The University of West Florida
REQUEST TO OFFER A NEW DEGREE PROGRAM

College Requesting Program: _______ Arts and Sciences

Department Requesting Program: _______ Department of Environmental Studies

Academic Specialty or Field: _______ Environmental Science

Name of Program Requested: _____ Master of Science in Environmental Science

Proposed Implementation Date: _______ Fall 2004

Proposed Classification of Instruction Program (CIP) Code: _______ 03.0104

The submission of this proposal constitutes a commitment by the Division of Academic Affairs, the appropriate College, and the Department that, if the proposal is approved, the necessary financial commitment and the criteria for establishing new programs have been met prior to the initiation of the program.

Approved for Submission to the UWF Board of Trustees:

______________________________ Vice President for Academic Affairs, Date__________________

______________________________ President, Date ______________________

Indicate the dollar amounts appearing as totals for the first and fifth years of implementation as shown in the appropriate summary columns in New Program Table Three. Provide headcount and FTE estimates of majors for years 1 through 5. Headcount and FTE estimates should be identical to those in New Program Table One.

<table>
<thead>
<tr>
<th></th>
<th>Projected Total Estimated Costs (from Table Three)</th>
<th>Student HDCT / FTE (from Table One)</th>
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<tbody>
<tr>
<td>First Year of Implementation</td>
<td>$____ $137,101</td>
<td>25 / 16.02</td>
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<tr>
<td>Second Year of Implementation</td>
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<td>Fourth Year of Implementation</td>
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<td>Fifth Year of Implementation</td>
<td>$____ $154,036</td>
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I. PROGRAM DESCRIPTION

Describe the degree program under consideration, including its level, and emphases (including tracks or specializations).

Environmental Science is an interdisciplinary field of study that applies principles of physical science (chemical, mechanical, and hydraulic, *inter alia*) to the study of the earth’s atmospheric, biotic, geologic, geomorphic, and hydrologic resources and the solution of environmental problems. Because a master’s degree is considered to be the preferred professional degree for environmental professionals in both the public as well as the private sector, the Department of Environmental Studies proposes to offer a program of study leading to the Master of Science in Environmental Science. The program provides advanced research and educational opportunities in the earth sciences and prepares students for solving contemporary environmental problems. Departmental areas of concentration include coastal studies, geographic information science, hydrogeology, Quaternary geology, and soils science, and hence anticipated tracks include contaminant hydrogeology, soil science, geographic information science (GIS), and coastal studies. The program includes a thesis and non-thesis option, both of which provide a foundation for employment in the private and public sectors of the environmental fields. In addition, the thesis option prepares students for advanced study leading to the doctoral degree.

An M.S. in Environmental Science is increasingly becoming the degree of choice for professional environmental positions in both the public as well as the private sectors. Although the vast majority of our B.S. graduates have been fortunate to secure employment in their fields of specialization, our departmental advisory board—comprised of environmental professionals—has advised us that northwest Florida is increasingly moving in the same direction as central and southern Florida in requiring M.S. degrees. Graduates are much better trained in research techniques as well as content knowledge of their specific subjects. Similarly, an external review team that examined our B.S. program in 2002 recommended the addition of a graduate degree as well as professional certification in Geology to allow our graduates to enter the job market in more than just an entry-level capacity. There is much demand for an M.S. program from both recent graduates as well as professionals who wish to expand their research skills. To enhance enrollments by individuals throughout the southeastern United States, we plan to apply to list the program as a specialty offering within the Academic Common Market.

Environmental expertise is in high demand in northwest Florida, as are skills in geographic information science (GIS), which is a field of study manipulating environmental and other data on a computerized spatial database. Our faculty have a strong track record of working with community, regional, and state groups on issues such as brownfields redevelopment, coastal management, contaminant flow into groundwater, soil and sediment pollution, and wetlands valuation. Department Chair Klaus Meyer-Arendt served as chair of the Technical Advisory Committee of the Bay Area Resources Council (BARC) and serves on several regional advisory boards, including the Northwest Florida Legislative Environmental Advisory Board. Dr. Mel Droubay has served on the Escambia County Citizens’ Environmental Committee. Presently the Department is providing GIS expertise—with the Haas Center—to Eglin AFB on a “greenway” air corridor study. The department maintains strong links with Escambia County (especially Neighborhood and Environmental Services), Florida Department of Environmental Protection,
and Gulf Power Company, and many of our students and graduates have secured internships or employment there. The training of master’s-level environmental professionals will not only enhance the role of the Department and UWF in the local area, but the availability of graduate students will also increase the research/grant potential of the University.

The field of Environmental Studies was recently identified in an undergraduate task force report as “a program area of distinction” at UWF. The Department of Environmental Studies is an integral component part of this arena of distinction. The department has had a large number of undergraduate majors over the past several years (averaging around 120). It has secured research grants totaling over $1.5 million dollars (one 2003 grant from the Department of Defense’s National Imagery and Mapping Agency [NIMA] will bring in $677,000). The Department is presently working on establishing a Center for Environmental and Spatial Analysis and Research (CESAR) to both better manage the various research contracts and also to publicize its expertise and research capabilities more broadly. A graduate program is essential to the departmental mission to accomplish those goals. The Department is committed to ensuring the success of a graduate program. It will not attempt to offer all environmental specializations but rather those that are relevant to northwest Florida and for which faculty expertise exists. The program will be interdisciplinary in the sense that students will enroll in support courses from allied disciplines such as Biology, Chemistry, Maritime Studies, and Mathematics, *inter alia.*

The details of the program are described in Section V (Curriculum).

II. INSTITUTIONAL MISSION

Is the proposed program listed on the current List of Proposed New Degree Programs for Exploration, Planning, and Implementation? How do the goals of the proposed program relate to the UWF mission statement as contained in the Partnership Strategic Plan?

The proposed Master of Science in Environmental Science is on the current list of proposed programs for exploration, planning, and implementation. The Academic and Student Affairs Committee of the UWF Board of Trustees authorized exploration on June 19, 2003. The Program CCR is presently being routed through the University and the Academic Council. Approval by the Faculty Senate is anticipated on or before February 13, 2004.

Demand for an M.S. in Environmental Science is high among students, recent graduates, and working professionals. Expansion of our program from a B.S. level to an M.S. level is within the mission of the university. There is no competing program within a 200-mile radius with the exception of a distance-learning program offered by the University of Florida at Milton, and that program is very specialized toward horticulture. This request to implement an M.S. in Environmental Science program is based upon 1) the recommendations of external program reviewers in 2002, 2) a high level of inquiries by students, recent graduates, and working professionals, 3) the increasing use of M.S. graduates for professional positions, and 4) the identification of Environmental Science as an “area of distinction” in a recent report on undergraduate education at UWF. In the 1980s, students came to UWF from all over the United States and even the world to enroll in an interdisciplinary master’s-level Coastal Zone Studies
program. It is anticipated that the M.S. in Environmental Science program will attain a similar high stature.

In 2002, the Department of Environmental Studies prepared a comprehensive mission statement (see below) that was in line with the UWF mission statement. One of UWF’s Goals and Imperatives is to “Provide solutions to educational, cultural, economic, and environmental concerns”, and this M.S. program is designed to do exactly that.

UWF Department of Environmental Studies Strategic Plan

1. Preamble
As the leading center of environmental studies and earth science at the University of West Florida and in northwest Florida, the Department of Environmental Studies is dedicated to teaching, research, and service within the realm of environmental knowledge and conservation. We are committed to quality education programs that promote scholarship and close work relationships among students, faculty, staff, peers, and community. We promote the advancement of knowledge and also the application and dissemination of knowledge relative to environmental studies and earth science.

2. Vision
The vision of the Department of Environmental Studies is:
- to be a center of intellectual vitality, research, and creative activity
- to provide our students an excellent education in the environmental/earth sciences that will be a foundation for their individual intellectual and professional goals
- to engage our students in the research and public service activity of the faculty
- to use our scholarly and creative activity to help understand and solve local and regional environmental problems and enhance the quality of life in northwest Florida
- to be a key player in supporting the protection of the natural environment

3. Mission
Our mission is to provide quality teaching, conduct basic and applied research, and to provide service to the university, the greater community, and the academic disciplines within which we work. Our efforts are to convey, create, apply, and disseminate knowledge and technical skills necessary for understanding and proper stewardship of our land, air, and water resources.

4. Strategic Goals
The Department of Environmental Studies achieves its mission by:
A. creating a distinctive center of earth and environmental science in northwest Florida
B. providing quality field-and laboratory-based educational programs to ensure our graduates that the skills needed to succeed in the environmental arena are met
C. embracing multiculturalism and encouraging international professional exchanges
D. cooperating with community environmental professionals and maintaining communications between the department and the region
E. assisting in strengthening regional K-12 education initiatives in environmental and earth science
F. participating in and supporting the protection of natural resources in the region
III. PLANNING PROCESS AND TIMETABLE

Describe the planning process leading up to submission of this proposal. Include a chronology of activities, listing UWF personnel directly involved and any external individuals who participated in planning. Provide a timetable of events for the implementation of the proposed program.

Fall 1998: The concept of a graduate program began with the hiring of Klaus J. Meyer-Arendt as department chair in Fall 1998. Dr. Meyer-Arendt had taught for 11 years in a Geosciences department (at Mississippi State) that offered a master’s program, and he had drafted the Graduate Guidelines for that department. Once at UWF, the then-Dean of the College of Science and Technology hinted that line-item departmental faculty would be increased to seven (from four) within a year or two, thus providing the critical mass necessary to ensure a successful graduate program.

Fall 1999: The university accepted a departmental enhancement fund proposal to establish a GIS (Geographic Information Systems) center on campus. A university-wide committee was formed, and in the end the Department of Environmental Studies was selected to be the home of GIS operations at UWF. The computer lab was enhanced with state-of-the-art equipment, and funds were freed up to hire a lab technician/GIS coordinator as well as an assistant professor specializing in GIS. This level of enhancement was to expand the research capabilities of various units at UWF, especially at the graduate level.

Fall 2000: Dr. Xiaojun Yang, the new assistant professor in GIS, began to develop the outline of a Certificate in GIS program. This 19-hour program was designed primarily for undergraduate students and community professionals, but several of the upper-level courses were dual-listed as graduate courses to appeal to students from other departments (including Biology and Computer Science).

Fall 2001: The Certificate program received its first enrollees as the importance of GIS became recognized on campus and in the community. Additional graduate-level courses were proposed by Dr. Yang to accommodate future demand. Also, Dr. Yang was awarded a $600,000 grant from the U.S. Environmental Protection Agency to model “environmental indicators” of various estuarine systems. With no graduate students to help conduct the research, Dr. Yang hired post-doctoral researchers as well as some undergraduates to do the work.

Spring 2002: As part of the department’s five-year review process, an external review team consisting of Dr. John Mylroie (Mississippi State), Judy Bense (UWF), and Rick Harper (UWF) made several suggestions, including 1) the addition of at least two new faculty to adequately support the undergraduate program, 2) the development of a master’s program (which would not only meet the demand for master’s-level environmental professionals but also free up faculty from teaching excessive laboratory sections), 3) further development of the GIS curriculum, and 4) additional space for the program. The Department of Environmental Studies advisory board supported the idea of a graduate program.
Summer 2002: Initial discussions of a graduate program among the departmental faculty began. Provost Parks Dimsdale recognized the need for additional space for Environmental Studies, and a 1400-ft² room was assigned to the department.

Fall 2002: The concept of a graduate program was more fully developed with input from departmental faculty (including Dr. Johan Liebens, who was on sabbatical in Belgium at the time). Articulation with community colleges took place, especially with Pensacola Junior College, where a newly revamped Environmental Science program (years 1 and 2) was proposed by Dr. Ed Stout to tie in directly to our program. Interim Dean of the UWF College of Arts and Sciences strongly supported our initiative, and the department prepared the Request to Explore. Spring 2003: Prior to receiving approval by the UWF Board of Trustees, the Request to Explore (the M.S. Program in Environmental Science) was routed through all the proper channels on campus, including the College of Arts & Sciences (CAS) Council, the Academic Council, and the Faculty Senate. During the university budget planning process, the Department of Environmental Studies was approved for one new position to offset the chronic shortage in full-time faculty. This new faculty line will solve historic undergraduate teaching shortages and at the same time allow the department to reach that critical mass threshold that will permit the offering of a graduate program.

Fall 2003: The Department of Environmental Studies was actively engaged in the planning process of the proposed graduate program. Structuring of the curriculum, input from the departmental advisory board, and assessment of regional, state, and national demand were all investigated in detail. The program CCR and several course CCRs were submitted, and they were routed through the university system (CAS Council, Academic Council, etc.). In addition, facilities renovation—underway since Summer 2003—was creating two faculty offices, two teaching classrooms, and one hydrogeology teaching/research laboratory. The department also draw up plans for a Type 3 institute—a center of environmental research—to accommodate the anticipated upsurge in research contracts once the graduate program was in place.

Spring 2004: Once all approvals for the program are in place, the department will actively line up the first cohort of graduate students to begin their studies in Fall 2004. Several potential graduate students in the local area have been contacted and notified of a potential program, but not until BOT Approval to Implement is given will serious advertising begin. At that time, University Admissions will begin to admit students to the new program.

Fall 2004: A new Master of Science in Environmental Science program is in place. Perhaps 15-20 students are anticipated as the initial graduate cohort (Appendix A, page 35). Newly hired faculty will be in place to cover all requisite courses.

IV. ASSESSMENT OF NEED AND DEMAND

A. What national, state, or local data support the need for more people to be prepared in this program at this level? (This may include national, state, or local plans or reports that support the need for this program; demand for the proposed program which has emanated from a perceived need by agencies or
industries in Northwest Florida; and summaries of prospective student inquiries.) Indicate potential employment options for graduates of the program. If similar programs exist in the Northwest Florida region, provide data that support the need for an additional program.

The need for master’s-level environmental professionals has never been more critical in northwest Florida nor anywhere else in the world. A poll taken by the Pensacola News-Journal in 2001 found that Escambia County residents rated the environment their number one concern, ahead of crime and employment. In 1999, a grand jury was convened in Escambia County to investigate potential environmental cover-ups. The need for qualified environmental scientists, environmental regulators, and environmental compliance officers has never been higher.

The growth in the demand for environmental professionals is directly correlated with passage of the National Environmental Policy Act of 1969. Subsequent federal, state, and local regulations created a great need for 1) scientists to understand the environmental problems, 2) environmental specialists to run the laboratories and analyze the data, 3) environmental regulators to enforce the various levels of legislation, 4) in-house environmental experts to guide industries in environmental compliance, and 5) consultants to assist public and private entities in complying with environmental regulations and preparing environmental impact statements and assessments.

At the University of West Florida, demand for an undergraduate major bloomed in the 1980s and has remained strong throughout the 1990s and early 2000s. As increasing numbers of bachelor’s-level environmental professionals are filling job vacancies, the demand for master’s-level professionals is increasing. The departmental advisory board (Appendix B, page 36), which supports the proposed M.S. program (Appendix C, page 37), feels that the Master’s degree is increasingly the degree of choice for environmental agencies and private firms. This is already the case in peninsular Florida, and the Florida panhandle is rapidly catching up. This proposal is to keep UWF ahead of the curve.

In Florida, the growth in demand for environmental professionals began in the 1970s and continued to grow in the 1980s and 1990s. The growth rate for specialists in the geosciences and environmental sciences is projected to remain high at both the state and regional levels according to the Labor Market Statistics projected by the Florida Agency for Workforce Development (http://www.labormarketinfo.com/). According to projections for all of Florida, the year 2002 employment figure was 5189 employed under Occupation Code 192041, Environmental Scientists and Specialists. Average number of job openings through year 2010 are projected to be 257 per year. In addition, graduates may pursue jobs under other related occupational codes. (High-demand GIS specialists may be included in the computer technician category, for example.) Average salary for Occupational Code 192041 was $18.98 per hour in our two county area, and the State average was $21.03.

According to the Environmental Careers Organization (ECO), over 230,000 employees worked for federal environmental and conservation agencies in 1997 (http://www.eco.org). This is in addition to an estimated 459,000 environmental workers employed by the 50 state governments collectively. Local governments also employ an estimated 476,000 environmental
workers across 70,000 local government jurisdictions. The environmental industry itself supported 1,300,000 jobs in 1997. Other employers that offer career opportunities include regulated companies, law firms, and of course academia. The number and kinds of career opportunities in the environmental area is subject to many variables. However, there are currently many good opportunities in Florida and nationwide (ejobs/org/states/flcom.html and ecoemploy.com/posts).

The following, an excerpt from The Complete Guide to Environmental Careers in the 21st Century, by Kevin Doyle, Editor and Project Director of the Environmental Careers Organization, lists some of the most popular environmental careers.

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POLLUTION PREVENTION (P2) SPECIALISTS

Most pollution prevention (P2) work is done by engineers, chemists, and other environmental scientists, but people from almost any profession can identify ways to reduce, reuse, and recycle. In addition, some of the most effective pollution prevention is achieved through education and training; that is, helping professionals understand what might be done in their industry through simple changes. To get a sense of the broad range of work being done by pollution prevention professionals, check out the National Pollution Prevention Roundtable’s web site. For information about education for P2, contact the National Pollution Prevention Center for Higher Education.

GEOGRAPHIC INFORMATION SYSTEMS AND OTHER COMPUTER SPECIALISTS

The environmental community lives on data, especially data that can be shown visually and interactively by computer systems that demonstrate interaction between human activities and ecological systems. Geographic information systems (GIS) specialists are in demand at planning agencies, consulting firms, research centers, and throughout private industry. GIS, of course, relies on the existence of good data in the first place, which creates employment for sampling professionals and new technological developments in monitoring equipment and remote sensing from satellites. Finally, traditional database and information systems managers are also in demand. For more information about GIS careers and educational opportunities, visit http://ulysses.unl.edu/calmit/gisrs.html, which links to dozens of other related sites.

ENVIRONMENTAL COMMUNICATORS AND EDUCATORS

In recent years, the nation has seen a noticeable shift in environmental problem solving, away from a preference for secrecy, adversarial relationships, and litigation, and toward greater openness and a search for common ground. Regulators depend on education as much as they do on enforcement. Non-profit leaders meet with corporate executives. “Right-To-Know” laws require polluters to make available information that would have been carefully guarded just a few years ago. And institutions of all stripes seek to influence the hearts and minds of the general public. The freer flow of information, and the desire for more voluntary actions, creates opportunities for communicators and educators who can help translate scientific and technical issues for the general public, and for those who can create venues (e.g., meetings, conferences, public hearings, and community gathering) for an open exchange of opinions. Progressive land developers, for instance, now engage local governments and community residents in open dialogue long before approaching formal boards for permit approvals.

PLANNERS

Environmental management is looking for greater levels of integration. That’s what “place-based” approaches, multimedia management, watershed planning, ecosystems management, and sustainable development are all about. Moreover, environmental problems call for a greater number of people whose professional background prepares them to combine human needs and ecological realities for the advancement of both within a framework of political and financial reality at the local level. Well-educated planners bring exactly this set of skills to the table, not only for jobs formally called “planner,” but for a wide range of opportunities. Get in touch with the American Planning Association to learn more.

ENVIRONMENTAL TECHNICIANS

Environmental technicians are an immense part of the environmental career world, although they may go under different names. Technicians collect air, water, and soil samples. They carry out botanical and wildlife inventories. Technicians do the basic work at water and wastewater treatment plants, as well as at treatment, storage, and disposal sites. There are thousands of forestry, biological, range management, and remediation technicians. If it’s true that many people become environmental professionals to work outdoors, technician work is a great place to start. It’s often true that the technicians are the ones out in the fields, streams, and work sites, while other professionals are back in the office.
TEACHERS
The nation needs a new generation of teachers. Shortages in many school districts are already a serious problem, and a large wave of retirees is about to make it worse. From our point of view, all teachers are prospective environmental educators. Talented educators use math, science, literature, theater, art, languages, government, and history to open the eyes of students to the natural world and environmental issues. Someone has probably figured out a way to use driver’s education and gym class as well. And yet fewer people are entering the field.

DUAL TRACK ENVIRONMENTAL MANAGERS
Integration of different fields - science, engineering, politics, law, information technology, project management, business administration, marketing, communications, and economics - is at the heart of the emerging environmental professions. Among the most popular careers are hybrids that combine two or more professional tracks. The Master of Environmental Management program at Duke University’s Nicholas School for the Environment is an example of an interdisciplinary program that weaves together different tracks to educate the environmental managers of tomorrow. Demand is also high for people who combine two traditional degrees. Engineers with an M.B.A., or scientists with a master’s in public administration are two good examples.

We have had inquiries about a graduate program for many years. Appendix A (page 35) lists some of the students who have expressed serious desire to enter such a program. With the university support the department received in the form of one new faculty line to assist in the undergraduate program, we are in an excellent position to offer the graduate program. There is no equivalent environmental science program within a 250-mile radius of Pensacola. (Florida State offers an Environmental Studies undergraduate program, but not a graduate program.) Florida State as well as University of South Alabama graduates are considered prime candidates for our master’s program.

B. Use UWF Table One A (baccalaureate) or UWF Table One B (graduate) to indicate the number of students (headcount and FTE) you expect to major in the proposed program during each of the first 5 years of implementation, categorizing them according to their primary sources.

Table One B is presented on Page 31 for reference to the narrative below.

In the narrative following Table One, the rationale for enrollment projections should be provided and the estimated headcount to FTE ratio explained. If, initially, students within the institution are expected to change majors to enroll in the proposed program, describe the shifts from disciplines that will likely occur.

Individuals drawn from agencies/industries in your service area (e.g., older returning students)

There are many industries (Solutia, International Paper, etc.), private and public utilities (Gulf Power, ECUA), government agencies (Department of Environmental Protection, Escambia County Neighborhood & Environmental Services), and private environmental consulting firms (Energy & Environment, CH2M Hill, Law Environmental, SAIF, etc.) with employees who presently have bachelor’s degrees but would like to upgrade to a master’s degree. Our advisory board has indicated that this would be quite likely. Conservatively, it is estimated that two such students would enter the program per year, mostly on a part-time basis.
Students who transfer from other graduate programs within the university

We don’t anticipate “cannibalizing” students from other programs at UWF. However, there are one or two students who graduated from our program and entered the Environmental Biology track within the M.S. in Biology program. They have expressed a desire to enter our program once it becomes available. Hence, we estimate 2 such students entering in the first year, and perhaps one per year thereafter.

Individuals who have recently graduated from preceding degree programs at this university

Most of the demand for a graduate program is from our graduates who are place-bound by choice. First, they appreciated their undergraduate experience at UWF, and second, they are unwilling to move for graduate education. They are also unwilling to step into a bachelor’s-level, entry-level position for low wages. Hence, we estimate an initial cohort of 15 students for Year 1 (although 25 or so have expressed serious interest—see Appendix A). There may be slightly less the second year (an estimated 8), and we then expect stabilization at about 6 per year. The average course load is estimated at 21 credits per year (per student), an FTE of 0.68.

Individuals who graduated from preceding degree programs at other SUS university

This is a group of students we wish to attract in forthcoming years. There are several decent undergraduate programs in environmental science in Florida, but few high-quality graduate ones. For 2004-05, there may be insufficient marketing time to recruit many Florida SUS-grad students (perhaps 1), but in subsequent years we anticipate that this number will rise to 3 or 4 per year minimum.

Individuals who graduated from preceding degree programs at non-SUS Florida colleges and universities

This is another group of students we wish to attract in forthcoming years. However, there are few undergraduate programs in environmental science in Florida non-SUS schools. Stetson University is a notable exception, but the numbers are relatively low. We plan to target these schools once the program is approved. In terms of numbers, we conservatively anticipate 1 student per year minimum.

Additional in-state residents

Perhaps 1 student per year will enter from this cohort, which included early retirees or persons wishing to make career changes. They may only attend on a part-time basis.

Additional out-of-state residents

This group is expected to comprise a significant portion of our graduate students, especially from neighboring Alabama. Although starting slowly at first (2 or 3 per year), we anticipate stabilization at 4 or so per year thereafter. The number could, however, be significantly higher if sufficient assistantships and/or tuition waivers were made available.
Additional foreign residents

The Environmental Science program strongly endorses internationalization and international fieldwork. Several faculty have active research programs in Latin America and the Caribbean, and we have had several undergraduate foreign students. In spite of problems with funding, we anticipate receiving at least 1 foreign student per year in the graduate program.

C. For all programs, indicate what steps will be taken to recruit and achieve a diverse student body in this program.

• As noted above, the Environmental Science program strongly endorses internationalization. Several faculty are fluent in Spanish and have spent many years in Latin America. Hence, we will encourage Latin American graduate student enrollment via our contacts there.
• Much environmental science research addresses issues tangential to environmental justice. We would point out—at job fairs—the roles of minority students in the environmental sciences as well as the excellent job market.
• We plan to recruit at universities and regional professional meetings, and we will encourage a diverse and multi-cultural student body
• Our Web pages will reflect our commitment in these regards.

V. CURRICULUM

A. For all programs, provide expected specific learning outcomes, a sequenced course of study, and list the total number of credit hours for the degree. Degree programs in the science and technology disciplines must discuss how industry-driven competencies were identified and incorporated into the curriculum. For bachelor's programs, also indicate the number of credit hours for the major coursework, the number of credit hours required as prerequisites to the major (if applicable), and the number of hours available for electives.

Specific learning outcomes:
1. Mastery of a broad base of knowledge in the Environmental Sciences (geosciences, GIS, coastal sciences), with greater depth of knowledge in a specific subfield.
2. Ability to conceptualize a problem or issue and identify appropriate methods of scientific inquiry with which to address it.
3. Ability to design, implement, analyze, and discuss a lab- or field-based environmental research project.
4. Reading, writing, and oral language proficiency in English.

Sequenced course of study:
ADMISSION TO PROGRAM

Applicants seeking admission to the graduate program in Environmental Science must submit the following to the UWF Admissions Office:
1. A graduate admission application, along with official transcripts of all college work.
2. A formal letter of interest, background, and professional goals.
3. Three letters of recommendation by individuals in professionally relevant fields.
4. Official scores on the Graduate Record Examination. A minimum score of 1000 (verbal and quantitative combined) is required by the department.

Students seeking admission to the M.S. program must hold a bachelor's degree from an accredited college or university (or its foreign equivalent). The bachelor's degree may be in any environmental discipline, and a GPA of 3.0 or higher is desirable.

The completed application will be reviewed by the graduate program committee, and an advisor will be assigned upon admission. Conditional admission may require the student to complete the appropriate foundation courses with grades of B or better.

FOUNDATIONAL PROFICIENCIES

Students entering the M.S. program from other bachelor’s programs should have the equivalents of the courses listed below. Students not having all of the foundational proficiencies may be admitted to the M.S. program on a conditional basis, and the requisite courses will need to be completed during the first year of graduate study.

- GEO 4131/L Photo Interpretation & Remote Sensing/Lab (4 sh)
- GEO 4151/L Geographic Information Systems/Lab (3 sh)
- STA 4173 Biostatistics (3 sh)

Two of the following:
- BSC 4303 Biogeography (3 sh)
- GEO 3210/L Geomorphology/Lab (4 sh)
- GEO 3250/L Weather and Climate (4 sh)
- GEO 3260/L Geography of Soils/Lab (4 sh)

DEGREE REQUIREMENTS

Students accepted into the M.S. program should select, ideally by the end of their first semester, their graduate advisor and graduate committee members. At least two committee members must be Environmental Studies faculty. Students also need to select the thesis or non-thesis option following consultation with their graduate advisor and committee. Detailed graduate guidelines will be provided to the students by the department.

The thesis track entails 30 semester hours (sh), of which 15 must be at the 6000 level and may include up to 6 sh of thesis. The remaining hours must be 5000 level or higher. (Appendix D on page 40 lists UWF guidelines for appropriate curriculum hours.)
The non-thesis track entails 36 sh, of which 15 must be at the 6000 level and may include up to 3 sh of internship. The remaining hours must be 5000 level or higher.

As many as three courses may be from outside the department, including two from outside the university. The detailed program of study will be determined by the student's graduate advisor in consultation with the student and the student's graduate committee.

CORE COURSES (minimum of 15 sh required)

EVR 6930 Special Topics in Environmental Sciences (3 sh)
GEO 6936 Graduate Seminar (3 sh)

Choose one:

EVR 6xxx Sampling and Analysis in Environmental Sciences (3 sh)
GEO 6xxx Advanced Topics in Geographic Information Science (3 sh)

Choose from A or B:

A. Thesis track (minimum of 6 sh required):
   EVR 6971 Thesis (1-6 sh)
   6000-level electives (0-5 sh)

B. Non-Thesis track (minimum of 6 sh required):
   GEO 6xx1 Research Design (3 sh)
   Choose 3 sh from the following:
   EVR 6xx1 Internship (1-3 sh)
   GEO 6905 Directed Study (1-3 sh)

ELECTIVE COURSES (minimum of 15 sh required for thesis-track students and 21 sh required for non-thesis-track students)

NOTE: ONLY DEPARTMENTAL COURSES ARE LISTED IN SECTION C BELOW, ADDITIONAL 5000- AND 6000-LEVEL COURSES ARE AVAILABLE IN OTHER DEPARTMENTS SUCH AS BIOLOGY

B. For bachelor's programs, if the total number of credit hours exceeds 120, provide a justification for an exception to the FBOE policy of a 120 maximum.

Not applicable.

C. Provide a one or two sentence description of each required or elective course.

EVR 5xxx Environmental Field Research . . . . 3(F,S,SS)
Environmental and geographic sciences field study. Students work with scientists collecting discrete samples and conducting field surveys, use GIS/MIS technology, and analyze results. Fieldwork will be coordinated with non-university research agencies. Permission is required.
EVR 5413 Environmental Aspects of Urban Growth . . . . . . 3(S)
The purpose is to examine urban areas as they have sprawled out over green landscapes during the past century and left behind a legacy of environmentally distressed properties and broken communities. Emphasis is upon community-based action to deal with local situations, using as a base the experiences of communities throughout the United States. Offered concurrently with EVR 4412; graduate students will be assigned additional work. Graduate status is required.

EVR 6xxx Sampling and Analysis in Environmental Sciences . . . . . 3(F)
Theory and techniques of modern field and laboratory methods used for physical and chemical analysis of soil, sediment, and water samples. Procedures include exploratory data analysis and interpretation. Emphasis will be upon the collection of samples and their subsequent analysis. Written reports and oral presentations are required.

EVR 6xx1 Internship . . . . 3(F,S,SS)
Supervised and structured participation in environmental work experience in the private, government, or educational sectors. Permission is required.

EVR 6930 Special Topics in Environmental Sciences . . . . . 3(S)
Covers various advanced subjects in the environmental sciences, depending on the specialization of the instructor. Topics include environmental pedology, coastal meteorology, groundwater modeling, etc. Graduate-level standing is required.

EVR 6971 Thesis . . . . 1-6(F,S,SS)
Preparation of Master’s Thesis which includes problem identification, literature review, research design, data collection, data analysis, and results. Graded on satisfactory/unsatisfactory basis only. Permission is required.

GEA 5214 Geography of North America . . . . . 3(F)
Prerequisite: GEA 2000.
A regional survey of the United States and Canada with emphasis upon place-names, physical landscapes, historical settlement patterns, culture regions, cultural diversity, and environmental issues. Offered concurrently with GEA 4210; graduate students will be assigned additional work.

GEA 5408 Geography of Latin America . . . . . 3(CALL DEPT)
Prerequisite: GEA 2000.
A regional survey of Latin America and the Caribbean with emphasis upon place-names, physical environments, cultural-historical landscapes, and geopolitical and environmental issues. Offered concurrently with GEA 4400; graduate students will be assigned additional work.

GEO 5139 Applications in Remote Sensing . . . . . 3(F)
Prerequisite: GEO 4131 and GEO 4131L.
The purpose is to make students familiar with digital image processing methods and techniques as applied in solving environmental and urban problems. The course is
divided into four basic components: introduction of the generic process of remote sensing applications, introduction of some advanced digital image processing techniques and methods, case studies illustrating this process, and student projects using this process. Offered concurrently with GEO 4133; graduate students will be assigned additional work. Material and supply fees will be assessed. Permission is required.

**GEO 5157 Applications in Geographic Information Systems . . . . . 3(F)**  
Prerequisite: GEO 4151, GEO 4151L.  
The application of GIS methods and techniques in solving practical problems. A generic process for applying GIS techniques in problem solving is introduced, and several case studies of GIS applications in environmental and social domains will be analyzed. Offered concurrently with GEO 4152; graduate students will be assigned additional work. Permission is required. Material and supply fee will be assessed.

**GEO 5177 Special Topics in Geographic Information Science . . . . . 3(S)**  
Prerequisite: GEO 4151, GEO 4131, GEO 4131L.  
Focuses on various topics and cutting-edge techniques in Geographic Information Science (GIS), both in theory and in practice. Offered concurrently with GEO 4174; graduate students will be assigned additional work. Permission is required. Material and supply fee will be assessed.

**GEO 5225 Coastal Morphology and Processes . . . . . 3(S)**  
Prerequisite: GEO 1200 or GLY 2010, GLY 2010L.  
Corequisite: GEO 5225L.  
An introduction to the world's coastal land forms, with emphasis upon dominant processes (especially waves, tides, and currents), geographical variations, human impacts and policies, and environmental concerns. Offered concurrently with GEO 4890; graduate students will be assigned additional work.

**GEO 5225L Coastal Morphology and Processes Laboratory . . . . . 1(S)**  
Corequisite: GEO 5225.  
Laboratory correlating with GEO 5225. Offered concurrently with GEO 4890L; graduate students will be assigned additional work. Material and supply fee will be assessed.

**GEO 5945 GIS Internship . . . . . 1-3(F,S,SS)**  
Prerequisite: GEO 4151.  
Supervised application of Geographic Information Science (GIS) in business, government, non-profit, educational or other environmental organizations. Offered concurrently with GEO 4944; graduate students will be assigned additional work. Permission is required.

**GEO 6xxx Advanced Topics in Geographic Information Science . . . . . 3(S)**  
Relational Database Management Systems (RDBMS) and their function within Geographic Information Systems (GIS). Students will integrate RDBMS, Desktop GIS and the World Wide Web to produce an interactive spatial database served over the internet. Permission is required.
GEO 6xx1 Research Design . . . . . 3(F)
Introduces non-thesis-track Master's students to the essentials of designing and executing a research project in the environmental sciences using the scientific method. Students will design and complete a research project.

GEO 6936 Graduate Seminar . . . . . 3(F)
An overview of the disciplinary evolution of the geosciences, the prevailing paradigms and methodologies, and current and future directions in the field. The scientific method, grant proposals, and research publications will be examined in detail.

C. For bachelor's programs, list any prerequisites, and provide assurance that they are the same as the standardized prerequisites for other such degree programs within the FBOE. If they are not, provide a rationale for a request for exception to the policy of standardized prerequisites.

Not applicable

E. For bachelor’s programs, if the Department intends to seek formal Limited Access status for the proposed program, provide a rationale which includes an analysis of diversity issues with respect to such a designation.

Not applicable

VI. UWF CAPABILITY

A. How does the proposed program specifically relate to existing UWF strengths such as programs of distinction, other academic programs, and/or institutes and centers?

A recent report on undergraduate education at UWF, which was submitted to President Cavanaugh, proposed “environmental programs” as programs of distinction at UWF. The B.S. in Environmental Science program has been popular, and it is perceived as demanding yet fulfilling. Students have received good training, and area employers have remarked on that to departmental faculty. The proposed M.S. program aims to expand upon that foundation of excellence by providing master’s-level training in specific areas of the environmental sciences.

We see the following relationships particularly useful for the proposed M.S. program:

1. The existing curricular strengths within the department. These include the study of soils, hydrology and water resources, geographic information science, remote sensing, coastal processes, and marine environments, and environmental policy and management issues.

2. The GeoData Center. The node of GIS operations at UWF, this computing center is a tremendous resource in conducting basic and applied research.

3. The Center for Environmental and Spatial Analysis and Research (CESAR). This newly established Type-3 center at UWF exists to coordinate community- and region-wide
research projects, such as the Greenways project that involves Okaloosa County and Eglin Air Force Base. We expect that research contracts will rely heavily upon graduate students to conduct much of the work.

4. The Department of Biology. Environmental science straddles the disciplinary boundary between the “geo” sciences and the “bio” sciences, and many of our graduate students plan to be truly interdisciplinary. We anticipate that many will take the graduate-level courses offered by the Department of Biology.

5. The Statistics Center. We are requiring Biostatistics as a foundational requisite, thereby reinforcing our commitment to quantitative methods. The Statistics Center will serve as an invaluable resource, and the Mathematics Department is looking forward to working closely with our students.

6. The B.S. in Oceanography program. This proposed distance-learning program will 1) play into the strength of the department, and 2) rely upon graduate students to correspond via email with students signed up for the oceanography courses.

7. The UWF properties. The UWF properties—main campus, downtown, and the beach—can serve as excellent laboratories to conduct field studies at the graduate level, and we intend to make good use of this resource.

B. If there have been program reviews, accreditation visits, or internal reviews in the discipline pertinent to the proposed program, or related disciplines, provide all the recommendations and summarize progress toward implementing the recommendations.

In Spring 2002, the Department of Environmental Studies underwent a five-year review. In addition to a thorough self-study produced by the department, there was an report produced by an external review team in June 2002. This report—authored by Dr. John Mylroie (Mississippi State University), Dr. Judy Bense (UWF), and Dr. Rick Harper (UWF)—made several observations about and several recommendations for the department. According to the review team, the strengths included:

1) Discussions with faculty and students indicates a Department with a professional attitude and a very collegial atmosphere. Faculty feel they have capable, motivated students, and students feel they have experienced, rigorous but compassionate instruction. The Department’s high student retention rate and high faculty productivity support the anecdotal comments made to the Committee.

2) There is significant involvement with the community, both lay and professional. In particular, the Department has created an Advisory Board made up of professionals from the Pensacola region that includes private business; local, state and federal agencies; and other educational institutions. This board is extremely interested in the Department, especially in the teaching and career preparation of students, and in professional interaction with the faculty.

3) The Department is forward-looking and aggressive in its approach to teaching. The curriculum has been recently revised and a new minor in Geography added. Plans to
develop a MSc degree with Biology have been initiated. The new GIS facility has created new career opportunities for students both in the Department and across campus.

4) The Department’s recent development of a GIS lab with concurrent GIS instruction and research is a major benefit to the University and the local community. While only in existence a short time, links have been made with other units in the College of Arts and Sciences, and to other colleges, making the GIS lab an active and important University resource. The expenditures to buy equipment, allocate space, and staff the lab with a faculty member and a technician was an extremely productive move by the Department and the University.

5) The Department is active in research. Extramural funding is appreciable, and the publication record is very good. Given the high teaching loads, no graduate program, and inadequate space, the research productivity is exemplary.

6) The Department has solid support through the Dean and the Upper Administration. Other units on campus, both with in Arts and Sciences and in the other colleges, interact well with the Department.

7) The Department Chair, Dr. Klaus Meyer-Arendt, has shown outstanding leadership and creativity. He has been aggressive in building the Department but also effective in building links within the UWF community and to the outside community. He has the support of faculty, students, and the administration.

The following numbered points below paraphrase the recommendations made by the external review team and summarize progress made to date in terms of implementing those recommendations.

1. The department is understaffed. It should add at least two faculty lines.

   PROGRESS TO DATE: The university administration recognized the understaffing problem. A new faculty line was awarded to the department for the 2003-04 year during the budget hearings in Spring 2003. The search to fill this faculty line is currently under way.

2. There is over-reliance upon adjunct instructors. Perhaps some adjunct positions could be converted to instructor lines.

   PROGRESS TO DATE: One adjunct instructor—Dr. Wil Hugli—who taught multiple courses was upgraded to a full-time instructor. This added stability to the department in that Dr. Hugli spent more time in the department and was available for advising as well as assisting on research projects.

3. The department is woefully short on space.

   PROGRESS TO DATE: As a result of two separate studies by the facilities-use teams at UWF, improvements to departmental space have been made. First, a 1400-ft$^2$ room on our floor (2nd floor, Building 13) was reassigned to our department, increasing our space from 4400 ft$^2$ to 5800 ft$^2$. The space was
converted to a large classroom plus a 500-ft² hydrogeology lab (to be used for both research and teaching purposes. Other renovations include creating two new offices (one for the new faculty member, one for new research personnel) and one teaching/research lab—stocked with six state-of-the-art computers—to be used for upper-level GIS courses and research projects.

4. The department should investigate offering coursework necessary to train Registered Professional Geologists (RPGs), perhaps via the offering of a Minor in Geology.

PROGRESS TO DATE: We have contacted the state agency responsible for licensing professional geologists, but it has been extremely negligent in responding to us in a timely manner. Nonetheless, to offer additional geology courses or to offer a minor will require more expertise. We are waiting to see who will be hired for the three positions we presently have vacant.

5. The department should offer a master’s degree. There is a demand for this professional degree. Also, graduate students would be available to teach the various lab sections, thereby freeing up faculty time as well as dollars spent on adjunct instructors.

PROGRESS TO DATE: In terms of importance, this point was number one. Since the recommendation was made, we have had numerous faculty discussions on this topic. The present document is an outcome of those discussions as well as a response to the external reviewers’ recommendations.

6. At the undergraduate level, the department should investigate greater flexibility among required courses, thus allowing students to focus upon specific academic subfields (e.g., geology, GIS, geography, coastal studies) as well as electives in other fields.

PROGRESS TO DATE: The department is waiting until Fall 2004, when new faculty are in place, to discuss making modifications to the undergraduate curriculum. We anticipate that some changes allowing for greater flexibility will be made.

C. Describe briefly the anticipated delivery system for the proposed program as it may relate to resources e.g., traditional delivery on main campus; traditional delivery at branches or centers; or nontraditional instruction such as instructional technology (distance learning), self-paced instruction, and external degrees. Include an analysis of the feasibility of providing all or a portion of the proposed program through distance learning technologies. Include an assessment of the UWF’s technological capabilities as well as the potential for delivery of the proposed program through collaboration with other universities or community colleges. Cite specific queries made of other institutions with respect to the feasibility of utilizing distance learning technologies for this degree program.

At the onset, this M.S. program is envisioned to be a traditional science master’s program. Instruction will be mostly face-to-face, and there will be a strong emphasis upon
laboratory and field work. With the recent improvements made to undergraduate education within the department, there will be no additional resources required to conduct a successful graduate program.

The department is beginning to explore distance learning, especially in conjunction with a proposed B.S. in Oceanography degree (jointly administered with the Department of Biology). The first distance-learning courses are being developed in Spring 2004 as support courses for the Maritime Studies program. If these courses prove to be successful, we will consider offering one or more graduate-level courses via the same means.

Our research to date has shown that most graduate-level environmental science programs offered over the World Wide Web are academically weak. One such program is offered through the University of Florida. Most prospective students for our program prefer the emphasis on hands-on research and fieldwork.

As our graduate program gets underway, we will seriously evaluate means of improving. Perhaps the role of distance learning can be expanded at some point in the future.

D. Assessment of Current and Anticipated Faculty

1. Use UWF Table Two to provide information about each existing faculty member who is expected to participate in the proposed program by the fifth year. If the proposal is for a graduate degree, append to the table the number of master's theses directed, number of doctoral dissertations directed, and the number and type of professional publications for each faculty member.

Table Two is on page 32.

2. Also, use UWF Table Two to indicate whether additional faculty will be needed to initiate the program, their faculty code (i.e., one of five unofficial budget classifications as explained on the table), their areas of specialization, their proposed ranks, and when they would be hired. Provide in narrative the rationale for this plan; if there is no need for additional faculty, explain.

This narrative follows Table Two on page 32.

3. Use UWF Table Two to estimate each existing and additional faculty member's workload (in percent person-years) that would be devoted to the proposed program by the 5th year of implementation, assuming that the program is approved. *(Note: this total will carry over to UWF Table Three's fifth year summary of faculty positions.)*

Table Two is on page 32.

E. Assessment of Current and Anticipated Resources
1. In narrative form, assess current facilities and resources available for the proposed program in the following categories:

a. Library volumes (Provide the total number of volumes available in this discipline and related fields.)

The John C. Pace Library has an excellent collection of books in the field of environ-

<table>
<thead>
<tr>
<th>Call number area</th>
<th>Subject area</th>
<th># Physical titles owned (1995-date)</th>
<th># Electronic titles (netLibrary)</th>
<th>TOTAL COUNT (2 + 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Geography, GIS, remote sensing, etc.</td>
<td>365</td>
<td>1,361</td>
<td>1,397</td>
</tr>
<tr>
<td>GA</td>
<td>Cartography</td>
<td>25</td>
<td>184</td>
<td>184</td>
</tr>
<tr>
<td>GB</td>
<td>Physical geography, geomorphology, water</td>
<td>101</td>
<td>553</td>
<td>576</td>
</tr>
<tr>
<td>GC</td>
<td>Oceanography</td>
<td>55</td>
<td>523</td>
<td>538</td>
</tr>
<tr>
<td>GF</td>
<td>Human ecology, anthropogeography</td>
<td>81</td>
<td>388</td>
<td>403</td>
</tr>
<tr>
<td>QC801 - QC999</td>
<td>Geophysics, meteorology, climatology</td>
<td>102</td>
<td>509</td>
<td>545</td>
</tr>
<tr>
<td>QE</td>
<td>Geology</td>
<td>222</td>
<td>1,040</td>
<td>1,080</td>
</tr>
<tr>
<td>QH</td>
<td>Natural history, biology</td>
<td>706</td>
<td>4,275</td>
<td>4,393</td>
</tr>
<tr>
<td>QK</td>
<td>Botany</td>
<td>149</td>
<td>1,692</td>
<td>1,718</td>
</tr>
<tr>
<td>QP501 - QP801</td>
<td>Animal biochemistry</td>
<td>65</td>
<td>725</td>
<td>743</td>
</tr>
<tr>
<td>QR</td>
<td>Microbiology</td>
<td>101</td>
<td>888</td>
<td>900</td>
</tr>
<tr>
<td>S</td>
<td>Agriculture, soil science, conservation</td>
<td>69</td>
<td>611</td>
<td>657</td>
</tr>
<tr>
<td>SB481 - SB991</td>
<td>Parks, public reservations, etc.</td>
<td>29</td>
<td>200</td>
<td>239</td>
</tr>
<tr>
<td>SD</td>
<td>Forestry</td>
<td>44</td>
<td>194</td>
<td>208</td>
</tr>
<tr>
<td>SK</td>
<td>Wildlife management</td>
<td>16</td>
<td>126</td>
<td>129</td>
</tr>
<tr>
<td>TC203 - TC345</td>
<td>Coastal engineering &amp; protection</td>
<td>11</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>TD</td>
<td>Environmental technology, bioremediation, etc.</td>
<td>119</td>
<td>971</td>
<td>1,050</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>2,260</td>
<td>14,268</td>
<td>14,788</td>
</tr>
</tbody>
</table>
mental science and the geosciences (geography and geology). The holdings, listed on the table on page 21, are more than sufficient to support an incipient master’s program. (Thanks are extended to Mr. Dan North for supplying the data on the table.)

In addition to the total number of volumes, it is important to point out that Environmental Studies was a recipient of special Collection Development Project funds ($9,500) in 1999-2000 (information courtesy of Ms. Helen Wigersma). Collection Development Project funding is one-time funding which allows a discipline to significantly enhance its library collection and purchase book and media materials which support current and planned programs. As a result, the book collection in Environmental Studies is especially current and capable of supporting the Master of Science program.

b. Serials (Provide the total number available in this discipline and related fields, and list those major journals which are available at UWF.)

The University of West Florida Libraries subscribe to over 5,000 serials including 2,100 in print format, 1,292 in print format with online access, and 1,735 in electronic format. In addition, the library has access to many more full-text serials through aggregator indexes provided by companies such as FirstSearch and Gale.

The following summary sheet provides serials information related to Environmental Studies, as follows:

- The total number of journal subscriptions currently received by UWF whether in print or electronic format
- A listing by title of major journals available at UWF
- The primary indexing/abstracting services available and whether they provide full-text journal access
- A sample of titles for which UWF does not have a print or electronic subscription, but for which full-text access is available

**Master of Science - Environmental Studies**
**UWF Journals**
**December, 2003**

<table>
<thead>
<tr>
<th>Number of Serial Subscriptions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Environmental Studies</strong></td>
<td>78</td>
</tr>
<tr>
<td>In Biology (with Environmental Studies emphasis)</td>
<td>30</td>
</tr>
<tr>
<td>In Chemistry (with Environmental Studies emphasis)</td>
<td>5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>113</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major Titles</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied and Environmental Microbiology</td>
<td>Print</td>
</tr>
<tr>
<td>Aquatic Ecology</td>
<td>Electronic</td>
</tr>
<tr>
<td>Biodiversity and Conservation</td>
<td>Electronic</td>
</tr>
<tr>
<td>The Ecologist</td>
<td>Print</td>
</tr>
<tr>
<td>Environment International</td>
<td>Electronic</td>
</tr>
<tr>
<td>Environmental Ethics</td>
<td>Print</td>
</tr>
<tr>
<td>Environmental Management</td>
<td>Print</td>
</tr>
</tbody>
</table>

22
There is also available (but not included in this Request to Implement) a more complete summary of Environmental Studies listings which shows the price paid for each UWF subscription for a three-year period. Those titles which do not have costs associated with them are part of a bundled package (Elsevier, Kluwer, Oxford University Press). UWF receives those titles as electronic subscriptions through a consortium purchase with other Florida state university libraries.

As the M.S. program grows, however, it will be important to assist the library in securing funds to maintain adequate levels of serials and book holdings.
c. Describe classroom, teaching laboratory, research laboratory, office, and any other type of space that is necessary and currently available for the proposed program.

The space available for the proposed M.S. program includes:

- Three dedicated laboratory classrooms (the cartography/physical geography lab, capacity: 49, room 13/221; the soils/physical geology lab, capacity: 24, room 13/214; and the advanced GIS/remote sensing lab, capacity: 20, room 13/222)
- Two research laboratories (the hydrogeology lab, room 13/221a; the sediments lab, room 13/213)
- One GIS computer lab (GeoData Center) (capacity: 20, room 13/216)
- Faculty offices (8) and reception area (all in Bldg. 13)
- One conference/seminar room, which includes a map repository (13/202)
- Weather station and storage shed (roof of Bldg. 13)
- Plenty of field space, including the UWF property on Santa Rosa Island

The only space shortage is in the realm of office space for graduate students.

d. Equipment

The Department of Environmental Studies is relatively well equipped in terms of computers, analytical equipment, and field equipment. The two research labs have much analytical equipment (including fume hoods and a gas chromatograph), and the two GIS labs have 26 computers between them. The current faculty have sufficient field equipment, and it is anticipated that the new faculty will use their start-up funds to acquire their necessary research equipment in Fall 2004.

e. Fellowships, scholarships, and graduate assistantships (List the number and amount allocated to the academic unit in question for the past year.)

The department has not had a graduate program, and thus there are no fellowships, graduate scholarships, or graduate assistantships at the present time. (One current research grant, however, has funds available to fund two partial assistantships—at $6000/year plus tuition waiver—once a graduate program is approved.)

f. Internship sites

The department has placed undergraduate interns in a variety of employment sectors in the Pensacola area, and it is likely that these arrangements will be expanded to include graduate students. These employers include: Escambia County (Neighborhood and Environmental Services, GIS Services), Florida Department of Environmental Protection, Gulf Power Company, U.S. Army Corps of Engineers (Pensacola field office), and the U.S. Environmental Protection Agency lab at Gulf Breeze. There are also occasional internships available with the various private environmental consulting firms in the region.
2. Describe additional facilities and resources required for the initiation of the proposed program (e.g., library volumes, serials, space, assistantships, specialized equipment, other expenses, OPS time, etc.). If a new capital expenditure for instructional or research space is required, indicate where this item appears on UWF's capital outlay priority list. The provision of new resources will need to be reflected in the budget table (UWF Table Three), and the source of funding indicated. UWF Table Three requires the display of Instruction and Research (I&R) costs only, unless expected enrollment in the new program is high enough to impact non I&R costs, such as library staffing, university support, and student services.

No additional facilities will be required for the implementation of the M.S. in Environmental Science program. No capital expenditures for instruction or research space is foreseen at this time. Space for graduate students, particularly those on assistantships, would be desirable at some point in the future, however.

The following summarizes needs in terms of resources:

Other Personal Services (OPS)

The department requests—from the university—two graduate assistantships for the 2004-05 academic year at $6000/student/year (or the equivalent thereof). By the fifth year (2008-09), we would like to have a minimum of four such graduate assistantships. One major research grant (NIMA) can fund two assistantships when the graduate program starts, and we anticipate continuing to fund at least two assistantships per year under additional research contracts.

Expenses

A graduate program requires miscellaneous expenses, which we estimate at $3000 per year. Our existing budget can cover $2000, whereas we would request $1000 in new monies.

Equipment

A graduate program requires additional equipment expenses, especially in terms of maintenance. We estimate such expenses at $3000 per year, of which existing revenues could cover half of the expenses. Additional equipment needs (perhaps $5000/year) will be supplied by grants and contracts.

Technology

A graduate program requires additional technology expenses, especially in terms of software and computer maintenance. We estimate such expenses at $1500 per year, of which we would request $1000 in new monies.

Learning Resources

A graduate program requires additional learning resources (including books for the library), which we estimate at $1000 per year. Our existing budget can cover $500, whereas we would request $500 in new monies.
VII. ASSESSMENT OF IMPACT ON PROGRAMS CURRENTLY OFFERED

A. Budget

1. Assuming no special appropriation or UWF allocation for initiation of the program, how would resources within the College and Department be shifted to support the new program?

The Department of Environmental Studies will cover some of the added costs through its normal operating budget. The College of Arts & Sciences will cover some OPS and other expenses through its allocation of graduate assistance in the form of out-of-state tuition waivers, etc. A permanent faculty line was added to assist with the undergraduate program, and this line will be filled by Fall 2004. Two existing lines are presently empty, and they too have been approved for filling by Fall 2004.

2. Use UWF Table Three to display dollar estimates of both current and new resources for the proposed program for the first through the fifth years of the program. In narrative form, identify the source of both current and any new resources to be devoted to the proposed program.

Table 3 is presented on page 34. Under the Instruction & Research section, items listed under “current” will be funded out of existing departmental general funds (or overhead funds generated from research grants). New funds will be covered by a college supplement to the department budget. Two assistantship lines (or their equivalents) are requested from the university (via the college). Departmental research grants will be able to cover the costs of two additional assistantships.

3. Describe what steps have been taken to obtain information regarding resources available outside the institution (businesses, industrial organizations, governmental entities, etc.). Delineate the external resources that appear to be available to support the proposed program.

Outside resources consist primarily of 1) outside graduate student support in terms of employment, internships, and research support as well as 2) resources generated by research contracts. In terms of outside graduate student support, agencies such as DEP offer opportunities in terms of employment and also research venues such as Project Greenshores (in which our department was heavily involved) and other shoreline stabilization projects. In terms of research contracts, our departmental staff have been quite successful in generating research funds (see Appendix E on page 42 for a comprehensive listing.)

B. Describe any other projected impacts on related programs, such as prerequisites, required courses in other departments, etc.
Students enrolled in the M.S. in Environmental Science graduate program may elect to enroll in graduate-level courses from a variety of disciplines. The largest enrollments are expected to be in Mathematics & Statistics (especially in Biostatistics courses) and in Biology. Articulation with those two departments has been quite positive and is included in Appendix F (page 45).

VIII. COMMUNITY COLLEGE ARTICULATION

For undergraduate programs, describe in detail plans for articulation with area community colleges.

At the undergraduate level, the Department of Environmental Studies has articulated especially with OWCC and with PJC. PJC recently restructured its AA in Environmental Science so that students can now easily transition from the lower division to the upper division. This proposed M.S. program will allow students to progress into graduate education quite seamlessly.

IX. ASSESSMENT OF APPLICABLE ACCREDITATION STANDARDS

List the accreditation agencies and learned societies that would be concerned with the proposed program. Does the department or program anticipate seeking accreditation from any of these agencies? If so, indicate when accreditation will be sought. If the proposed program is at the graduate level, and a corresponding undergraduate program is already in existence, is the undergraduate program accredited? If not, why?

There is no discipline-specific accreditation process for programs in Environmental Science, Geology, or Geography at any level.

X. PRODUCTIVITY

Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course-load, FTE productivity, student headcounts in major or service courses, degrees granted, external funding attracted; as well as qualitative indicators of excellence.

1. Teaching

There are many ways to measure the success of a program, and enrollment and graduation trends are but some of those ways. The number of majors, the number of graduates, and enrollments in departmental course offerings--measured in semester credit hours (sch) or full-time equivalents (FTEs) are three of the most common ways is showing trends.

In terms of number of majors (and ‘special students’), there have been around 150/year since the B.S. in Environmental Science (referred to as Environmental Studies) program was established in 1995. The table on the following page presents enrollment data from the Fall semester of the respective year. EVR—General refers to students admitted to the program but
who have not yet declared a track. EVR—Unclassified: Spec. refers to students taking courses in the department who have not yet declared a major. (Many of these go on to declare a major, and thus they are counted here.) Since the last remaining students in the ERMP track graduated in 1998, the Environmental Policy track has been most favored by majors—at a 2:1 ratio over the Natural Science track. A third track—Geography—was added in 2003, and so far about 12 students are enrolled in that track.

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<tbody>
<tr>
<td>EVR--General</td>
<td>59</td>
<td>80</td>
<td>24</td>
<td>29</td>
<td>24</td>
<td>20</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>EVR--Natural Science</td>
<td>2</td>
<td>9</td>
<td>21</td>
<td>36</td>
<td>36</td>
<td>37</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVR--Environ. Policy</td>
<td>11</td>
<td>36</td>
<td>85</td>
<td>67</td>
<td>73</td>
<td>81</td>
<td>76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVR Res. Mgmt. (ERMP)</td>
<td>49</td>
<td>61</td>
<td>77</td>
<td>93</td>
<td>104</td>
<td>119</td>
<td>66</td>
<td>14</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVR Unclassified: spec.</td>
<td>4</td>
<td>0</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>4</td>
<td>11</td>
<td>4</td>
<td>10</td>
<td>12</td>
<td>20</td>
<td>13</td>
<td>6</td>
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<tr>
<td>TOTAL</td>
<td>53</td>
<td>61</td>
<td>87</td>
<td>103</td>
<td>112</td>
<td>123</td>
<td>149</td>
<td>143</td>
<td>146</td>
<td>153</td>
<td>151</td>
<td>130</td>
<td></td>
</tr>
</tbody>
</table>

* lower division not included

The number of departmental graduates also shows a rapid increase in the mid-1990s. In recent years, the number of graduates has leveled off at about 30/year (for example, 2001 = Summer and Fall 2001 + Spring 2002).

![Graph showing number of graduates per year](image)

In terms of course enrollments, there has been a steady rise in numbers since Fall 1998 (perhaps not coincidentally, also the semester the chair began his tenure at UWF). Based upon data kept by the department, the graph on the following page shows semester credit hour (sch) production for a five-year period (1997 = Fall 1997 + Spring and Summer 1998, for example). Enrollment growth rates have exceeded 10%/year over the past two years. Although much of this growth has taken place in the lower-division service courses, upper-division enrollments have also become to climb—over 10% during the last academic year. The data on the graph actually underestimate enrollments because Directed Study or Honors courses are not included.
Official enrollment statistics kept by the UWF Office of Institutional Research (graph below) show trends that are somewhat similar to those shown by departmental data (here 1997 = Summer and Fall 1997 + Spring 1998). The longer-term perspective also shows the recent growth has exceeded the peak enrollments of the mid-1990s.

The student retention rates within the department also exceed university averages, according to data provided by the Office of Institutional Research and Planning. For 1991-95, of
entering students FTIC (first time in college), UWF only retained 45%, whereas EVR retained 86%. For students transferring with Associate’s degree (1992-1996 data), the comparable figures are 69% for UWF and 72% for EVR. While the transfer students show no significant difference, it is apparent that the department does a good job in retaining those students that initially come to UWF.

2. Research

The department has been especially productive in terms of research. This can be measured in success in attracting external funding (Appendix E, page 42) as well as in terms of publications, professional presentations, and the like. Appendix G on page 47 lists some of the research accomplishments of departmental faculty.

Also, the department has applied to establish a Type 3 research center to demonstrate our commitment to applied regional research. See Appendix H on page 52 for details.

3. Service

The department has an excellent record of service, especially in the local area. Appendix I on page 55 lists some of the service accomplishments of departmental faculty.

XI. HISTORY

Provide a history page at the end of the proposal document to display approvals at each level (see page 59 at the end of this document).
### UWF TABLE ONE B

**NUMBER OF ANTICIPATED MAJORS FROM POTENTIAL SOURCES**

#### GRADUATE DEGREE PROGRAM

**NAME OF PROGRAM:** M.S. Environmental Science  
**CIP CODE:** 3.0104

<table>
<thead>
<tr>
<th>ACADEMIC YEAR</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
<th>YEAR 4</th>
<th>YEAR 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>04</td>
<td>05</td>
<td>06</td>
<td>07</td>
<td>08</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of Students (Non-Duplicative Count in Any Given Year)</th>
<th>HC</th>
<th>FTE</th>
<th>HC</th>
<th>FTE</th>
<th>HC</th>
<th>FTE</th>
<th>HC</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals drawn from agencies/industries in your service area (e.g., older returning students)</td>
<td>2</td>
<td>0.56</td>
<td>4</td>
<td>1.12</td>
<td>4</td>
<td>1.12</td>
<td>4</td>
<td>1.12</td>
</tr>
<tr>
<td>Students who transfer from other graduate programs within the university</td>
<td>2</td>
<td>1.36</td>
<td>3</td>
<td>2.04</td>
<td>2</td>
<td>1.36</td>
<td>2</td>
<td>1.36</td>
</tr>
<tr>
<td>Individuals who have recently graduated from preceding degree programs at this university</td>
<td>15</td>
<td>10.2</td>
<td>23</td>
<td>15.64</td>
<td>14</td>
<td>9.52</td>
<td>12</td>
<td>8.16</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at other SUS universities</td>
<td>1</td>
<td>0.68</td>
<td>4</td>
<td>2.72</td>
<td>6</td>
<td>4.08</td>
<td>7</td>
<td>4.76</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at non-SUS Florida colleges and universities</td>
<td>1</td>
<td>0.68</td>
<td>2</td>
<td>1.36</td>
<td>2</td>
<td>1.36</td>
<td>2</td>
<td>1.36</td>
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<tr>
<td>Additional in-state residents</td>
<td>1</td>
<td>0.5</td>
<td>2</td>
<td>1.0</td>
<td>2</td>
<td>1.0</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Additional out-of-state residents</td>
<td>2</td>
<td>1.36</td>
<td>5</td>
<td>3.4</td>
<td>7</td>
<td>4.76</td>
<td>8</td>
<td>5.44</td>
</tr>
<tr>
<td>Additional foreign residents</td>
<td>1</td>
<td>0.68</td>
<td>2</td>
<td>1.36</td>
<td>2</td>
<td>1.36</td>
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<td>1.36</td>
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<tr>
<td>Other (Explain)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>25</td>
<td>16.02</td>
<td>45</td>
<td>28.64</td>
<td>39</td>
<td>24.56</td>
<td>39</td>
<td>24.56</td>
</tr>
</tbody>
</table>

Note:  
HC = Headcount of students in this major.  
FTE = Annualized Full-Time-Equivalent students taking courses offered by this major.  
Annualized FTE’s are calculated at 32 credit hours for graduate courses.  
The data also assume that graduate students will receive their M.S. degrees within two years of entering the program.
## UWF Table Two

### Faculty Participation in Proposed Degree Program by Fifth Year

<table>
<thead>
<tr>
<th>Faculty CODE</th>
<th>Faculty Name or &quot;New Hire&quot;</th>
<th>Academic Discipline/Specialty</th>
<th>Rank</th>
<th>Contract Status (tenure?)</th>
<th>Highest Degree Granted</th>
<th>Initial Date for Participation in Proposed Program</th>
<th>5th Year Workload in Proposed Program (portion of Person-year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Meyer-Arendt EVR</td>
<td>Professor</td>
<td>Tenured</td>
<td>Ph.D.</td>
<td>2004</td>
<td>0.2 FTE</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Liebens EVR</td>
<td>Associate Professor</td>
<td>Tenured</td>
<td>Ph.D.</td>
<td>2004</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Droubay EVR</td>
<td>Permanent Lecturer</td>
<td>Non-tenured</td>
<td>Ph.D.</td>
<td>2004</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>New hire GIS</td>
<td>Assistant Professor</td>
<td>Tenure-track</td>
<td>Ph.D.</td>
<td>2004</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>New hire EVR</td>
<td>Assistant Professor</td>
<td>Tenure-track</td>
<td>Ph.D.</td>
<td>2004</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>New hire EVR</td>
<td>Assistant Professor</td>
<td>Tenure-track</td>
<td>Ph.D.*</td>
<td>2006</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Bitters GIS</td>
<td>Research Scientist</td>
<td>Non-tenured</td>
<td>*by 2005</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty CODE</th>
<th>Corresponding Faculty Position Category in Table 3 for the Fifth Year</th>
<th>Proposed Source of Funding for Faculty</th>
<th>TOTAL 5th Year Workload by Budget Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Current General Revenue</td>
<td>Existing Faculty -- Regular Line</td>
<td>0.5 FTE</td>
</tr>
<tr>
<td>B</td>
<td>Current General Revenue</td>
<td>New Faculty -- To Be Hired on Existing Vacant Line</td>
<td>0.6 FTE</td>
</tr>
<tr>
<td>C</td>
<td>New General Revenue</td>
<td>New Faculty -- To Be Hired on a New Line</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Contracts &amp; Grants</td>
<td>Existing Faculty -- Funded on Contracts &amp; Grants</td>
<td>0.1 FTE</td>
</tr>
<tr>
<td>E</td>
<td>Contracts &amp; Grants</td>
<td>New Faculty -- To Be Hired on Contracts &amp; Grants</td>
<td></td>
</tr>
</tbody>
</table>

**Overall Total for 5th Year**: 1.2 FTE

**Narrative (based in part on questions listed on page 20):**

1) We plan to start the graduate program with full capacity. Six full-time faculty hold the Ph.D. degree (including three who are presently being hired), and all six will be involved in offering graduate courses and supervising graduate student in Year 1 of the program. The program is designed to reach a sustainable level (twenty new graduate students added per year),
so that the faculty workload will be approximately the same in Year 5 as in Year 1. One of our research scientists—Barry Bitters—will have his Ph.D. by 2005, and we plan to use his expertise beginning in 2006. He is a contract employee, so no university funds will be required to offer a class that Mr. (Dr.) Bitters will teach.

In terms of graduate experience, the faculty are fully capable of coordinating and conducting a top-notch M.S. program. Dr. Klaus Meyer-Arendt spent eleven years as faculty member in Mississippi State University’s Department of Geosciences, a master’s program with similar emphases as UWF. There, he directed six master’s students (of which half are gainfully employed in Florida!). His publication record is quite extensive, as can be seen in Appendix G. Dr. Johan Liebens, a meticulous researcher, came to UWF in 1996 from the University of Tennessee at Knoxville. The Department of Geography there is a Ph.D.-granting department. Dr. Liebens, too, has a respectable publication record (listed in Appendix G). Dr. Melvin Droubay, lecturer, has concentrated more on teaching and service activities (as well as numerous small research contracts), and his experience with publications and thesis direction is minimal. However, Dr. Droubay has been most instrumental in finding employment and internship positions for our majors and graduates, and he is expected to play a great role in supervising non-thesis M.S. students. For the three new assistant professors, we do not yet the data (in terms of publications and number of theses directed). (However, the pool of finalists for the positions contains considerable expertise in both categories!)

2) There is no need for any new faculty to begin a graduate program. Because of past understaffing, the university assigned a new faculty line to the department to help cover undergraduate instruction. This new faculty line provides the department the minimum critical-mass threshold to offer a graduate program without straining existing resources and personnel assignments. The new line, coupled with two vacancies creating by departing faculty members, leaves three positions currently unfilled within the department. Interviews with candidates for these positions are scheduled for January and February 2004, and we are particularly looking at their qualifications in terms of becoming part of a graduate program in Environmental Science.
<table>
<thead>
<tr>
<th></th>
<th>FIRST YEAR</th>
<th>FIFTH YEAR</th>
<th></th>
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<tr>
<td></td>
<td>GENERAL REVENUE</td>
<td>CONTRACTS &amp; GRANTS</td>
<td>SUMMARY</td>
<td>GENERAL REVENUE</td>
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<td></td>
<td>CURRENT</td>
<td>NEW</td>
<td>SUMMARY</td>
<td>CURRENT</td>
</tr>
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<td><strong>INSTRUCTION &amp; RESEARCH</strong></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>POSITIONS (FTE)</td>
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<td></td>
</tr>
<tr>
<td>FACULTY</td>
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<td>1.1</td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>A&amp;P</td>
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<tr>
<td>USPS</td>
<td></td>
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</tr>
<tr>
<td>TOTAL</td>
<td>1.1</td>
<td>1.1</td>
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<td>1.1</td>
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<td>74,662</td>
<td>74,662</td>
<td>74,662</td>
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<tr>
<td>A&amp;P</td>
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</tr>
<tr>
<td>USPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>74,662</td>
<td>74,662</td>
<td>74,662</td>
<td>74,662</td>
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<tr>
<td><strong>I&amp;R</strong></td>
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<tr>
<td>SALARIES &amp; BENEFITS</td>
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<td>97,061</td>
<td>97,061</td>
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<td>EXPENSES</td>
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<td>EQUIPMENT</td>
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<td>5,000</td>
<td>8,000</td>
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<td>TECHNOLOGY</td>
<td>500</td>
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<tr>
<td>TOTAL I&amp;R</td>
<td>100,661</td>
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<td><strong>NON-I&amp;R</strong></td>
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<tr>
<td>OTHER ACTIVITIES</td>
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<tr>
<td>LIBRARY STAFFING</td>
<td>640</td>
<td>640</td>
<td>1,000</td>
<td>1,000</td>
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<tr>
<td>UNIV SUPPORT</td>
<td>1,600</td>
<td>1,600</td>
<td>2,500</td>
<td>2,500</td>
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<tr>
<td>FINANCIAL AID</td>
<td>400</td>
<td>400</td>
<td>625</td>
<td>625</td>
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<tr>
<td>STUDENT SVCS</td>
<td>800</td>
<td>800</td>
<td>1,250</td>
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<tr>
<td>TOTAL OTHER ACTIVITIES</td>
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<td>100,661</td>
<td>19,440</td>
<td>17,000</td>
<td>137,101</td>
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</table>
APPENDIX A. Students Who Have Expressed Serious Interest in Beginning a Graduate Program in Environmental Science in Fall 2004.

Bane, Brad
Bartlett, Miranda
Bradley, Kevin
Coleman, Stephanie
Ehlers, Ryan
Eisele, Kimberly
Flanders, Kristal
Forst, Peter
Fosselman, Mackenzie
Gillham, Jennifer
Gorman, Sunshine
Kellenbeck, Jolene
Koch, Kortney
Koch, Nicole
LeBourgeois, Levi
Lee, Kathryn
Lutz, Dakota
Mauldin, Chris
Medlock, Meredith
Michelle, Todd
Nation, Michael
Padgett, Erin
Prier, Tom
Reed, Jeffrey
Rollman, Drew
Stromas, Clyde
APPENDIX B. The Department of Environmental Studies Advisory Board

Mr. Riley Hoggard
National Park Service
1801 Gulf Breeze Pkwy.
Gulf Breeze, FL 32561
Ph. 850-934-2617
Riley_hoggard@nps.gov

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160 Government Center
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Ph. 850-595-8320
Connie.kristof@dep.state.fl.us

Mr. Clif Payne
U.S. Army Corps of Engineers
Pensacola Regulatory Office
41 N. Jefferson St. Suite 104
Pensacola, FL 32501-5794
Ph. 850-439-9533

Ms. Debbie Miller
University of Florida at Milton
Natural Resource Conservation Program
West Florida Research and Education Center
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dlmi@uf.edu

Mr. Paul Thorpe
NW Florida Water Management District
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Havana, FL 32333
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USDA Natural Resources Conservation Service
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Dr. Dick Snyder
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University of West Florida
11000 University Parkway
Pensacola, FL 32514
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rsnyder@uwf.edu

Mr. John Barksdale
The Environmental Co.
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Pensacola, FL 32501
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Jdbarksdale1@aol.com

Mr. G. Dwain Waters
Environmental Affairs
Gulf Power Company
One Energy Place
Pensacola, Florida 32520-0328
Phone: (850) 444-6527
FAX: (850) 444-6217
Pager: (850) 469-4076
gdwaters@southernco.com

Mr. Keith Wilkins, Director
Escambia County NESD
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Pensacola, FL 32501
Ph. 850-595-3499
Keith_wilkins@co.escambia.fl.us

36
APPENDIX C. Letters of Support Provided by Department of Environmental Studies Advisory Board Members.

1. Mr. Ken Collar, District Conservationist, USDA-Natural Resources Conservation Service

From: "Ken Collar" <Ken.Collar@fl.usda.gov>
To: "Klaus J. Meyer-Arendt" <kjma@uwf.edu>
Subject: RE: grad program
Date: Thu, 18 Sep 2003 10:58:59 -0500
Organization: USDA-NRCS
X-Priority: 3 (Normal)
Importance: Normal
X-OriginalArrivalTime: 18 Sep 2003 16:03:12.0407 (UTC)
FILETIME=[5C87BA70:01C37DFE]

Klaus,

An average of 1 or 2 consultants per week visit my office to view our older airphotos and gather soils data in the preparation of phase one environmental assessments. The great majority of these consultants are from out of state, flying in from Atlanta, Ohio, Pennsylvania, or wherever, and they all seem to have M.S. degrees. I would think it more cost-effective to use local consultants, but apparently a shortage exists of qualified local talent. An M.S. program in Environmental Sciences at UWF would remedy that shortage and facilitate keeping those consultant fees in our local economy.

I also see a need in the local area for persons with the necessary skills to plan and successfully implement wetland mitigation projects. I've seen many projects fail to produce the intended results, even though the hydrology was properly engineered, because proper consideration was not given to the soils. A prime current example lies south of the Foodworld on the west side of Pine Forest Road just south of I-10. The berms have been cut by stormflows, resulting in severe erosion and sedimentation. M.S. Environmental Sciences graduates with an understanding of soils would have recognized what soils were not suitable for constructing berms, what compaction would be necessary to construct berms with suitable material, and how to control erosion on the surrounding bare soils. Your proposed program could produce graduates with such expertise.

Please feel free to quote me in my official capacity as District Conservationist, USDA-Natural Resources Conservation Service if you like.

Ken
Dr. Meyer-Arendt,

Myself and a couple of others at the NWFWMD have reviewed the attachment and appreciate the opportunity to offer comments on the proposed program. While our overall staff levels in any particular field are relatively low, our agency does employ an interdisciplinary staff in resource management, resource regulation, hydrology, planning, GIS, land management, public information, engineering, information technology, and administration.

Many of the professional staff hired in the past have been geologists, wetland scientists, biologists, planners, hydrologists, foresters, geographers, engineers, etc. Applicants with Environmental Science degrees, however, can be quite competitive and have been hired in a variety of positions. Course work in such areas as GIS, hydrology, soil science, wetland ecology, and hydrogeology have proven to be particularly useful.

I would also note that there are some areas in which training and experience are proving to be increasingly valuable. These include field botany or, even better, some sort of training in ecological functional assessments (WRAP, FUMAM, HGM, etc.). Also, knowledge of and experience in grant writing, technical project design, wetland restoration/preservation techniques, and water quality are always valuable.

Yes, the consensus I'm hearing is that a Master's is typically expected. There are a few exceptions -- some hired for field (monitoring, etc.) positions have B.S. degrees, and you do actually see quite a few people with PhDs. Most people hired (and I think most that apply), however, do have a Master's.

Thanks again for the opportunity to provide these comments. If we can offer additional assistance, please do not hesitate to contact me.

Paul Thorpe
3. Mr. Keith Wilkins, Head, Escambia County Neighborhood and Environmental Services

I think the proposal and program look good. I'd be interested in seeing the non-core courses and the alternatives available to the students. As for employment, the skill sets we utilize are ecosystem sciences, land use, policy, education and outreach and grant management. The disciplines are typically associated with soil science, biological sciences, physical geography/geology, hydrology, hydrogeology, atmospheric sciences, public policy and management.

4. Mr. Clif Payne, U.S. Army Corps of Engineers, Pensacola field office

I've reviewed the proposed graduate program and it looks fine. I'm please the department is pursuing this program and will support in whatever method I can.

Thanks
Clif
APPENDIX D. Master’s Degree Requirements of the University of West Florida (from university catalog).

Academic Credit
Academic credit toward the degree shall not be given for courses which are designed to fulfill prerequisites for admission.

Academic Requirements
The following are the general minimum requirements for completion of graduate programs. The colleges and departments may have graduation requirements which exceed these minima. Consult the individual program descriptions in this Catalog. Completion of the program should require one to two years of full-time study or its equivalent beyond the bachelor's degree.

All master's programs require a minimum of 30 semester hours of approved course work. Students whose master's program consists of 30 to 36 semester hours may have a maximum of six semester hours or two courses (whichever is greater in credit) of graduate work at another university accepted toward their program requirements at UWF. The department chairperson's permission is required. Students whose master's program consists of more than 36 semester hours may have a maximum of 10 semester hours of graduate work from another university accepted toward their program requirements at UWF. Graduate credit may be transferred from other institutions when a grade of "B" or higher was earned.

At least 15 semester hours must be in courses at the 6000 level or above.

A graduate program may include a maximum six semester hours (or two courses, whichever is greater in credit) of undergraduate level course work, and a maximum of six semester (or two courses, whichever is greater) of directed studies.

Undergraduate courses must be upper division (3000-4000) level and meet one of the following criteria:

A. Upper-division undergraduate courses not annotated for graduate credit (included in graduate program without additional work for graduate credit);
B. Upper-division undergraduate courses annotated for graduate credit (included in graduate program and student does additional work to receive graduate credit.)

Directed studies must be at the graduate level.

Advancement to Candidacy
Advancement to candidacy may be required by some departments. This is a separate step from admission to graduate studies. Students are responsible for determining the requirements in each area of study by consulting with the department chairperson.

Comprehensive or General Examination
Most departments require a written and/or oral general examination. The examination may be an initial diagnostic or a final comprehensive examination over the student's fields of study.
Students must pass any examination required by the department to be recommended for a
graduate degree.

Credit by Proficiency Examination
At the request of a department and with the approval of the college dean, a student may be
permitted to take six semester hours or two courses (whichever is greater in credit) of graduate-
level credit by examination. Additional requirements are the same as those for undergraduates.

GPA Requirements
A student must satisfy the UWF GPA requirement of 3.0 based upon grades for all courses
included in the initial and approved degree plan and grades for all courses included in subsequent
revisions. No grade for a course taken as part of an approved graduate degree program may be
deleted from the GPA. Individual programs may set more stringent GPA requirements.

The UWF academic transcript, the student academic record, and grade report do not reflect the
degree program GPA. These records indicate a GPA of all UWF graduate level courses with the
exception of those included in a UWF baccalaureate degree.
APPENDIX E. Research Grants Generated in the Department of Environmental Studies.

<table>
<thead>
<tr>
<th>Principal Investigator/Project Title</th>
<th>Year</th>
<th>Amount</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mr. Barry Bitters</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universal Classification Schema for Mapping</td>
<td>2003</td>
<td>$677,000</td>
<td>Department of Defense</td>
</tr>
<tr>
<td><strong>Dr. Melvin Droubay</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perdido Key Growth, Development and Habitat Project</td>
<td>2001</td>
<td>$3,500</td>
<td>Escambia County NESD</td>
</tr>
<tr>
<td>Santa Rosa County Environmental Mapping Project</td>
<td>2001</td>
<td>$5,000</td>
<td>Santa Rosa County</td>
</tr>
<tr>
<td>Contamination of Sediments in Street Sweepings + Storm Water (with Dr. Liebens)</td>
<td>1999</td>
<td>$52,000</td>
<td>Florida Center for Solid and Hazardous Waste Management</td>
</tr>
<tr>
<td>Panama City Urbanized Area Brownfields Investigation</td>
<td>1999</td>
<td>$14,364</td>
<td>Panama City Metropolitan Planning Organization + West FL Regional Planning Council</td>
</tr>
<tr>
<td>EPA Brownfields Demonstration Pilot Mapping Project</td>
<td>1999</td>
<td>$23,800</td>
<td>Escambia County</td>
</tr>
<tr>
<td>Northwest Florida Brownfields Information Center</td>
<td>1999</td>
<td>$14,000</td>
<td>US Dept. Of Commerce</td>
</tr>
<tr>
<td>Escambia County Brownfields Redevelopment</td>
<td>1998</td>
<td>$47,258</td>
<td>Escambia County</td>
</tr>
<tr>
<td>Franchise Fees in Commercial Solid Waste in Florida</td>
<td>1998</td>
<td>$30,582</td>
<td>Florida Center for Solid and Hazardous Waste Management</td>
</tr>
<tr>
<td>Brownfields Data Base and Mapping Project</td>
<td>1998</td>
<td>$26,401</td>
<td>Pensacola Metropolitan Planning Organization w/ FL Regional Planning Council</td>
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<td>Southwest Excambia County Wetlands Survey</td>
<td>1998</td>
<td>$14,905</td>
<td>Escambia County</td>
</tr>
<tr>
<td>Slide Show: Hurricanes and Endangered Species on NW FL’s Coast (with J. Liebens)</td>
<td>1997</td>
<td>$10,000</td>
<td>US Fish and Wildlife Service</td>
</tr>
<tr>
<td><strong>Dr. Johan Liebens</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mapping and Analysis of CATE Project Data</td>
<td>2002</td>
<td>$10,000</td>
<td>Escambia County, FL, Health Department:</td>
</tr>
<tr>
<td>Effects of gully erosion on nutrient loading to estuaries along the Gulf of Mexico</td>
<td>2002</td>
<td>$74,376</td>
<td>U.S. Department of Agriculture, National Research Initiative Competitive Grants Program</td>
</tr>
<tr>
<td>Effects of land use in low-</td>
<td>2001</td>
<td>$7,500</td>
<td>University of West Florida, University</td>
</tr>
<tr>
<td>Project Description</td>
<td>Year</td>
<td>Amount</td>
<td>Funding Source</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>------</td>
<td>----------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>order watersheds on sediment and nutrient input into Escambia Bay, FL</td>
<td></td>
<td></td>
<td>Research Award</td>
</tr>
<tr>
<td>Human effects and physical processes in the Great Smoky Mountains National Park: A field experience (with Dr. Stephen Thorne)</td>
<td>2000</td>
<td>$10,000</td>
<td>University of West Florida, College of Arts and Sciences, Awards for Summer Research &amp; Curriculum Development.</td>
</tr>
<tr>
<td>Paleoenvironmental reconstruction of Santa Rosa Island, FL</td>
<td>1999</td>
<td>$1,990</td>
<td>University of West Florida, Small Grants Program</td>
</tr>
<tr>
<td>Contamination of sediments in street sweepings and storm water systems: Pollutant composition and sediment reuse options (with Dr. Melvin Droubay)</td>
<td>1999</td>
<td>$77,000</td>
<td>Florida Center for Solid and Hazardous Waste Management</td>
</tr>
<tr>
<td>Distance learning program in oceanography: Request for core faculty</td>
<td>1998</td>
<td>$17,150</td>
<td>University of West Florida, Office of the Provost</td>
</tr>
<tr>
<td><strong>Dr. Klaus Meyer-Arendt</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIS Technical Support for Gulf Islands National Seashore</td>
<td>2003</td>
<td>$14,700</td>
<td>U.S. National Park Service</td>
</tr>
<tr>
<td>Greenway Project (with Dr. Chris Pierce)</td>
<td>2003</td>
<td>$250,000</td>
<td>Economic Development Council, Okaloosa County, FL</td>
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<tr>
<td>NW Florida Comprehensive Assessment (with C. Pierce)</td>
<td>2003</td>
<td>$75,000</td>
<td>Economic Development Council, Okaloosa County, FL</td>
</tr>
<tr>
<td>Partial sponsorship of Coasts Under Stress II international symposium</td>
<td>2002</td>
<td>$2,500</td>
<td>Florida Sea Grant</td>
</tr>
<tr>
<td>GIS Technical Support for Gulf Islands Nat’l Seashore</td>
<td>2002</td>
<td>$15,000</td>
<td>U.S. National Park Service</td>
</tr>
<tr>
<td>Wetlands Valuation in Escambia County, FL (with Dr. Droubay and Dr. Harper)</td>
<td>2001</td>
<td>$7,040</td>
<td>Neighborhood and Environmental Services Dept. Escambia County</td>
</tr>
<tr>
<td>Monitoring Beach Nourishment Sands at Quietwater Beach, Pensacola, FL</td>
<td>2000</td>
<td>$2,000</td>
<td>University of West Florida Faculty Small Grant Award</td>
</tr>
<tr>
<td><strong>Dr. Xiaojun Yang</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Description</td>
<td>Year</td>
<td>Amount</td>
<td>Funding Source</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
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<td>----------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Consortium for Estuarine Ecoindicator Research - Gulf of Mexico (CEER-GOM).&quot;GIS and remote sensing component&quot;</td>
<td>2001</td>
<td>$581,482</td>
<td>US Environmental Protection Agency</td>
</tr>
<tr>
<td>Dynamics of Landscape Changes in Atlanta Metropolitan Area: An Analysis of Socio-Economic and Biophysical Driving Forces</td>
<td>2001</td>
<td>$7,500</td>
<td>University of West Florida</td>
</tr>
<tr>
<td>Remote Sensing of Landscape Structure and Pattern in the Pensacola Metropolitan Region.</td>
<td>2001</td>
<td>$2,000</td>
<td>University of West Florida</td>
</tr>
<tr>
<td>Enhancing GIS Teaching and Learning With Electric Media</td>
<td>2001</td>
<td>$5,000</td>
<td>University of West Florida</td>
</tr>
</tbody>
</table>
APPENDIX F. Articulation Provided by the Departments of Mathematics & Statistics and also Biology.

Mathematics and Statistics as well as Biology are two departments that will play key supporting roles by offering courses for students entering and enrolling in this M.S. program. Below is correspondence of articulation with the chairs of those respective departments:

*****

From: "Kuiyuan Li" To: "Klaus J. Meyer-Arendt" Subject: RE: EVR grad program
Date: Thu, 14 Aug 2003 09:39:23 -0500

Dear Klaus:
Thanks for your email. Your modification is excellent. We will do everything we can to support it.

Thanks.
Kuiyuan

Kuiyuan Li, Ph.D.
Professor and Chair
Department of Mathematics and Statistics

-----Original Message-----
From: Klaus J. Meyer-Arendt [mailto:kjma@uwf.edu]
Sent: Thursday, August 14, 2003 9:30 AM
To: kli@uwf.edu
Cc: ramin@uwf.edu
Subject: EVR grad program

Kuiyuan--
Our department is preparing to seek approval to implement a graduate program in Environmental Science. We would like to list STA 4173 Biostatistics as a "foundational proficiency" for this program. Perhaps one-third of potential grad students will have already had the course, but the remainder will need to take it. I have spoken with Dr. Raid Amin, who normally teaches this course, and he supports the potential additional enrollments. By means of a return email, if you could articulate your support of our requiring this course, I would greatly appreciate it. thank you.
Klaus

************

From: "George L Stewart" To: "Klaus J. Meyer-Arendt" Subject: RE: EVR grad program
Date: Thu, 14 Aug 2003 10:45:56 -0500
Klaus: This sounds like a plan to me. We will definitely appreciate the added graduate enrollment. Consider us articulated. George

-----Original Message-----
From: Klaus J. Meyer-Arendt [mailto:kjma@uwf.edu]
Sent: Thursday, August 14, 2003 9:37 AM
To: gstewart@uwf.edu
Subject: EVR grad program

-----Original Message-----
From: Klaus J. Meyer-Arendt [mailto:kjma@uwf.edu]
Sent: Thursday, August 14, 2003 9:37 AM
To: gstewart@uwf.edu
Subject: EVR grad program George--

Our department is preparing to seek approval to implement a graduate program in Environmental Science. This program will be geared toward recent graduates of our program, environmental professionals in northwest Florida, and graduates of similar programs in other states or countries. I strongly suspect we will encourage many, if not most, of these potential graduate students to enroll in courses in your department, including Biogeography and Wetlands Ecology. There will probably also be students who will want to carve out some kind of graduate program that overlaps our two departments. While I don't think you will object to increased enrollments in your courses, I would appreciate if you could articulate your support.

Thank you.

Klaus

MELVIN DROUBAY

Publications
The Use of Franchise Fees in Commercial Solid Waste Management in Florida. Florida Center for Solid and Hazardous Waste Management, Gainesville, Florida. 2000

Presentations
“Brownfield Remediation and Universities: A Natural Partnership,” paper presented at the Florida Brownfields Conference 2002
“Mapping Environmental Problems”: Conference Session at the Southeast Journalism Conference, February 21-23, 2003 at the University of West Florida.
“Regulators and the Media” Panel Discussion Chair at the Southeast Journalism Conference, February 21-23, 2003 at the University of West Florida.

JOHAN LIEBENS

Publications

Reports and Proceedings
2003 Flanders, K. and Liebens, J. Mapping a Florida trail. GPS User, Fall, 47-51.


**Papers Presented at Professional Meetings**


2003  "Regional soil organic carbon stock estimates are influenced by assessment procedure." (M. Van Molle as 2nd author) International Quaternary Association Conference, Reno.


2002  "Mapping and managing a historic cemetery with the help of a geographic information system." 35th Conference on Historical and Underwater Archaeology, Society for Historical Archaeology, Mobile.


2001  "It's on your map." (Tyler Merritt as co-author) Southern Regional Honors Council Conference, Nashville.


2000  "Detailed mapping of a historic cemetery: Methods and applications." The 23rd Annual Applied Geography Conference, Tampa.


1999  "A spreadsheet macro to determine USDA soil textural classes." Annual Meeting of the Southeastern Division of the Association of American Geographers, Tampa.


1990  "Quaternary stratigraphy of SE Asia and its relevance for the activities of the Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas." International Symposium on Quaternary Stratigraphy and Events in Eurasia and the Pacific Region. INQUA - USSR Academy of Sciences, Yakutia, USSR.

KLAUS J. MEYER-ARENDT

Publications
Meyer-Arendt, K.J., 2001, Recreational Urbanization and Shoreline Modification along the North Coast of Yucatán, Tourism Geographies 3(1): 87-104.


Presentations


Meyer-Arendt, K.J., 2000, Recreational Urbanization and Shoreline Modification along the North Coast of
Yucatán, Mexico. Program and Abstracts, Conference of Latin Americanist Geographers Meeting, 2000 Meeting, 6-7 January, Austin, TX, p. 44.


Appendix H. Department of Environmental Studies Proposal to Establish a New Type III Center: The Center for Environmental Studies and Research (CESAR).

Background and rationale

The environment of Northwest Florida is under pressure from economic development and rapid population increase. Environmental problems have been identified in the region by national and state agencies. The City of Pensacola, for instance, has three Superfund sites, more than any other city its size. Two more Superfund sites are located in Escambia County. Various industries in the region have been accused of having a detrimental impact on the environment. Citizens have an acute interest in the environmental wellbeing of the region. Five years ago the people of Escambia and Santa Rosa County participated in a community vision process as part of a strategic social and economic planning effort for the area. They identified the environment as one of their primary concerns, together with education.

Faculty of the Department of Environmental Studies at UWF have been studying fundamental and applied environmental issues, locally and elsewhere, for a number of years. They have been heavily involved in formal and informal environmental education, and have participated in numerous service activities related to local and regional environmental issues. A brief summary of their most relevant activities is provided in the personnel section of this document.

Although various agencies and organizations are examining the environment in Northwest Florida this is an opportune time to unite the skills and experience of the faculty in the Department of Environmental Studies and related disciplines. The reasons are that there is a strong interest in the health of the environment in the region, that a myriad of real, perceived and potential environmental problems exist in the area, that relevant expertise is present at UWF, and that UWF has a unique neutral position and untarnished reputation that other entities involved in environmental work are often perceived to lack. We therefore propose to establish an environmental research center associated with the Department of Environmental Studies. The institute will be called the Center for Environmental Studies and Research (CESAR). We anticipate that a separate environmental research center will be a focal point for the external community. Even though there is no disciplinary difference, the external community will relate better to a research center than to an academic department.

Because the research emphasis of the new center will be on the basic physical components of the environment (landforms, water, soil, rock, air) and on spatial data as they relate to the environment, there will be no overlap with existing centers or institutes at UWF. In fact, there is a unique niche for a center like CESAR in Northwest Florida. The organizations and agencies that are involved in environmental research do not have the focus, breadth, and academic expertise that CESAR will have. It is generally agreed upon by environmental professionals in the region that there is a need for an institute that serves as a one-stop shopping place for information on the environment in Northwest Florida. Over time, CESAR will fulfill exactly that role.

Mission

The mission of the Center for Environmental Studies and Research (CESAR) is to support and enhance UWF’s environmental research capability, teaching endeavors, and outreach efforts. CESAR strives to generate, analyze, and disseminate scientifically sound environmental information on Northwest Florida. The center's focus is on spatial geodata as they relate to contemporaneous environmental issues in the region. The center advises, assists, and collaborates with on and off campus entities in their quest for scientifically well-grounded environmental knowledge for Northwest Florida.

Purpose and fit

The purpose of the proposed center is to centralize and coordinate environmental data and research to facilitate the creation of knowledge and the transfer of information to students and the public at large. Even though individual expertise is already present in the Department of Environmental Studies and related units, UWF will benefit from bringing together that expertise in a coherent team of environmental scientists with common goals. The external community, especially non-academics and local and regional organizations, businesses, and individuals will relate better to an environmental research unit than to an academic department. Even funding agencies will look more favorably at grant proposals from a formal unit that has disciplinary breadth, an administrative structure, and grant and contract management experience than at proposals from a few loosely associated individuals.

Establishment of CESAR is directly in line with five of UWF’s seven core values, and is consistent with the other two:
1. **Integrity (doing the right thing for the right reason):** CESAR will support environmental research and education, and can do so from an unbiased academic position because its members are genuinely and uncompromisingly interested in the environmental health of the region.

2. **Quality (dedication to uncompromising excellence):** Establishment of CESAR will lead to enhanced research, education and service at UWF because the whole (the center) is stronger than the sum of its parts (the individual faculty).

3. **Innovation (dedication to exploring and expanding the boundaries of knowledge):** One of CESAR's objectives is to promote environmental research, and thus the center will help push back the boundaries of knowledge.

4. **Teamwork (working together to achieve shared goals):** This is what CESAR is about, bringing faculty together in a center where they can work towards common goals with shared resources.

5. **Stewardship (managing and protecting our resources):** This is exactly what CESAR is about, generating an understanding of the environment that will help manage and protect the natural environment in our region and beyond.

**Objectives**

The overall goal of CESAR is to provide UWF faculty that engage in environmental research and teaching with a framework to formally combine their efforts, and thus to strengthen and expand their capabilities in order to better serve UWF, its students, and its hinterland.

The specific goals of the center are:

- to promote cooperation between UWF faculty working in the environmental field
- to encourage fundamental and applied environmental research
- to stimulate cooperation with local/regional environmental agencies and organizations
- to provide enriching experiences for faculty that lead to enhanced teaching
- to provide opportunities for students to get involved in scientific research
- to offer graduate students opportunities for research-funded assistantships and potential thesis topics
- to advance the state of the knowledge of the environment in Northwest Florida

**Activities**

The activities of CESAR will include:

- pursuing external grants for research and equipment
- seeking local and regional contracts for applied studies
- carrying out fundamental and applied environmental research
- organizing workshops in land and marine surveys for environmental applications
- organizing workshops on digital processing of environmental spatial data
- cooperating with local/regional agencies and organizations to resolve environmental problems
- involving UWF students in "real life" studies to bolster their educational experience
- supporting UWF's teaching efforts by providing faculty opportunities for professional enrichment
- informing the public of the center's activities and findings

**Benefits**

- Increased potential to generate external funding because a solid administrative structure with a primary focus on research that has assessment procedures in place will make for a more attractive partner for funding agencies
- Increased potential to generate external funding because the center as a whole will have both scientific breadth and depth, and thus it will be more obvious to funding agencies that a scientific backing for individual
center members is available (this is especially important for relative small departments and schools such as ours)

- Strengthening and expansion of research capability because individual expertise will be brought together and coordinated (unity provides strength)
- Increased exposure in the community because primary focus will be on local and regional environmental issues (but national or international projects are not excluded)
- Increased exposure in the community simply because of the existence at a local university of an institute dedicated to environmental research
- Ability to undertake large projects that can not be carried out by one or two individuals alone
- More opportunities for students to engage in "real life" studies (This is especially important for the Department of Environmental Studies because a new Master’s program is being proposed for implementation in Fall 2004. Additionally, the department has a good track record of involving undergraduates in research)
- More local/regional examples of environmental problems and solutions that students relate to for faculty to use in their classes
- More opportunities for students for internships and co-ops because of increased local/regional networking of faculty
- Better teaching by CESAR members because of increased and updated knowledge

Outcomes and assessment

It is anticipated that the establishment of the proposed environmental research center will lead to:

- more cooperation between faculty involved in environmental research
- more external grants for faculty associated with the center
- more local/regional contracts for the faculty
- better environmental education for UWF students by more knowledgeable faculty
- better informed public in the region
- better knowledge of the state of the environment in Northwest Florida
- more exposure and a better public image for UWF

These outcomes will be assessed annually by a five person committee and the center's director. The committee will consist of 2 members from UWF and 3 external members. Initially, the committee will draft annual evaluation criteria. In subsequent years the committee will apply the criteria to assess the center's performance and, if required, will formulate recommendations to help the center meet its goals. It is anticipated that this committee will also make recommendations to adjust the center's goals and activities to changes on the environmental scene. The Department of Environmental Studies has a very effective review board, composed primarily of external members. We will draw upon that experience to establish CESAR's assessment committee.
APPENDIX I. Service Activities by Department of Environmental Studies Faculty, 1995-2003.

MELVIN DROUBAY

2003 Member and Chair, Campus Conservation and Beautification Committee
2002: University Parking Committee
2002: Representative on the Regional Growth and Development Sub-committee, University Planning Council.
2001: University of West Florida, University Planning Council. College of Arts and Sciences
2001: Advisory Committee, Brownfield Site Rehabilitation Committee (specific property)
2000: Chair, Escambia County Citizens Environmental Committee, with responsibility of drafting new tree ordinance for Escambia County
1999: Chair of Technical Committee, Palafox Corridor EPA Brownfields Pilot Demonstration Project
1998: First President, Northwest Florida Chapter, Florida Association of Environmental Professionals: 1999-2000 Director
1998: Escambia County Selection Committee for Engineering Services to the County Solid Waste Division
1998 - 1999: Chair, Escambia County Brownfields Committee
1997: Florida Environmental Expo - Reviewer of Student Papers
1997, 1998, 1999: Organizing Committee Member, Northwest Florida Pollution Prevention Week and Conference (including TV shows on UWF TV)
1997: Organizer, First Focus Group, Governor's Council on Sustainable Florida Standards, held at UWF
1997 - 2000: Director and Chairman of Board, Unity Church of Pensacola
1997 - 1998: Board of Directors of World Centers of Compassion for Children
1996: Current: Member, International Task Force, Pensacola Area Chamber of Commerce
1996 - 2001: Member, Escambia County Citizen's Advisory Committee on the Environment (Appointed by a County Commissioner), charged with investigation of electronics industry for Pensacola.
1994 - 1996: Consultant to the Lewis Bear Company to develop markets in Mexico and Central America
1994 - 1995: Member, Northwest Florida Trade Missions to Mexico
1994 - 1996: Member, later Director of the World Trade Council of Northwest Florida

JOHAN LIEBENS

2003 Chairperson, Academic Search Committee, Department of Environmental Studies, University of West Florida.
2002 Chairperson, Academic Search Committee, Department of Environmental Studies, University of West Florida.
2001 Member, GIS Technician Search Committee, Department of Environmental Studies, University of West Florida.
2000 Chairperson, Academic Search Committee, Department of Environmental Studies, University of West Florida.
1999 Member, Academic Search Committee, Department of Biology, University of West Florida.
1998 Member, Teaching Incentive Program Appeals Committee, University of West Florida.
1997  Chairperson, Academic Search Committee, Department of Environmental Studies, University of West Florida.
1997  Member, Academic Search Committee, Department of Environmental Studies, University of West Florida.
1998 - 1999  Member, Information Technology Committee, University Planning Council, University of West Florida.
1998 - 1999  Chairperson, Governance and Policies Subcommittee, College Council, College of Science and Technology, University of West Florida.
1999 - 2001  Member, Distance Learning Policy and Issues Committee, University of West Florida.
1999 - 2002  Member, Advisory Board, Natural Resource Conservation Degree Program, University of Florida - Milton campus.
1997 - 2000  Member, Academic Standards Committee, College of Science and Technology, University of West Florida.
1997 - 2000  Member, and 1998 - 1999: vice chair, College Council, College of Science and Technology, University of West Florida.
2003  Member (2x), Academic Search Committee, Department of Environmental Studies, University of West Florida.
2000 - present  Member, Recycling Committee, University of West Florida.
2000 - present  Member, International Affairs Committee, University of West Florida.
2000 - present  Member, Campus Security and Safety Committee, University of West Florida.
1998  Member (2x), Counselor/Advisor Search Committee, University of West Florida.
1997 - present  Co-op adviser, Department of Environmental Studies, University of West Florida.

KLAUS J. MEYER-ARENDT

MEMBERSHIPS & OFFICES HELD:

National Level

Air & Waste Management Association (AWMA), Coastal Plains Chapter, 2000-present.
Member, Board of Directors, 2000-present.
American Geographical Society (AGS), 1982-present.
Association of American Geographers (AAG), 1975-present.
Chair, Coastal and Marine (COMA) specialty group, 2001-2003.
Member, Program Committee, 2002-2003
Chair, Recreation, Tourism, and Sport (RTS) specialty group, 1993-1995.
Conference of Latin Americanist Geographers (CLAG), 1984-present.
Member, Board of Directors, 1989-1992.
Florida Association of Environmental Professionals (FAEP), NW FL chapter, 1998-present.
Member, Scholarship Committee, 2002-present.
Florida Society of Geographers, 1999-present.
Chair, Geology & Geography Division, 1990.
Southeastern Division, Association of American Geographers (SEDAAG), 1987-present.
Member of Geography Bowl Committee, 1997-2000.
Member of Honors Committee, 1996-1997.
State Representative (elected) & Member of Steering Committee, 1990-1994.
The Coastal Society (TCS), 1984-present.

Regional USA Level

Member, Coastal and Shoreline Erosion Committee, EPA Gulf of Mexico Program, 1990-1998.

State Level

Member, North Florida Chapter, Fulbright Association, 2003-present.
Trustee, UWF Board of Trustees, 2003.
Ex officio member, UWF Board of Trustees, 2002-2003.
Member, Advisory Council of Faculty Senates (ACFS), 2001-2003.
Substitute Board Member, Florida Center for Environmental Studies (FAU), 1998.

**COMMUNITY LEVEL**
Member, Advisory Board for UF/Milton Natural Resource Conservation program, 2002-.
Member, Steering Committee for Project Greenshores (coastal restoration), 2001-present.
Member, Scenic Highway Corridor Planning Committee, 2000-present.
Member, NW Florida Legislative Natural Resources Advisory Committee, 2000-2002.
Chair, Technical Advisory Committee, Bay Area Resource Council (BARC), 1999-2001

**UNIVERSITY LEVEL**
Chair, SACS Task Force on Graduate Education, 2003-present.
President, UWF Faculty Senate, 2001-2003.
Member, Provost Search Committee, 2003.
Member, Presidential Inaugural Committee, 2002-2003.
Member, UWF Branding Committee, 2002.
Member, Presidential Search Advisory Committee, 2002.
Chair, Teaching Incentive Program (TIP) Selection Committee, 1999-2000.
Member, Search Committee for Physics position, 2000.
Chair, Teaching Incentive Program (TIP) Selection Committee, 1998-1999.
Member, Search Committee for Sociology position, 1999-2000.
Chair, SACS Task Force on Graduate Education, 2003-present.
Member, Community Liaison Committee to Update the UWF Strategic Plan, 1999-2000.
Member, Facilities Planning Committee to Reduce Energy Consumption, 1999-present.
Chair, Technical Advisory Committee, Bay Area Resource Council (BARC), 1999-2001

**COLLEGE LEVEL**
Member, CAS Dean’s Advisory Committee, 2000-2003.
Member, Dept. of Sociology & Anthropology Program Review Team, 2001.
Chair, Teaching Incentive Program (TIP) Selection Committee, 1999-2000.
Member, Teaching Incentive Program (TIP) Selection Committee, 1998-1999.
Member, Search Committee for Physics position, 2000.
Member, Search Committee for Sociology position, 1999-2000.
Faculty advisor, Green Earth Alliance (student environmental club), 2001-present.
Faculty advisor, Saving Earth’s Water & Air Resources (student environmental club), 2000-2001.

**RECENT SERVICE ACTIVITIES (TO GEOGRAPHY & ENVIRONMENTAL STUDIES):**
2003 Organizer of nine special sessions (under the heading of Coasts Under Stress II), sponsored by the Coastal/Marine specialty group, AAG meetings, New Orleans, March 5-8, 2003.
2003 Co-leader of the IGU Coastal Commission field trip from Grand Isle, LA to Pensacola Beach, FL (in conjunction with AAG meetings, New Orleans), March 9-13, 2003.
2002 Attended the Florida Society of Geographers meetings, Gainesville, FL, Jan. 18-20. (Made final commitment to hold the 2004 FSG meeting in Pensacola.)
2001 Participated in live televised Open Forum panel discussion on beach erosion, PBS, Pensacola, FL, 8-9 pm, Feb. 2.
2001 Organizer of three special sessions (Coastal Geomorphology, Coastal Weather & Shoreline Changes, & Student Paper Session), sponsored by the Coastal/Marine specialty group, AAG meetings, Los Angeles, March 19-23, 2002.

2001 Co-organized and moderated “Air Quality and Pensacola Bay: An Environmental Quality Forum” sponsored by the Bay Area Resources Council (BARC), Gulf Breeze, FL, May 16.

2001 Attended the Florida Society of Geographers meetings, Tallahassee, FL, Feb. 2-4. (Made preliminary preparations to hold the 2004 FSG meeting in Pensacola.)

2000 Prepared questions for the annual “World Geography Bowl” at the Southeastern Division, Assoc. of American Geographers meetings, Chapel Hill, NC, Nov. 18-21.


1999 Prepared questions for the annual “World Geography Bowl” at the Southeastern Division, Association of American Geographers meetings, Tampa, FL, Nov. 21-23.

1999 Moderator, Panel Discussion on Notification Procedures in Events of Beach and Waterway Closures, Bay Area Resources Council, Gulf Breeze, FL, Nov. 16.

1999 Interviewee for an audio documentary on the Impacts of Gambling Upon Tunica County, Mississippi, Mars Hill Audio, Charlottesville, VA, June 21.

1999 Speaker at Earth Day colloquium series (“Environmental Impacts of Casino Gambling in Coastal Mississippi”), Mississippi State University, April 23.


1999 Organizer and director of the MS Geographic Alliance Advanced Summer Geography Institute on “Coastal Environments”, AL/MS/LA/TX Gulf Coast, July 12-24.

1999 Organizer and director of the Mississippi Geographic Alliance Summer Geography Institute, Mississippi State University, June 14-26.

1998 Organizer (and participant) of three special sessions on “Coastal Geography” held at the MCSS/MISSISSIPPI Geographic Alliance joint annual meeting, Long Beach, MS, Oct. 22-24.


1998 Organizer and director of the Mississippi Geographic Alliance Summer Geography Institute, Mississippi State University, June 15-27.

1997 Nominated member of the World Geography Bowl Committee of SEDAAG (Southeastern Division, Association of American Geographers); prepared questions for the annual bowl at the SEDAAG meetings, Birmingham, AL, Nov. 23-25.

1997 Co-convener and co-organizer of the Mississippi Council for Social Studies/ Mississippi Geographic Alliance joint annual meeting, Jackson, MS, Oct. 24-25.

1996 Resource contact person for Mississippi, National Science Foundation project on Southeast Maps (John Wagner, Clemson University, principal investigator).


1996 Organizer and director of the Mississippi Geographic Alliance Summer Geography Institute, Mississippi State University, June 16-28.

1996 Elected member of the Honors Committee of SEDAAG (Southeastern Division, Association of American Geographers).

1995 Panelist in session (Implementing the National Standards: A Progress Report) at the SEDAAG meetings held in Knoxville, TN, Nov. 20.

1995 Organizer of three special sessions sponsored by the RTS specialty group, Association of American Geographers (AAG) meetings, Chicago, March 14-18.

1995 Guest on the TV program “Open Air”, a Mississippi ETV production dedicated to Geography Awareness Week and the importance of Geography in Mississippi schools, Nov. 19.
Proposed New Programs - History:  (This page is to be included at the end of the proposal document to display approvals at each level.)

Approved to Explore and Plan:

Dean _______________________________ Date 4/10/03

Faculty Senate ________________________ Date 5/9/03

Provost ______________________________ Date 5/13/03

President _____________________________ Date 5/14/03

BOT A&SA Committee ___________________ Date 5/24/03

Approved to Implement:

Dean _______________________________ Date __________

Faculty Senate ________________________ Date __________

Provost ______________________________ Date __________

President _____________________________ Date __________

BOT A&SA Committee ___________________ Date __________

BOT __________________________________ Date __________

FBOE Reporting and Approvals:

Bachelor’s and Master’s Programs Reported to the FBOE: _________________

Specialist and Doctoral Programs Submitted to FBOG: n.a. 
Specialist and Doctoral Programs Approved by FBOG: n.a. 
Licensure Programs approved by Legislature: n.a.

Implementation and Reporting:

Term Implemented: _______________________

One-Year Report Presented to Board of Trustees: _______________________

Three-Year Report Presented to Board of Trustees: _______________________

Five-Year Program Review Presented to Board of Trustees: _______________