE:
- Wilmington Earth Day Alliance committee member. 2011 – present. I am one of the event coordinators for this annual celebration. I am in charge of food and beverage services for the festival which includes finding food and beverage sponsors and organizing Health Department permit compliance with those vendors, and liquor license acquisition.
- New Hanover Tree Fest Steering Committee member. 2010 – present. As a restoration ecologist, one of my jobs is to provide information to committee regarding plant selection and then also to the public during the annual two-day give-away.
- Green Team co-leader and Landscape Coordinator for Holly Tree E.S. in Wilmington, NC (2010 – present); parent and teacher made committee that established and maintains recycling programs at school, installed food gardens for each grade level, installed native vegetation throughout landscape
- Classroom volunteer at Holly Tree Elementary School, Wilmington, NC (2009 - present).
- CC-TAG (Carteret County Tree Awareness Group) member and ‘resident ecologist’ (2005-2007)
- Founding steering committee member for NEEC (Northeastern Ecology and Evolution Conference). 2003. First annual meeting held at Rutgers University.
- Unitarian Universalist Fellowship of Wilmington
  - Board of Trustees member. (2012-2013).
- Auction Committee (2012-13)
- Hospitality Committee (2009 – present)
- Worship associate

James Alan Rotenberg
Department of Environmental Studies
University of North Carolina Wilmington
601 S. College Road, Wilmington, NC 28403-5949
(910) 962-7549
(910) 962-7634(FAX)
Email: rotenbergj@uncw.edu

Academic Degrees
Ph.D. 2002  University of California, Riverside, Biology - Ecology and Evolution
M.S. 1993  California State University, Northridge, Biology
B.A. 1984  University of Denver, Colorado, Biology and Psychology

Professional Experience
Associate Professor, Department of Environmental Studies, University of North Carolina Wilmington (UNCW) (Current position)
Assistant Professor, Department of Environmental Studies, University of North Carolina Wilmington (UNCW) (Aug 2006 – July 2012)

Publications and Presentations
Refereed Publications:


Presentations, Posters and Abstracts


Current Research
Project 1: Wildlife training and education outreach to build capacity for environmental conservation in Belize.

Goal: Pilot program providing applied learning skills to Belizean students that will be used as a model for a larger, more comprehensive future program. Undergraduate students will be trained in hands-on avian monitoring and research methods as well as related skills for outreach education so that they will be proficient in skills to gain employment in Belize.
Project 2: Belize Cacao Agroforestry Restoration Project (BCARP)
Goal: Carry out a community-based tropical forest restoration program in southern Belize using shade-grown cacao agroforestry. Five farms in Trio Village, Belize are now being restored from being degraded tropical farmland into an agroforestry system beneficial to both people and migratory birds. (see USFWS website for additional details: “Growing Chocolate for the Birds”)

Project 3: An Integrated Community-Based Harpy Eagle (Harpia harpyja) and Avian Conservation Program for the Maya Mountains Massif, Belize, Central America.
Goal: To build capacity for avian conservation in the Maya Mountains Massif by enhancing the links between protected areas and their surrounding communities. Specifically, this project examines the bird community in the Southern Maya Mountains of Belize; monitors newly discovered, wild, breeding Harpy Eagles where they were thought to be extinct; and, contributes to livelihood strengthening and environmental outreach in buffer-zone villages near our study site where we hire, train, and maintain a core group of avian technicians.

Project 4: Painted Bunting (Passerina ciris) Observer Team Citizen Science Monitoring Project for North and South Carolina.
Goal: To develop strategies for sustaining eastern Painted Bunting populations, with citizen science volunteers playing a major role in monitoring and collecting data in the field. Specifically, Painted Buntings are charismatic songbirds that readily visit backyard birdfeeders. However, monitoring over the past 30 years shows a dramatic population decline. Their decline may be due to a variety of factors, principally increased coastal development and new agricultural practices, both of which tend to clear vital habitat necessary for breeding Painted Buntings. Citizen scientists participate in data generating components. (www.paintedbuntings.org).

Grants Received
2012 –Total = $97,990

$75,000 – National Resource Damage Assessment and Restoration (NRDAR) project, US Department of Interior, US Fish and Wildlife Service, and U.S. National Oceanic and Atmospheric Administration – “Restoration Plan and Environmental Assessment for the Nyanza Chemical Waste Dump Superfund Site, Massachusetts”. Funding to protect overwintering habitat in Southern Belize to benefit neotropical songbird migrants that were impacted by mercury contamination from the Nyanza Site. Co-Principal Investigator with Jacob Marlin, Executive Director, Belize Foundation for Research and Environmental Education, and Dr. David Evers, BioDiversity Research Institute (BRI), Gorham, Maine.

$13,000 – Charles L. Cahill Award, UNCW – “Wildlife training and education outreach to build capacity for environmental conservation in Belize.” Funding to train University of Belize students as avian technicians at our field station, BFREE. Principle Co-Investigator with Dr. Jeff Hill (EVS).

$ 9,990 – Columbus Zoo Conservation Fund – “Exploration, discovery, and monitoring of wild Harpy Eagles in Southern Belize.” Funding for an expedition into the Bladen Nature Reserve to discover new nesting sites and then monitor Harpy Eagles. Principle Co-Investigator with Jacob Marlin, Managing Director, Belize Foundation for Research and Environmental Education.
The following are for the Harpy Eagle nest discovery in Belize to fund field study, monitoring and protection of this rare find. Many are Rapid Request Response or Emergency Need grants. I am Co-Principal investigator with Belize Foundation for Research and Environmental Education, Jacob Marlin, Executive Director.

$14,992 – The National Geographic Society – Waitt Foundation; “Monitoring Harpy Eagle behaviors at a newly discovered nest in Belize using photographic arrays”.

$9,000 - The Peregrine Fund (GPS-Satellite Transmitter and associated needs) $6,000 - Protected Areas Conservation Trust of Belize (PACT)

$5,500 - Natural Encounters Conservation Fund

$7,000 - Columbus Zoo Conservation Fund

$3,000 - Biodiversity Research Institute (BRI)

$2,500 – UNCW Equipment grant

$2,500 - Optics for the Tropics (scope and binoculars)

2010 - Total 2010 = $39,000

$24,000 – United States Fish and Wildlife Service (USFWS) - Survey, Monitoring and Assessment (SMA) Grant - Migratory Bird Focal Species Program for Eastern Painted Bunting- grant extension (see 2006 below).


2009 - Total 2009 = $10,000

$5,000 – Disney Worldwide Conservation Fund - Rapid Request Response Grant. Special funds program for Harpy Eagle and Avian Conservation Project in Belize, includes field research and monitoring as well as funds for avian technicians. Co-Investigator with Belize Foundation for Research and Environmental Education, Jacob Marlin, Executive Director.

$5,000 – United States Fish and Wildlife Service (USFWS) - Survey, Monitoring and Assessment (SMA) Grant Extension - Migratory Bird Focal Species Program for Eastern Painted Bunting. Includes field research and monitoring, funds for Program Coordinator, and Web site maintenance.

Supervision of Graduate and Undergraduate Students

Theses, Directed Independent Studies and/or Internships and Practica:

Fall 2009-Spring 2011, Elizabeth Rogers, Graduate Student, “Conservation of breeding Painted Buntings and other songbird indicators in early-successional shrub-scrub habitat modified by CP-33 Habitat Buffers in South Carolina”

Spring 2012- Spring 2013: Honors Senior Thesis (EVS): Alexandra Goldstein

Fall 2011-Fall 2012: Honors Senior Thesis (EVS): Tara Beck Khan

Fall 2011-Fall 2012: Honors Senior Thesis (BIO): Chelsea McDougall, (committee member)

Fall 2011-Spring 2012: Honors Senior Thesis (BIO): Jennifer Dean, (committee member)
James Alan Rotenberg
Department of Environmental Studies (910) 962-7549
University of North Carolina Wilmington (910) 962-7634(FAX)
601 S. College Road, Wilmington, NC 28403-5949 Email: rotenbergj@uncw.edu

Fall 2009-Spring 2010: Directed Independent Study (EVS): Allyson Kauffman, Mathew Ayres, and Megan Schaefer
Fall 2010-Spring 2011: Honors Senior Thesis (BIO): Brittany Nicolaysen, (committee member)
Fall 2009-Fall 2010: Honors Senior Thesis (BIO): Heather Page, (committee member)
2009-2012: Summer Internships and Practica for the Painted Bunting Observer Team (PBOT) research and monitoring Citizen Science Program (25 Total students)
Roger D. Shew  
Dept. of Geography and Geology  
Dept. of Environmental Science  
Office: 601 S. College Rd, DeLoach Hall 121  
UNC-Wilmington, Wilmington, N.C. 28403  
(910) 962-7676  shewr@uncw.edu

Academic Degrees

M.Sci. Education, University of Houston, 1996

M.S. Geology, University of North Carolina at Chapel Hill, 1979

B.A. Earth Sciences (Honors) with Biology, UNC-Wilmington, 1976

Relevant Academic Experience

2000 – Present: Lecturer, Geography and Geology and Environmental Sciences Depts., UNC-Wilmington

UNDERGRADUATE Courses Taught:

GEOLOGY/GEOGRAPHY: Introductory Geology (GLY101), Introductory Geology Lab (GLY101L), Oceanography (GLY150), Environmental Geology (GLY120), Environmental Geology Lab (GLY120L), Earth Through Time (GLY172), Earth Through Time Lab (GLY172L), Earth Materials (GLY 205), Weather and Climate (GGY230), General Petrology (GLY310), Population/Resources/Environment (GGY340), Field Methods in Geoscience (GLY390), Seismic Stratigraphy GLY 480/592, Subsurface and Petroleum Geology (GLY 480/592), Field Seminar and Sedimentology (GLY 480/592), Dynamic Earth (GLY485), Directed Independent Studies (DIS 491)

ENVIRONMENTAL SCENCES: Environmental Science EVS 195, Global Issues in Environmental Sciences (EVS205), Topics and Issues in Sustainability (EVS476), Natural Resources (EVS485), Campus Sustainability (EVS 485), Senior Seminar in Environmental Sciences (EVS 495), Honors 110 Resource and Societal Issues.

GRADUATE COURSES:

GEOLOGY and ENVIRONMENTAL SCIENCE: Seismic Stratigraphy, Field Sedimentology, Subsurface and Petroleum Geology, Field Geology Seminar to New Mexico, Wave-Dominated Deltas and Sequence Stratigraphy – Book Cliffs Utah, Resources for a Sustainable Society, Environmental Sciences Seminar.

EARTH SCIENCE for Teachers: Earth Science (SCI514 – done both as in class and an Online Course), Earth and Environmental Science (SCI515),

2000 – Present: Lab Coordinator, Geography and Geology Dept., UNC-Wilmington

Lab coordinator for Introductory Geology, Environmental Geology, Duties include preparing labs and instructing and supervising Teaching Assistants. I wrote a lab manual for Environmental Geology and prepared all new labs for Introductory Geology. Currently I am the lab coordinator for GLY101.

2008 – 2012: Lab Coordinator, Environmental Science, UNC-Wilmington

Lab coordinator for Introduction to Environmental Science 195. I developed the lab and have written a published (Kendall Hunt) laboratory manual for the lab.
Spring 2000  Geology Instructor, Brunswick Community College

1997 – 1998  Geology/Petroleum Geology Instructor Master’s Program
             University of Houston Petroleum Engineering Dept.

Petroleum Engineering/Geology course taught as part of the graduate program

1996 – 2005  Geology Instructor, University of New Mexico at Carlsbad, Carlsbad, New Mexico

Courses taught on the geology, environmental issues, and biology of West Texas and New Mexico; in particular, the Guadalupe Mountain and Carlsbad Cavern Areas. Courses and workshops are sometimes taught in conjunction with the National Park Service. The courses are primarily for teachers seeking Master’s degrees.

Relevant Professional Experience

1999 – Present  Consultant – Geological, Environmental, and Biological Sciences

Conduct training courses and field seminars for oil and oil service companies on a range of topics including geology, geophysics, petrophysics, and reservoir modeling. Conduct field assessments of vegetation and soils for community monitoring and plant restoration and for endangered species studies with the Nature Conservancy.

1993 – 1999  Geology Instructor/ Geoscience Training Coordinator for Shell U.S.
             Shell Oil Company, Houston, Texas

Introductory and advanced courses conducted for geoscientists, engineers, managers, and technicians. Guidebooks and training manuals were prepared for each course and topic that included in class, computer, and field courses.

1984 – 1993  Research Geologist, Bellaire Research Center, Project Leader
             Shell Oil Company, Houston, Texas

Production and Exploration research in siliciclastic and carbonate depositional systems with particular emphasis on reservoir characterization of deepwater siliciclastics. Over 100 internal reports were published. Seismic, log, core, and outcrop research conducted.

1979 – 1984  Development Geologist, Shell Oil Company, New Orleans, Louisiana

Geological investigations into prospecting, drilling, and monitoring oil and gas production in the Gulf Coast region from Texas to Florida and Offshore.

Associated Academic and Professional Experience

2002 – Present  Teacher Workshops – UNC-Wilmington and SMEC

Several workshops have been conducted on Geology, Environmental, and Biological issues as well as Natural History. Many of these are focused on North Carolina, in particular the Coastal Plain. Topics include map interpretation, groundwater resources, mineral resources, and geohazard mapping and interpretation (floods, hurricanes), fluvial and coastal processes and integrated science modules with including environmental, biological, math, geography, and social sciences. Field trips and lab components accompanied all of these topics.

2000 – 2001  GLOBE Instructor and Training for Teachers (modules on soils, plant cover and distribution, and water).
             Taught Coastal Geology – Summer Ventures, UNC-W
Grants Received

- Center for Teaching Excellence Engaged Teaching Fellows Awards:
  1. Experiential Learning Utilizing UNCW’s Ev-Henwood Preserve
  2. Tidal Creek Stormwater Garden and Best Management Plan – Anthony Snider and Roger Shew;
- Friends of UNCWilmington Sustainability Committee 2012 Grant for Campus Gardens
- North Carolina Mining Commission: Resource Instruction, Surface Materials and Groundwater in the Coastal Plain, 2004
- National Park Service - Guadalupe Mountains National Park: Park Guides and Educational Lesson Plans for the Web - 2003
- Friends of UNCWilmington: Lab supplies for Environmental Geology, 2003
- Eisenhower Grant: Earth/Environmental Science Modules of North Carolina, 2002
- Eisenhower Grant: Natural History of the Coastal Plain of North Carolina: Concepts and Issues in Geology, Biology, and Environmental Science, 2001

Grants in Process
- Education Research Grant (CFDA Number: 84.305A): Developing Mobile-Based, Inquiry-Based, Location-Based Earth and Environmental Science (MILES) Curriculum
- CESTEM grant for Developing Modular Earth and Environmental Curriculum

Grants Applied For but Not Funded
1. NOAA Research Grant for Geoscience (Coastal) Education: UNCW and ECU and NC Science Group.

Two grants were written focusing on Earth and Environmental Science Education
2. North Carolina Geoscience Modules - National Science Foundation (NSF) - $149,999

Professional Affiliations and Memberships

Geological Society of America, American Association of Petroleum Geologists, North Carolina Science Teacher Association, North Carolina Coastal Federation, The Nature Conservancy, Cape Fear River Watch – Board of Directors, Cape Fear Arch - Executive Board

Honors and Awards

- 2008 UNCWilmington Lecturer of the Year Award
- Three Best of AAPG selections for abstracts and presentations
- Two Honorable Mentions for best presentation at AAPG National conventions
- Runnerup – Best paper award from Houston Geological Society
- Three Special Recognition Awards for Research – Shell Oil
- Research Grant/Award from the N.C. Geological Survey
- Who’s Who Among American Colleges and Universities – UNC-W
Outreach: Forums, Presentations, Educational Activities

UNCWilmington College Day, UNCW Forums as Presenter/Panelist (8 panels), Osher Lifelong Learning (lectures, workshops, field seminars), and numerous presentations to civic, environmental, park, and non-profit organizations, Summer Camps, Soil and Water Conservation, CFRW, Sierra, etc.

Publications and Presentations


Finelli, Chris, Shew, Roger, Southwood, Amanda, Long, Zachary, Schuettpeiz, Eric, and Borrett, Stuart A Walking Tour of the UNCWilmington Natural Areas” – Booklet prepared for the Chancellor’s installation to accompany our field excursion with the Chancellor, Administration and OLLI on April 14th, 2012.


Summer River Camp Booklet/Lessons: Prepared for Cape Fear River Watch for a Summer Camp in July 2012. 25 pages


Shew, R. D., 2008, Water Issues from the River to the Coast, Environmental Educators of North Carolina, 18th Annual Conference, Nov. 6 – 8, Fort Caswell.

Shew, R. D., 2008, Green Swamp: Natural History and Issues, Environmental Educators of North Carolina, 18th Annual Conference, Nov. 6 – 8, Fort Caswell, Seminar and field trip.

CURRICULUM VITAE

Anthony Glenn Snider
Associate Professor, Department of Environmental Studies
University of North Carolina at Wilmington

Education

M.F.A. Poetry, 2006, Vermont College of Fine Arts
Ph.D. Forestry, 2002, NC State University, Minor: Botany
M.A. Political Geography, 1988, University of Vermont
B.A. Geography, 1986, University of NC at Chapel Hill

Experience

UNCW, Department of Environmental Studies, UNCW, 2007 – present
Southern Sites Manager and Stewardship Coordinator, NC Coastal Reserve and NC National Estuarine Research Reserve, 2004 – 2007
Assistant Professor, Department of Forestry, University of Minnesota, 2003 – 2004
Instructor for Natural Resource Policy and Management, NC State University, 2001

Grants

National Park Service Rivers, Trails and Conservation Assistance Program Grant – Topsail Beach Kayak Trails. Grant serves to facilitate 3 undergraduate DIS Projects. (2013)
Engaged Teaching Fellowship – Tidal Creek Storm Water Garden Project (with Roger Shew). (2013)
Sea Turtle Monitoring and Shoreline Profiling Grant (w/ Dr. Amanda Southwood, Biology, UNCW). Funded by NC NERR. (2008, 2009, 2010).

Publications

111(3): 186-193. This publication is the result of an undergraduate DIS. The student is now finishing his Masters at NCSU.


University of Arkansas at Monticello. p. 73-78.


Presentations


Snider, A. A Brief Overview of Food and the Environment. 2013. Invited lecture in HEA 207 (Nutrition and Behavior) UNCW.


Snider, A. Natural History of Longleaf Pine in North Carolina. 2012. Invited lecture at Moore’s Creek National Battlefield, Currie, NC.

Snider, A. An Introduction to Barrier Maritime Forests 2012. Invited lecture to Wilmington chapter of Audubon, Haliburton Park, Wilmington, NC.

Sherrill, B. L., A. G. Snider, and C. S. DePerno. 2010. White-tailed deer on a barrier island: Implications for preserving an ecologically important maritime forest.

Sherrill, B. L., A. Snider, and C. S. DePerno. 2009. Movement, habitat selection and baseline condition of white-tailed deer on Bald Head Island, North Carolina. 16th Annual Conference of The Wildlife Society, Monterey Convention Center, Monterey, California. (poster)


JOHN B. TAGGART

Work: Associate Professor
Dept. of Environmental Studies, Box 5949
601 South College Road
Wilmington, NC 28403-5949
Phone: (910) 962-7909
FAX: (910) 962-7634
e-mail: taggartj@uncw.edu
webpage: http://people.uncw.edu/taggartj/

Home: 317 Donald E. Gore Drive
Wilmington, NC 28412
Phone: (910) 313-1840
e-mail: pocosin84@gmail.com

I. EDUCATION

Ph.D. Biology: Department of Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599. Awarded December 1990.
Major: Biology
Dissertation: “Inventory, Classification, and Preservation of Coastal Plain Savannas in the Carolinas.”
Committee: Albert Radford (chair), C. Ritchie Bell, William Dickison, Robert Peet, and Peter White

Major: Botany
Minor: Soils
Committee: James Hardin (chair), Maurice Cook, and Ernest Seneca

B.S. Biology: Department of Biology, Western Michigan University, Kalamazoo, MI 49008. Awarded April 1970.
Major: Botany
Minor: Chemistry

II. ACADEMIC APPOINTMENTS

August 2012 – Present Associate Professor, Practicum Coordinator, Graduate Faculty, Department of Environmental Studies, University of North Carolina
Wilmington

August 2006 – July 2012  Assistant Professor, Department of Environmental Studies, University of North Carolina Wilmington

III. RESEARCH ACTIVITIES

PUBLICATIONS

Refereed Journal Articles


Other Research Reports and Publications


Contractual Work

Current contract (2012-16) with NC Forest Service to monitor three federally endangered species in the Onslow-Pender counties portions of Holly Shelter Gameland and Sandy Run Savannas State Natural Area.

Assessed rare species on the New Hanover County Landfill Property with detailed mapping of Aristida condensata in fall 2013.

Prepared two environmental assessments of golf course conservation easements for the North Carolina Department of Revenue in 2009.
Manuscripts Accepted, Submitted, or in Preparation


Conference Papers and Presentations

Taggart, J. 2013. Are White-tailed Deer Affecting the Bald Head Island Maritime Forest? Presented at the annual conference of the Association of Southeastern Biologists on April 11 in Charleston, WV.

Taggart, J. 2011. Served as a co-panelist for a state park forest health session held at the annual North Carolina Division of Parks and Recreation superintendents’ meeting on November 15 at Haws River State Park, Brown Summit, NC.

Taggart, J. 2011. Soil factors in three populations of endangered golden sedge (*Carex lutea* Leblond). Presented on November 4th at the annual meeting of the Natural Areas Association held in Talahassee, FL.

Taggart, J. 2010. Golf course conservations easements with natural habitats: a need for clarity. Presented on October 29 at the annual meeting of the Natural Areas Association held in Osage Beach, MO.

Taggart, J.B. 2009. Floristics and Stewardship of Sandy Run Savannas State Natural Area, NC. Presented on April 9 at the annual meeting of the Association of Southeastern Biologists held in Asheville, NC.

Taggart, J.B. 2009. Prescribed Burning in State Park Properties of North Carolina and Nearby Coastal States. Presented on September 16 at the annual meeting of the Natural Areas Association held in Vancouver, WA.


Grant Applications

PI for a preliminary proposal submitted on February 22, 2012, to the U.S. Fish and Wildlife Service entitled: “Censuses and management planning for *Thalictrum cooleyi* populations in
North Carolina” ($10,800) was submitted to the U.S. Fish and Wildlife Service, Raleigh, NC on February 22; not funded.

PI for a preliminary proposal submitted on January 9, 2012 to the U.S. Army Corps of Engineers entitled: “Proposed monitoring of T&E species in the Sandy Run – Holly Shelter portion of the Progress Energy power line corridor of Onslow-Pender Counties, NC” ($1,10.88); funded.

PI for a $9,832.55 preliminary proposal submitted on December 3, 2010, to the Village of Bald Head Island entitled: “Continuation of Deer Impact Research at the Bald Head Woods Component of the North Carolina Coastal Reserve” (preliminary proposal approved on February 15, 2011; but later rejected due to budget shortfall).


PI for a $9,589.11 preliminary proposal submitted on December 4, 2009, to the Village of Bald Head Island entitled: “Continuation of Deer Impact Research at the Bald Head Woods Component of the North Carolina Coastal Reserve” (preliminary proposal approved on February 12, 2010; full proposal submitted on May 16 and later funded).

Co-PI for a $449,870.00 grant application submitted by Dr. Debbie Brown on January 7, 2009, to the NSF entitled: “JANUS: Creating 21st Century Elementary STEM Classrooms” (not funded by NSF; notified on April 6).

IV. TEACHING

Courses Taught at UNCW:


EVS 472: Coastal Protected Areas Management: Fall 07, Spring 2009-11, Fall 2012-13

EVS 485: Applied Service Learning: Fall 2012 – present

EVS 491: Directed Independent Study: Spring 2012-14

EVS 495: Seminar in Environmental Studies: Fall 1997-2003; 2006-11

EVS 497: Undergraduate Practicum in Environmental Studies: Fall 2012 - present

EVS 515: Field Methods in Environmental Studies: Fall 2008-11

EVS 520: Foundations of Coastal Management: Fall 2007; Spring 2009-14
EVS 540: Foundations of Environmental Management: Spring 2009-12

EVS 597: Graduate Practicum in Environmental Studies: Fall 2012 - present
Appendix E – Advising materials
UNCW Master of Science in Environmental Studies Advising Form

Name __________________________ Date __________________

Concentration (check one): □ Coastal Management □ Environmental Education and Interpretation □ Environmental Management □ Individualized Study (specify ______________________)

Core Requirements (15 credit hours)

All students are required to complete the following classes:

- □ EVS 501. Introduction to Environmental Problems and Policy (3)
- □ EVS 515. Field Methods in Environmental Studies (3)
- □ EVS 518. Research Methods in Environmental Studies (3)
- □ STT 501. Applied Statistical Methods (3)
- □ One course from:
  - □ BIO 534. Advanced Topics in Ecology (3)
  - □ EVS 570. Advanced Environmental Law and Policy (3)
  - □ ECN 525. Environmental Economics (3)
  - □ HST 533. Seminar: U.S. Environmental History (3)
  - □ ECN 530. Natural Resource Economics (3)
  - □ PLS 543. Environmental Policy Analysis (3)
  - □ ENG 557. Theory and Practice of Technical Communication (3)
  - □ PLS 544. Resource Economics (3)
  - □ EVS 505. Advanced Environmental Studies (3)
  - □ PLS 562. International Environmental Policy (3)
  - □ EVS 564. Natural Resource Policy and Administration (3)

Applied Learning (3 credit hours)

- □ EVS 595. Seminar/Final Project (3) or □ EVS 597. Practicum in Environmental Studies (3) [see departmental criteria]

Concentrations (15 credit hours)

All students are required to select one concentration:

Coastal Management

All students pursuing a concentration in Coastal Management must complete the following:

- □ EVS 520. Foundations of Coastal Management (3)
- □ 12 credit hours of electives approved by the EVS graduate program advisor
  - □ Elective 1: __________________________
  - □ Elective 2: __________________________
  - □ Elective 3: __________________________
Elective 4: ____________________________________________

**Environmental Education and Interpretation**

All students pursuing a concentration in Environmental Education and Interpretation must complete the following:

- □ EVS 525. Foundations of Environmental Education and Interpretation (3)
- □ 12 credit hours of electives approved by the EVS graduate program advisor
  - □ Elective 1: ________________________________
  - □ Elective 2: ________________________________
  - □ Elective 3: ________________________________
  - □ Elective 4: ________________________________

**Environmental Management**

All students pursuing a concentration in Environmental Management must complete the following:

- □ EVS 540. Foundations of Environmental Management (3)
- □ 12 credit hours of electives approved by the EVS graduate program advisor
  - □ Elective 1: ________________________________
  - □ Elective 2: ________________________________
  - □ Elective 3: ________________________________
  - □ Elective 4: ________________________________

**Marine and Coastal Education**

All students pursuing a concentration in Environmental Education and Interpretation must complete the following:

- □ EVS 525. Foundations of Environmental Education and Interpretation (3)
- □ 12 credit hours of electives approved by the EVS graduate program advisor
  - □ Elective 1: ________________________________(physical science)
  - □ Elective 2: ________________________________(natural science)
  - □ Elective 3: ________________________________
  - □ Elective 4: ________________________________

**Individualized Study**

All students pursuing an Individualized Study concentration must complete the following:

- □ 15 credit hours of electives approved by the EVS graduate program advisor
  - □ Elective 1: ________________________________
Elective 2: ________________________________

Elective 3: ________________________________

Elective 4: ________________________________

Elective 5: ________________________________

Course Substitutions

List any course substitutions below:

☐ Required course: __________________________ Substitution __________________________

☐ Required course: __________________________ Substitution __________________________

☐ Required course: __________________________ Substitution __________________________

☐ Required course: __________________________ Substitution __________________________

☐ Required course: __________________________ Substitution __________________________
UNCW Master of Science in Environmental Studies Curriculum Sequence

Name __________________________________________ Date ____________________________

Semester 1 (9 credit hours)
☐ EVS 501. Introduction to Environmental Problems and Policy (3)
☐ EVS 515. Field Methods in Environmental Studies (3)
☐ STT 501. Applied Statistical Methods (3)

Semester 2 (9 credit hours)
☐ EVS 518. Research Methods in Environmental Studies (3)
☐ One foundations course from: [depending upon concentration]
    ☐ EVS 520. Foundations of Coastal Management (3)
    ☐ EVS 525. Foundations of Environmental Education and Interpretation (3)
    ☐ EVS 540. Foundations of Environmental Management (3)
    ☐ Elective (if Individualized Study concentration) (3)

☐ One course from:
    ☐ BIO 534. Advanced Topics in Ecology (3)
    ☐ EVS 570. Advanced Environmental Law and Policy (3)
    ☐ ECN 525. Environmental Economics (3)
    ☐ HST 533. Seminar: U.S. Environmental History (3)
    ☐ ECN 530. Natural Resource Economics (3)
    ☐ PLS 543. Environmental Policy Analysis (3)
    ☐ ENG 557. Theory and Practice of Technical Communication (3)
    ☐ PLS 544. Resource Economics (3)
    ☐ EVS 505. Advanced Environmental Studies (3)
    ☐ PLS 562. International Environmental Policy (3)
    ☐ EVS 564. Natural Resource Policy and Administration (3)

Semester 3 (9 credit hours)
☐ Elective (3) _________________________________________________________________
☐ Elective (3) _________________________________________________________________
☐ Elective (3) _________________________________________________________________

Semester 4 (6 credit hours)
☐ One course from: [see departmental criteria]
☐ EVS 595. Seminar/Final Project (3)

☐ EVS 597. Practicum in Environmental Studies (3)

☐ Elective (3)

*Note: Electives outside those on the official curriculum list must be approved by the Department of Environmental Studies’ Graduate Program Coordinator*
Appendix F – Reaffirmation of commitment to equal education and employment opportunity

REAFFIRMATION OF COMMITMENT TO EQUAL EDUCATION AND EMPLOYMENT OPPORTUNITY

The University of North Carolina at Wilmington is committed to and will provide equality of educational and employment opportunity for all persons regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, genetic information, political affiliation, veteran status, or relationship to other university constituents -- except where sex, age, or ability represent bona fide educational or occupational qualifications or where marital status is a statutorily established eligibility criterion for State funded employee benefit programs.

This affirmation is published in accordance with 41 CFR Part 60 and is implemented in accordance with the following laws and their amendments: Title VII and Title IX of the Civil Rights Act of 1964; the Equal Pay Act of 1963; Executive Order 11246; the Age Discrimination in Employment Act of 1967; the Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990; the Vietnam Era Veterans' Readjustment Assistance Act of 1974; the Civil Rights Restoration Act of 1988; N.C. General Statutes Chapters 116 and 126; and Title II of the Genetic Information Non Discrimination Act of 2008.

To ensure that equal educational and employment opportunity exists throughout the university, a results-oriented equal opportunity/affirmative action program has been implemented to overcome the effects of past discrimination and to eliminate any artificial barriers to educational or employment opportunities for all qualified individuals that may exist in any of our programs. The University of North Carolina at Wilmington is committed to this program and is aware that with its implementation, positive benefits will be received from the greater representation and development of previously under-utilized human resources.

STATEMENT ON DIVERSITY IN THE UNIVERSITY COMMUNITY

In the pursuit of excellence, the University of North Carolina at Wilmington actively fosters, encourages, and promotes inclusiveness, mutual respect, acceptance, and open-mindedness among students, faculty, staff, and the broader community. Diversity is an educational benefit that enhances the academic experience and fosters free exchange of ideas from multiple perspectives. Diversity includes, but is not limited to race, sex, age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran's status, gender, educational disadvantage, socio-economic circumstances, language, and history of overcoming adversity.

UNLAWFUL HARASSMENT, DISCRIMINATION, AND RETALIATION

The University of North Carolina at Wilmington affirms that students and employees are entitled to an educational and employment environment free from unlawful harassment or discrimination based on that individual's race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political
affiliation, veteran status, or relationship to other university constituents, and expressly prohibits unlawful harassment or discrimination of any individual among the university community engaged in educational or employment pursuits. Further, no student or employee shall be subject to retaliation for bringing a good faith complaint pertaining to unlawful harassment or discrimination or for protesting such behavior directed against another member of the university community.

For more information concerning ways in which our multicultural learning community may be nurtured and protected or complaint resolution procedures, contact the Office of Institutional Diversity and Inclusion, the Office of the Dean of Students, the Office of Academic Affairs, or the Office of Human Resources.