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

College Requesting Program: _______Arts and Sciences________________________________

Department Requesting Program: Dept. of Environmental Studies AND Dept. of Biology

Academic Specialty or Field: _______Oceanography_____________________________________

Name of Program Requested: _______Bachelor of Science in Oceanography

Proposed Implementation Date: _______Fall 2004

Proposed Classification of Instruction Program (CIP) Code: _______40.0607

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>
</tr>
</thead>
<tbody>
<tr>
<td>First Year of Implementation</td>
<td>$43,560</td>
<td>16 / 12.0</td>
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<tr>
<td>Second Year of Implementation</td>
<td>36 / 27.0</td>
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<tr>
<td>Third Year of Implementation</td>
<td>45 / 33.75</td>
<td></td>
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<tr>
<td>Fourth Year of Implementation</td>
<td>54 / 40.5</td>
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<tr>
<td>Fifth Year of Implementation</td>
<td>$138,700</td>
<td>65 / 48.75</td>
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</table>
I. PROGRAM DESCRIPTION

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

The B.S. in Oceanography is designed to provide students with broad-based knowledge in biological, chemical, geological and physical oceanography. This 120-sh degree is based on collaboration between the Departments of Biology and Environmental Studies at UWF and will be offered via distance learning (DL). It will be a science-based program with a broad spectrum of science courses within the common prerequisites. There is sufficient expertise in the two departments involved to offer the majority of the core oceanography courses. For those few courses for which UWF lacks the appropriate expertise, we will contract the courses to personnel at the University of South Florida or Florida State University. There is only one track in this program.

The proposed program is being developed as a collaborative effort between Biology and Environmental Studies. It also engages at least eight other departments at UWF via the general studies requirements and common prerequisites. Thus, not only does this effort utilize faculty from a number of different sources on campus, but it will also provide significant income for all of those programs. This effort is in direct response to the needs of SOCNAV and NCPACE programs of the U.S. Navy and will be available internationally to Navy personnel. We submit this request to implement a distance learning B.S. in Oceanography for the following reasons: 1) this is clearly a degree that would be of significant service to the military; 2) the degree enjoys significant and enthusiastic support of SOCNAV and NCPACE administrators as a valuable and unique educational opportunity; 3) the degree has enormous student enrollment potential; 4) the B.S. in Oceanography can generate significant funding for involved units at UWF outside the mainstream of State support; and 5) this effort falls within an academic realm—environmental studies—that was identified as an “area of distinction” by the President’s Task Force for Undergraduate Program Review in 2003.

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 Bachelor of Science in Oceanography 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 of the program on May 24, 2003. The Program CCR was routed through the university and the Academic Council, and was approved by the Faculty Senate on December 12, 2003, and by the Provost December 19, 2003.

Demand for a B.S. in Oceanography is expected to be high among servicemen and – women deployed on ships or overseas, especially within the naval branches of the military. There is no such on-line B.S. in Oceanography program anywhere in the United States, and we feel that the potential for student enrollment is quite high. In 1997, it was estimated that perhaps 500 active local Navy personnel would be potential students for distance-learning programs. This re-
quest to implement is the result of discussions held with UWF administrators, oceanographers at the University of South Florida, and U.S. Navy personnel. Several meetings were held with Directors of the U.S. Navy’s Service Members Opportunities Colleges Program (SOCNAV) and the Navy College Program for Afloat College Education (NCPACE) to formulate UWF’s participation in these efforts and to assess the desirability and value of specific offerings in providing educational opportunities for military personnel. Of all of the programs that were discussed as possible offerings by UWF, a proposed distance learning-based B.S. degree in Oceanography was most enthusiastically received and strongly supported by SOCNAV and NCPACE representatives. Not only was this offering considered a “natural” for Navy personnel, but also it was noted to be the only offering of its type within the Navy’s educational matrix.

The goals of the program fall well within the framework goals of the university’s mission as outlined in the Partnership Strategic Plan. Both the focus on environmental preservation (in this case, the marine and coastal environment) and the outreach to the community (in this case, members of the armed services) are integral components of the university’s mission.

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.

1997: In the Spring of 1997, the U.S. Navy met with UWF administrators to see if UWF might be interested in offering a B.S. program in Oceanography via distance-learning. As a result of these discussions, the then-Dean of the College of Science and Technology—Dr. Ranga Rao—approached Drs. Johan Liebens and Hilde Snoeckx (the latter holding a Ph.D. in Marine Geology) to develop a curriculum for such a program in Summer 1997. After meeting with Cdr. Diunizio at NAS Pensacola, various UWF personnel (including Kitty Fouché, Grady Morein, Sneed Collard, and Sharon Hunt), and oceanographers at the University of South Florida, the core of the presently proposed curriculum was developed in Fall 1997.

1998: When Klaus Meyer-Arendt was hired as department chair in Fall 1998, he was soon contacted by Navy personnel regarding the status of the distance-learning program in Oceanography. Dean Ranga Rao had endorsed the program and forwarded the proposal to the upper administration. The proposal apparently went no further.

2002: Then-interim dean of the College of Arts and Sciences (CAS) Wes Little and other UWF personnel met with SOCNAV officials, who were very interested in receiving distance-learning programs from UWF. At a subsequent meeting, the university proposed Maritime Studies and Oceanography as two potential programs. The military officials were enthusiastic about both.

2003: Because of the enthusiastic responses, the Departments of Biology and Environmental Studies embarked upon fine-tuning and updating the previously prepared proposal. The Board of Trustees approved the Request to Explore in May 2003, and Drs. Meyer-Arendt and Stewart spoke to various groups (including the CAS Council) about the merits and benefits of such a program. The program CCR and several course CCRs were submitted, and they were routed
through the university system (CAS Council, Academic Council, etc.). By December, all requi-
site signatures for the CCRs were in place. Also, some courses serving as common prerequisites
for the Oceanography B.S. program were developed as DL courses, in part because they were
important for other programs (e.g., Maritime Studies) as well.

2004: Once all approvals for the program are in place, the two departments will actively recruit
students to begin their Oceanography DL studies in Fall 2004. The Division of Continuing Edu-
cation is anticipated to play a key role in the marketing—and the initial start-up--of this program.
Also, the new Education Technology Center under the direction of Dr. Pam Northrup will take
the lead in helping faculty prepare and package the courses for delivery. We expect two addi-
tional courses to be completed by Fall 2004, so the first enrollees can sign up for the program.
Perhaps 15-20 students are anticipated as the initial student cohort.

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 in-
quiries.) Indicate potential employment options for graduates of the pro-
gram. If similar programs exist in the Northwest Florida region, provide
data that support the need for an additional program.

Assessment of demand for a distance-learning program in Oceanography is a difficult
proposition. It may be measured by perceptions of demand, as discussed by SOCNAV and other
military officials in meetings with UWF administrators. It may also be measured by support in-
formation provided by agencies such as the National Science Foundation’s Directorate for Geo-
sciences, Division of Ocean Sciences and a document (also a Power-Point presentation) entitled
“Are We Adequately Preparing Students for Ocean Careers” by Diedre Sullivan, Bruce Ford,
and Tom Murphree of COSEE (Centers for Ocean Science Education Excellence). On a broader
note, oceanography is a field a study that develops environmental professionals who specialize in
coastal and marine issues. According to the new website OceanCareers.com, there are over
10,000 businesses and industries that employ graduates in the ocean sciences. Judging by the job
announcements posted on the website of The Coastal Society, an organization of public/private
coastal and marine professions, the employment market is quite healthy.

This distance-learning program in Oceanography—unique in the world—has been de-
dsigned for the U.S. Navy but is open to any student. The Navy claims a total of 100,000 poten-
tial students afloat and stationed at land facilities. Judging from the incredible enthusiasm dis-
played by the group of directors and associate directors of SOCNAV and NCPACE for the pro-
posed program in Oceanography, it seems reasonable to assume strong enrollment in the B.S. in
Oceanography degree. The Oceanography program will earn UWF international exposure and
will establish our University as a major player in educational service to the military.

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 A is presented on Page 32 for reference to the narrative below. The numbers in the table are cumulative and assume that students will remain in the program for only 2 years.

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.

Upper-level students who are transferring from other majors within UWF

We will make an effort not to “cannibalize” students from other programs at UWF. This B.S. program is distance learning, and classes will be by permission only. Because we see this program as appealing to students who would not normally enroll at UWF (e.g., military personnel, distant and foreign residents), resident UWF students will be discouraged from enrolling in the courses. (We prefer to see resident student in face-to-face courses and in hands-on laboratory sections.) However, there may be a few students who see this program as a means of acquiring a B.S. degree from their remote home—and not on-campus—locations. We estimate three per year by Year 5.

Students who initially entered UWF as FTIC students and who are progressing from the lower to the upper level

As noted above, this B.S. program is distance learning, classes will be by permission only, and resident UWF students will be discouraged from enrolling in the courses. However, there may be a few students who see this program as a means of acquiring a B.S. degree from their remote home locations. We estimate three per year by Year 5.

Florida community college transfers to the upper level

We anticipate that a few students in Florida community colleges will be attracted to this unique program, perhaps five per year by 2008-09.

Transfers to the upper level from other Florida colleges/universities

We anticipate that a few students in other Florida colleges and universities will be attracted to this unique program, perhaps five per year by 2008-09.

Other

This category includes the majority of Navy personnel whom this program targets, and this is where the highest numbers of enrollees will be. The potential for foreign enrollees in this program is also quite high because of the uniqueness of the program, and we estimate perhaps two or three per year once the program is well marketed. We expect to start with 10 majors the first year, increasing to perhaps 20 new majors per year by Year 5.
C. For all programs, indicate what steps will be taken to recruit and achieve a diverse student body in this program.

- Although this is a distance-learning program, we hope to appeal to a diverse cross section of students. First, the military—our primary source of students—is quite diverse in its ethnic make-up. Second, we will rely upon UWF marketing efforts to ensure a broad spectrum of enrollees.
- 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:

Students completing this distance-learning B.S. in Oceanography program will have:

1. mastered a broad base of knowledge, including general studies, that prepares them for graduate studies or entry-level professional careers.
2. mastered a broad base of knowledge in the four sub-areas of oceanography (biological oceanography, chemical oceanography, geological oceanography, and physical oceanography).
3. acquired basic skills in inductive scientific reasoning and research techniques grounded in the scientific method.
4. gained writing skills sufficient to summarize content knowledge and concepts in oceanography.
5. acquired a solid foundation in the basic sciences (chemistry, mathematics, and physics).

Sequenced course of study:

ADMISSION TO PROGRAM

The distance-learning B.S. program in Oceanography is an upper-division program. Applicants seeking admission to the program must meet all UWF requirements.

DEGREE REQUIREMENTS

Lower-Division Requirements (60 sh)

We recommend that students complete their lower-division requirements before applying to the B.S. in Oceanography program. (See Section VD on page 12.)
Upper-Division Major Requirements (35 sh)
- BSC 3xxx Coral Reefs (3)
- BSC 4263 Biological Oceanography (3)
- EVR 4023 Coastal and Marine Environments (3)
- GEO 3250/L Weather and Climate + Lab (4)
- GEO 4890/L Coastal Morphology and Processes (3)
- OCE 4xxx Geological Oceanography (3)
- OCE 4xx1 Chemical Oceanography (3)
- OCE 4xx2 Physical Oceanography (3)
- OCE 4xx3 Global Climate Change: Oceanic/Atmospheric Interactions (3)
- OCE 4xx4 Global Biogeochemical Cycles (3)
- OCE 4xx5 Remote Sensing of Oceans (4)

Upper-Division Electives (25 sh)
Sufficient 3000/4000-level electives to meet UWF’s requirement of 48 semester hours in the upper division and sufficient overall electives to meet the university’s requirement of 120 semester hours total. The following are recommended upper-division choices:

- BOT 4406 Marine Algae (3)
- GEO 4133 Applications in Remote Sensing (3)
- GEO 4151 Geographic Information Systems (3)
- GEO 4152 Applications in GIS (3)
- HIS 4284 Maritime History
- PCB 4364 Marine Ecological Physiology (3)
- ZOO 4485 Marine Mammology (3)

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.

The total number of credit hours does not exceed 120.

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

COMMON PREREQUISITES

BSC1005 General Biology for Non-Majors (3)
Survey of abiotic and biotic principles as they apply to basic structural and functional topics at the cellular, organismal, population and community levels; and the application of these principles to issues of current interest.

BSC1XXX Fundamentals of Ecology (4)
Intended for non-Biology majors who have an interest in nature and how they interact with nature. Gives general overview of ecological principles and how these principles influence the outside world around us. Imbedded are several activities that are associated
with each chapter. The activities were developed so that the student will gain a respect for ecology as well as show how ecological principles affect your daily life.

BSC 2311 Introduction to Oceanography and Marine Biology (3)
An introduction to the chemical, physical and geological features of the world ocean and the major groups of living marine organisms that inhabit it. Physical, chemical and biological interrelationships will be emphasized.

BSC 2311L Introduction to Oceanography and Marine Biology Laboratory (1)
Lab correlating with BSC 2311.

CHM 2045 General Chemistry I (3)
Chemical and physical properties, relationship between observables and concepts and the development of a theoretical framework. Topics include atomic and molecular structure, theories of bonding, properties of the elements and periodicity. Prerequisite: MAC 1105.

CHM 2045L General Chemistry I Laboratory (1)
Introduction to laboratory safety, experimental techniques, graphing of data, chemical reactivity and separations, calorimetry and volumetric analysis.

CHM 2046 General Chemistry II (3)
Continuation of CHM 2045 with emphasis on chemical calculations and problem solving. Topics include thermodynamics, equilibria, kinetics and an introduction to transition metal complexes. Prerequisite: CHM 2045, CHM 2045L.

CHM 2046L General Chemistry II Laboratory (1)
Experiments based on colligative properties, qualitative analysis, solution equilibria, kinetics, electrochemistry, radioactivity and synthesis.

GEO 1200 Physical Geography (4)
Relationship between the natural environment and humans. Weather, climate, soils, biogeography and landforms.

GLY 2010 Physical Geology (3)
Material, structures, surface features of the earth and processes that have produced them.

GLY 2010L Physical Geology Laboratory (1)
Lab correlating with GLY 2010.

MAC 2311 Analytic Geometry and Calculus I (4)
Introductory topics through differentiation and integration of algebraic functions and applications. Prerequisite: MAC 1114 and MAC 1140.

PHY 2048 University Physics I (3)
Linear and rotational motion of objects in 1, 2, and 3 dimensions, concepts of work and energy, oscillations and waves, heat and thermodynamics. Prerequisite: MAC 2311.
PHY 2048L University Physics I Lab (1)
Selected experiments in mechanics, oscillatory motion, and heat.

PHY 2053 General Physics I (3)
Mechanics, heat, waves, and sound. Prerequisite: MAC 1105.

PHY 2053L General Physics I Laboratory (1)
Selected experiments in mechanics, oscillatory motion, and heat.

STA 2023 Elements of Statistics (3)
Fundamental statistical concepts. Probability, inference, estimation, hypothesis testing. Prerequisite: MAT 1033.

UPPER-DIVISION REQUIREMENTS (MAJORS COURSES)

BSC3XXX Coral Reefs (3)
A general overview of tropical and sub-tropical coral reefs for non-biology majors. Covers basic concepts dealing with the structure, formation, biology and ecology of Atlantic and Pacific coral reefs. Includes interactive exercises, projects, and module-assessments that will reinforce major biological concepts and promote critical thinking.

BSC 4263 Biological Oceanography (3)
Biota of the oceans, including systematics, special morphological adaptations, physiology, natural history and zoogeography of plankton and nekton. Relationship between biota and the physiochemical properties of the pelagic realm.

BSC4263L Biological Oceanography Laboratory (1)
Corresponding laboratory for BSC 4263 Biological Oceanography

EVR 4023 Coastal and Marine Environments (3)
The world's ocean and its marine environments such as beaches, estuaries, coral reefs, upwelling areas, and hydrothermal vents. The physical, chemical, and biologic components that make each environment unique. Case studies of the environmental impact of anthropogenic and natural phenomena based on readings of scientific papers. Prerequisite: GLY 2010, GLY 2010L or GEO 1200, GEO 1200L.

GEO 3250 Weather and Climate (4)
Nature of individual weather elements, their measurements, and analysis over time and space. Analysis of global climate emphasizing control factors, resulting areal patterns and climatic classifications. Emphasis upon North American weather and climate patterns, microclimates, climate change, modification and related problems.

GEO 4131 Photo Interpretation and Remote Sensing (4)
Applied skills emphasizing the fundamentals of aerial photograph interpretation and basics of multiband spectral reconnaissance of the environment-multispectral photography, infrared, microwave scanning and multifrequency radar systems. Application includes
their uses in the study of cultural and biophysical phenomena. Prerequisite: GEO 3100. Corequisite: GEO 4131L.

**GEO 4890 Coastal Morphology and Processes (3)**
An introduction to the world's coastal landforms, with emphasis upon dominant processes (especially waves, tides, and currents), geographical variations, human impacts and policies and environmental concerns. Prerequisite: GEO 1200 or GLY 2010, GLY 2010L.

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

**OCE4XXX Geological Oceanography (3)**
The study of the morphology, formation, and evolution of ocean basins; of the sediments in coastal, shelf, and pelagic environments; and biogeochemical cycling. Includes paleoceanography and the sedimentary history of the ocean basins. Prerequisite: GEO 1200, GEO 1200L, GLY 2010, GLY 2010L or BSC 2311, BSC 2311L.

**OCE4XX1 Chemical Oceanography (3)**
The chemical composition of the oceans and the physical, chemical, and biological processes governing this composition in the past and present. Topic covered include cycling of carbon, nitrogen, phosphorus, silicon, and oxygen, and processes of primary production, export production, remineralization, diagenesis, and air-sea gas exchange. Prerequisite: CHM 2046, CHM 2045L.

**OCE4XX2 Physical Oceanography (3)**
An introduction to concepts in physical oceanography. Topics include: observation of temperature, salinity, density, and currents; wind-driven and geostrophic currents; density-driven circulation; upwelling; surface waves, tides, and internal waves; air/sea interaction; and waves and coastal processes. Prerequisite: MAC 2311, PHY 2048, PHY 2048L or PHY 2053, PHY 2053L.

**OCE4XX3 Global Climate Change: Oceanic/Atmospheric Interactions (3)**
The role of the world ocean on climate in the present, past, and future. Causes and effects (like sea level change) of natural climate variability on time scales of millions to a few years. Interaction of ocean and atmosphere (greenhouse gases, currents, and wind). Discussions of impact of human activity and of future climate scenarios. Prerequisite: BSC 2311, BSC 2311L, GEO 3250, GEO 3250L.

**OCE4XX4 Global Biogeochemical Cycles (3)**
The biogeochemical cycles of water, carbon, nitrogen, and sulfur; the atmosphere and oceans as reservoirs and reaction media; the fate of natural and artificial sources of carbon, nitrogen, and sulfur compounds; the interactions among the major biogeochemical cycles and global change; anthropogenic perturbation of the global carbon cycle and climate, greenhouse gases, acid rain and ozone depletion. Prerequisite: CHM 2046, CHM 2046L.
**OCE4XX5 Remote Sensing of Oceans (4)**
Provides a foundation in cartographic and remote sensing principles, and practical experience with remote sensing applications as they relate to the world's oceans. It examines basic concepts of electromagnetic radiation and its interaction with earth. Remotely sensed images from sensors such as SeaWiFS, AVHRR, and Topex/Poseidon will be discussed. Exercises will cover ocean color, sea surface temperature, altimetry, and sea ice. Prerequisite: EVR4023.

**UPPER-DIVISION ELECTIVES**

**BOT 4406 Marine Algae (4)**
Physiology, ecology, reproduction, and taxonomy of marine algae categorized as phytoplankton, periphyton, and seaweeds. Experimental evidence for effects of sea environment on algal abundance, diversity, distribution, and competition and direct experience with field and lab techniques, data analysis and manuscript writing. Electronic enhancement used. Prerequisite: BOT 2010; BOT 4503 recommended. Corequisite: BOT 4406L.

**GEO 4133 Applications in Remote Sensing (3)**
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. Prerequisite: GEO 4131 and GEO 4131L.

**GEO 4151 Geographic Information Systems (3)**
Spatial database will be queried to solve spatial problems, analyze related attributes, and produce computerized cartographic output. Examines spatial data structures, data acquisition, processing, management, manipulation, and analysis for interdisciplinary applications and research. Prerequisite: GEO 3100/L. Corequisite: GEO 4151L.

**GEO 4152 Applications in Geographic Information Systems (3)**
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. Prerequisite: GEO 4151, GEO 4151L.

**HIS 4284 Maritime History (3)**
Survey of impact of oceans, rivers and other bodies of water upon the development of mankind. Focus on settlement in maritime areas, maritime commerce, exploration, military and naval history, social intellectual and other activities and developments impacted or influenced by the sea.

**PCB4364 Marine Ecological Physiology (3)**
Interdisciplinary approach to understanding and interpreting interrelationships between
adaptation and environment in marine animals. Examines life history strategies and tactics unique to organisms found living in or around marine habitats. Specific behavioral and physiological responses of marine animals exposed to feeding, metabolic, oxic, osmotic and thermal challenges are discussed.

ZOO4485 Marine Mammalogy (3)
Application of current mammalogy principles to the study of marine mammal biology and phylogeny. Emphasizes ecology, physiology and behavior of the sixteen marine mammal families.

D. 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.

Students admitted to the upper-division program need to complete 60 semester hours of lower-division courses, ideally prior to admission to the program. This include:

1) Common Prerequisites (35 sh)

BSC 1005/L General Biology for Non-Majors + Lab (4)
BSC 1xxx/L Fundamentals of Ecology + Lab (4)
BSC 2311/L Introduction to Oceanography and Marine Biology + Lab (4)
CHM 2045/L General Chemistry 1 + Lab (4)
CHM 2046/L General Chemistry 1I + Lab (4)
GLY 2010/L Physical Geology + Lab OR GEO 1200/L Physical Geography + Lab (4)
MAC 2311/L Analytical Geometry and Calculus I (4)
PHY 2053/L General Physics I + Lab OR PHY 2048/L University Physics I + Lab (4)
STA 2023 Elements of Statistics (3)

2) Additional General Studies (23 sh)

Thirteen (13) hours of General Studies are met by courses in the Common Prerequisites list above. An addition 23 sh is thus needed. These courses may be selected from the choices listed under General Studies in the UWF catalog. One of the GS courses should be a course that meets UWF’s multi-cultural requirement. We recommend GEA 2000.

3) Other Lower-Division Electives (2)

NOTE: Several of the above courses are available in distance-learning format at UWF, and others are being prepared in that format. Courses not available in DL format at UWF are available in the form of equivalent courses at other institutions and may be used to satisfy the general studies and other lower-division requirements. An articulation agreement with local two-year institutions (e.g., PJC, OWCC) calls for those institutions to develop General Studies courses in DL format over the next several years.
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, identified “environmental programs” as programs of distinction at UWF. These programs include Biology as well as Environmental Sciences. Oceanography, which overlaps the academic realms of both departments, fits quite well into this strength of UWF.

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

1. The existing curricular strengths within the Departments of Biology and Environmental Studies. These include the study of coastal, estuarine, and marine environments.
2. UWF formerly had an excellent reputation as a center for Coastal Zone Studies, both in science as well as in policy. We would like to build upon that former reputation.
3. The Center for Environmental Diagnostics and Bioremediation (CEDB) does much research in the field of coastal and oceanographic pollution. CEDB researchers have much training in the oceanographic sciences, and their links with the Department of Biology are quite strong.
4. The newly established Educational Technology Center under the direction of Dr. Pam Northrup. Its purpose is to produce a product for marketing to potential distance-based students.
5. The proximity of the various military installations, in particular the U.S. Navy.

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.

The following narrative addresses the above statement in two parts, by department:

Part 1. The Department of Environmental Studies

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 a 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:
1) Discussions with faculty and students reveal 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 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 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 was completed in February 2004.

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 research of two separate studies by the facilities-use teams at UWF, improvements to departmental space have been made. First, a 1400-ft² room on our floor (2nd floor, Building 13) was reassigned to our department, increasing our space from 4400 ft² to 5800 ft². 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 seven 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. A separate Request to Implement an M.S. in Environmental Science degree has been prepared, and it awaits UWF Board of Trustees’ approval.

6. At the undergraduate level, the department should investigate greater flexibility among required courses, thus allowing students to focus upon specific academic sub-fields (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 changes allowing for greater flexibility will be made.
NOTE: Although the external review did not specifically address a proposed B.S. in Oceanography distance-learning program, the strengths in coastal and marine geosciences in the Department of Environmental Studies were noted by the reviewers.

Part 2. The Department of Biology

The Department of Biology underwent a 5-yr program review in 2002, as did the B.S. in Marine Biology which is an integral component foundation supporting the proposed Oceanography degree. The report of the external review team included several observations about the Marine Biology program and provided comments on programmatic weaknesses as well as suggestions for improvement in the program. These comments are organized below into “strengths”, “opportunities” and “barriers”, followed by recommendations for program improvement and what has been accomplished thus far in responding to these recommendations.

1. Strengths, Opportunities and Barriers:

   A. Strengths

   The Marine Biology program has many strengths which have been identified and described throughout the Program Review. These include:

   * Close working relationships between faculty and students on several levels.
   * Low student to faculty ratios in the classroom.
   * Young, energetic, highly motivated faculty engaged in productive scholarly activity.
   * An excellent coastal location perfect for conducting a program in Marine Biology.
   * A research vessel and a large fleet of boats and other marine-related equipment.
   * A Director of the marine activities and dive program who qualifies faculty and students in research diving, dive safety, and oversees all of the underwater and above water activities.
   * Several opportunities each year for students to accompany faculty on research expeditions to the Florida Keys, Malaysia, and other locations around the globe.
   * An excellent record of grantsmanship and publication among faculty.
   * A central facility for storage and maintenance of all of the marine-related equipment and boats.
   * A 187-acre track of pristine beach property on Santa Rosa Island preserved for conducting marine projects and collection of marine organisms.
   * Several student organizations that promote student involvement as volunteers in many worthy community and environmental causes.
   * A marine wet lab and public display facility.
   * Excellent teaching facilities and teaching of the highest quality by full-time faculty.
   * and many other strengths.

   B. Opportunities

   * The R/V Nautilus is opening new vistas in marine research and expansion of our program to include courses and research efforts that were heretofore unimaginable.
* The new wet lab and public display area will not only support new efforts in research and maintenance of marine organisms but will promote student recruitment into the program and provide yet another forum for serving the outside community.
* Establishment of a relationship with the Costa Rican government and the University of Costa Rica
* Our new “fast-track” in Marine Biology for junior college graduates should increase recruitment from this heretofore untapped pool of students.
* The marine courses included in our new certificate programs will increase enrollment in these courses, increasing faculty teaching efficiency and productivity.
* Our new SEM will broaden the research/teaching options for faculty and students and should be a valuable and heavily utilized asset for the program.
* Establishment of the proposed downtown marine facility in cooperation with the County and City will create yet another avenue for serving and interacting with the outside community, and will provide unique opportunities for teaching, research and service.
* and many other opportunities

**Barriers:**
* Recruitment of a large pool of the best grade of graduate students is impeded by low TA salaries.
* A shortage of research laboratory space will slow our efforts to hire sorely needed faculty into the program.
* The growth and expansion of the program and its survival in the face of stiff competition from new programs in Marine Biology is impeded by a shortage of qualified faculty.
* A shortage of office and lab space will slow our efforts to hire needed faculty.
* The marine services supervisor has become an integral part of a quality program in Marine Biology and we need to have his line made a permanent part of the budgets of Biology and Marine Underwater Archeology.
* For the growth and development of the program it is essential that we fill the critical need for three additional faculty in Marine Biology.
* The lack of a lab coordinator for lower division courses has an adverse effect on both the quality and consistency of key undergraduate labs, which impacts negatively on retention and recruitment of students.

Recommendations for Program Improvement:

1. The program in Marine Biology is offered through the UWF Department of Biology. This program is currently supported by five faculty and one individual specializing in Marine Vertebrate Zoology being sought in a faculty search to begin this Fall. Success in extramural funding has reduced the participation in all aspects of the program of two of the current faculty who have only 25% appointments in Biology to begin with. Thus, by Fall 2003, we will have only four full-time faculty directly involved in all aspects of the Marine Biology Program. While the program continues to attract students from around the nation, the establishment of similar programs with greater resources and more personnel have begun to erode enrollment. We have made significant strides in acquiring resources for the Marine Biology program, but these have been tied to collaborative efforts with Marine Underwater Archeology, and while this shared ef-
fort has netted our program a 53' research vessel (R/V Nautilus), a Director of Marine Facilities, an updating of our dive program, increased organization of our equipment and efforts in research and teaching, and a central facility for housing all marine-related equipment and staff, it has not resulted in acquisition of the new faculty positions so desperately needed to offer a curriculum and research opportunities which would recapture our competitive edge against the growing number of programs in this area nationwide.

Progress: We have actively sought equipment donations from a variety of sources and have enjoyed significant success in acquiring three additional boats for our fleet as well as a variety of other sorely needed equipment.

2. The Marine Biology program is a powerful recruiting tool for UWF, and the UWF Administration has been very supportive of this program. Clearly it recognizes that Marine Biology is a valuable University asset, and one that has traditionally been a good investment with a great potential for return. In order for Marine Biology to compete effectively with newer, better funded and better manned programs nationwide, it is imperative that at least three tenure-track lines be allocated to the program in addition to existing positions (at least one of which will come open during Fall 2003). These hires will dramatically broaden curricular options and research opportunities for undergraduates and will insure that we remain in the race to attract a large share of students interested in Marine Biology to UWF.

Progress: We have hired a Marine Vertebrate Biologist and a Genetist who will help broaden the course offerings and research opportunities for students. We have requested a tenure-track line for a marine systems ecologist for 2004-2005.

3. One difficulty we are currently facing, no available space for offices or research labs for new faculty, will have as heavy an impact on Marine Biology as it will on all other programs within the Department. The Department will be out of research lab space by the end of 2003 with the final of three currently active faculty recruitment efforts, and presently does not have a single free office to provide for new hires for next year, let alone our adjuncts, graduate teaching assistants and student organizations. These issues will be addressed if the Department is granted its request for a building to house the Division of Life and Health Sciences of which Biology is a key part.

Progress: Renovation of space in our building will take place in Spring 2004 and will provide two additional research labs for faculty. In addition, the administration has committed to renovate one additional lab/year until all of the labs in the building have been upgraded.

4. The space issue is especially critical in view of the fact that the building in which Biology is currently housed is 30 years old and a renovation within the last 6 years was poorly done, leaving a majority of research labs with walls that do not extend up to the ceiling, rendering these labs inadequate for the support of all research requiring a degree of cleanliness (microbiology, molecular biology, immunology, cell biology, etc.). The Chair has requested renovation of four of these labs to correct this situation and to replace cracked and deteriorating bench tops and to provide new cabinets with adequate storage space. Again, this will only serve as a stop-gap measure since a shortage of lab and office space will remain a key issue in future hires.
Progress: A new building to house Biology, Marine Biology and several sister programs in the Division of Life and Health Sciences has been established as a top fund-raising priority for 2004-2005-2006.

5. The hiring of Captain Keith Plaskett has had an enormous positive impact on all aspects of the Marine Biology and Underwater Archeology programs. He has created from scratch a dive safety program second to none. He runs annual boat and dive safety training workshops for all students actively participating in research or fieldwork. He has saved both Archeology and Biology enormous sums of money in repairs and replacement of equipment integral to both programs. He has organized all of our extensive inventory of boats, motors, tanks and other marine related equipment, oversees safe use of all of these materials by students and faculty, and maintains all of this equipment in good working order. He or his assistant personally accompany all deepwater excursions and any operations that involve diving or heavy equipment work. Both programs served by Captain Plaskett are incredibly safer, more efficient and cost effective, and growing in quality and reputation under his guidance. His expertise and hard work have been key to the acquisition of a UWF research vessel, which he has arranged through his personal and business contacts to be leased at a significant profit to the joint venture between Biology and Archeology. This project has provided, and will continue to provide, funds from outside the University for large measure of support for both programs. In view of the incredible impact that he has had on two key UWF programs, it is essential that we secure Captain Keith's continued service to the University. Accordingly, Dr. Judy Bense, Director of the Archeology Institute and I request that a half line be added to the budget of Biology and to that of Archeology Institute/Anthropology to create a permanent position for a Director of Marine Services to be shared by the two departments.

Progress: While Capt. Keith has departed UWF, Capt. Mike Lavender, who is as capable and proactive in all aspects of the marine services arena, has taken his place. We have also hired a Marine Services mechanic and created, with the help of Sponsored Projects, a Marine Services Center that houses, maintains and manages the large fleet of boats shared between Biology and Archeology. The Center has funding for the next two years and is developing leasing arrangements with the R/V Nautilus and continuing education courses that are designed to establish the center as financially self-sufficient.

6. There is a great need in Biology for a lab coordinator to provide consistency and high standards in lab sections for the larger freshman and sophomore courses. Currently we are using graduate teaching assistants in this role. While students are conscientious and hard-working in their lab assignments, the rapid and routine turnover of TAs eliminates any hope for continuity in the quality and consistency of the undergraduate experience in key lower division labs. These laboratories are central to serving both majors and non-majors and are essential in the recruitment and retention efforts of our department. Such an individual with an MS degree in Biology would be sought to supervise laboratory teaching assistants in General Biology, General Zoology, General Botany, Anatomy and Physiology, cell Biology and other courses as needed. This person would also be responsible for ordering, distribution and maintenance of equipment and supplies for the labs, and would help recruit, select and evaluate teaching assistants in the courses he/she was overseeing.
Progress: We included a lab coordinator in last year’s budget request, which made it to the last round of budget negotiations but was finally deleted from consideration. We will resubmit this position as a high priority on next year’s budget request.

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.

This program is being set up to be entirely distance-learning. We will develop the courses in conjunction with the new Educational Technology Center, and they will be made available to off-campus students. There is no such program in the United States, if not the world, at this time, and we would like to be poised to take advantage of this unique niche market.

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 33. It lists the faculty members who will be involved in this program. However, there will be no faculty FTE commitment, as all arrangements for course development will be contractual. The estimates for the equivalence in FTEs are provided.

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 34.

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 33.

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 environmental science and in oceanography in particular. The holdings, listed on the table on the next page, are more than sufficient to support a B.S. in Oceanography program. Being a distance-learning program, there will be less material on hard-copy materials anyway. (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 (which includes Oceanography and Coastal Studies) is especially current and capable of supporting the B.S. in Oceanography 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 summary sheet on page 23 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
### Pace Library holdings in LC class areas related to Environmental Studies

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<th>Call number area</th>
<th>Subject area</th>
<th>1 (1995-date)</th>
<th>2 (All pub dates)</th>
<th>3 (netLibrary)</th>
<th>4 (2 + 3)</th>
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<td>Geography, GIS, remote sensing, etc.</td>
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<tr>
<td>GC</td>
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<td>GF</td>
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<td>QC801 - QC999</td>
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<td>611</td>
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<td>SB481 - SB991</td>
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<td>200</td>
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<td>126</td>
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<td>TC203 - TC345</td>
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<td>79</td>
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### Number of Serial Subscriptions

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<th>In Environmental Studies</th>
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<tr>
<td>In Biology (with Environmental Studies emphasis)</td>
<td>30</td>
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<tr>
<td>In Chemistry (with Environmental Studies emphasis)</td>
<td>5</td>
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<tr>
<td><strong>TOTAL</strong></td>
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### Major Titles

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<th>Title</th>
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<tbody>
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<td>Applied and Environmental Microbiology</td>
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<tr>
<td>Aquatic Ecology</td>
<td>Electronic</td>
</tr>
<tr>
<td>Biodiversity and Conservation</td>
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<td>The Ecologist</td>
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<td>Environment International</td>
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<td>Environmental Ethics</td>
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<td>Environmental Management</td>
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<tr>
<td>Environmental Pollution</td>
<td>Electronic</td>
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<tr>
<td>Ethics and the Environment</td>
<td>Electronic</td>
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<tr>
<td>Forest Ecology and Management</td>
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<tr>
<td>Global Environmental Change</td>
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<tr>
<td>Global Environmental Politics</td>
<td>Electronic</td>
</tr>
<tr>
<td>Journal of Applied Ecology</td>
<td>Print/Online</td>
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<tr>
<td>Journal of Coastal Research</td>
<td>Print</td>
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<td>Journal of Ecology</td>
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<td>Journal of Environmental Economics and Management</td>
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<td>Marine Environmental Research</td>
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<td>Remote Sensing of Environment</td>
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### Abstracting and Indexing Services

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<tr>
<td>Agricultural and Environmental Biotechnology Abstracts</td>
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<td>Biological and Agricultural Index</td>
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<td>Ecology Abstracts</td>
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<td>Environmental Sciences and Pollution Management</td>
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Sample Titles for which UWF has Electronic Full-Text Journal Access

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<tbody>
<tr>
<td>Environment Bulletin</td>
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<tr>
<td>Environmental &amp; Planning Law Journal</td>
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</tr>
<tr>
<td>Environmental technology</td>
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<td>Journal of Climate</td>
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<td>Journal of Environmental Quality</td>
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<td>Pollution Engineering</td>
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<td>Water Quality Research Journal of Canada</td>
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<td>World Watch</td>
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The Pace library also maintains a more complete listing 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. This latter category includes journals with a marine, coastal, and oceanographic focus, thus making them ideal for linking to distance-based students enrolled in the B.S. in Oceanography program.

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 in the Department of Environmental Studies (EVR) and the Department of Biology includes:

- Fourteen dedicated laboratory classrooms (in EVR 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; in Biology rooms 118, 122, 111, 107, 140 and 144 on the second floor of Bldg 58, and 67, 61 and 27 on the first floor of Bldg. 58; as well as 201 and 207 in Bldg. 58A)

- Two research laboratories (the hydrogeology lab, room 13/221a; the sediments lab, room 13/213) in EVR and 16 research laboratories in Biology.

- One GIS computer lab (GeoData Center) (capacity: 20, room 13/216) in EVS and two state-of-the-art computer labs, an electron microscopic facility, and animal facility, a shop, 8 prep rooms, a common equipment lab, a wet lab, a large marine
services center where all of the boats and marine-related equipment is housed and maintained, and two greenhouses.

- Faculty offices (8 in EVR and 18 in Biology) and main office reception areas.
- One conference/seminar room, which includes a map repository (13/202), in EVR and two conference rooms in Biology
- Weather station and storage shed (roof of Bldg. 13)
- Plenty of field space, including the UWF property on Santa Rosa Island

As the B.S. in Oceanography program develops, one of the faculty offices (present used by a senior research scientist) may be converted into space for a program administrator and teaching associate to keep up correspondence with the students enrolled in the various courses.

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. The Department of Biology has a long list of modern research equipment purchased mostly on grants which supports the application of molecular and biochemical as well as less sophisticated research in the marine sciences. The R/V Nautilus and a fleet of 10 boats of different sizes as well as a long-list of marine–related equipment and tools provide unlimited opportunities for faculty and student research in the marine sciences.

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

Not applicable. This is a distance-learning program, and no scholarships or fellowships will be awarded.

f. Internship sites

Both departments have placed undergraduate interns in a variety of employment sectors in the Pensacola area. 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. However, there will be no internship requirements for the distance-learning students enrolled in the B.S. in Oceanography program.

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 B.S. in Oceanography program. No capital expenditures for instruction or research space is foreseen at this time, although space may become necessary if the program is highly successful.

The following summarizes needs in terms of resources by Year 5:

Other Personal Services (OPS)
Estimated at $20,000, for graduate student assistance, which will be covered by the revenues generated by tuition.

Expenses
Estimated at $3000, for office expenses, to be paid by the revenues generated by tuition.

Equipment
Estimated at $5000, for computers, to be paid by the revenues generated by tuition.

Technology
A distance-learning program requires additional technology expenses. We estimate $3000 for such expenses annually, to be paid by the revenues generated by tuition.

Learning Resources
Estimated at $2000, to be paid by the revenues generated by tuition.

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?

Faculty are available to develop the on-line courses during the summer. The UWF Provost’s Office has committed a certain amount of funds to assist in developing on-line courses through the new Educational Technology Center. We plan to develop a minimum of two courses per year until all are available in DL format.

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 35. Under the Instruction & Research section, items listed under “current” as well as “new” will be funded out of revenue distributions from tuition generated via this program.

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.

We have entered into negotiations with researchers at the University of South Florida to provide on-line courses in the subject areas in which UWF does not have the capability. General counsel Ms. Gina Delulio has stated that such contractual arrangements are easy to execute. Florida State University also has expertise in Oceanography, and we may contact them as well once this program is approved to implement.

B. Describe any other projected impacts on related programs, such as prerequisites, required courses in other departments, etc.

The B.S. in Oceanography program is an upper-division program. All of the core courses in this program are taught by the two departments (Biology and Environmental Studies), as are half of the suggested upper-level electives. Students that are admitted into this program are expected to take care of their lower-division requirements before being admitted to the program. All of the lower-division requirements, including the Common Prerequisites and General Studies courses are available on-line at other institutions (including the University of Maryland at Montgomery County). It is anticipated, however, that as distance-learning expands at UWF, many of the lower-division courses will be made available locally in DL format, at least by our local two-year institutions.

VIII. COMMUNITY COLLEGE ARTICULATION

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

At the undergraduate level, both departments have 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 articulation has not specifically included Oceanography, however. Recently, UWF entered into articulation agreements with PJC and OWCC to provide DL versions of General Studies courses, to tie right in to new distance-learning initiatives.
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 Oceanography 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.

Since this is a newly proposed program, there is no track record for it yet. The market for distance-learning students is also volatile and not well understood. However, the Department Chair of Environmental Studies—Klaus J. Meyer-Arendt—came to UWF from a department (Geosciences) at Mississippi State University that developed distance-learning courses in the late 1980s (with a private $30,000 loan), including one to the U.S. Navy. The Department of Geosciences now offers three D-L programs, has hired a dozen instructors and program support personnel, and brings in over $1 million/year into the department.

Although there is no track record yet, the following applies to the Department of Environmental Studies in general:

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 below 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.
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).

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 of Environmental Studies, the graph (next 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 begun to climb—over 10% during the last academic year. The data on the graph below actually underestimate enrollments because Directed Study or Honors courses are not included.

Official enrollment statistics kept by the UWF Office of Institutional Research (bottom graph on the next page) show trends that are somewhat similar to those shown by Department of Environmental Studies data (here 2001 = Summer and Fall 2001 + Spring 2002). 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 of Environmental Studies 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 two departments (Biology and Environmental Studies) have been especially productive in terms of research. This can be measured in success in attracting external funding as well as in terms of publications, professional presentations, and the like. The Appendix, beginning on page 36, lists key publications and research activities of departmental personnel who will contribute to this proposed B.S. in Oceanography program.

3. Service

The departments have an excellent record of service, especially in the local area. Johan Liebens conducted the bathymetric surveys for Project Greenshores, a successful community shoreline restoration project. Klaus Meyer-Arendt served as chairman of the Technical Advisory Committee of the Bay Area Resources Council (BARC), a regional environmental advisory body. He is also a board member of the local chapter of the Air & Waste Management Association (AWMA). Dick Snyder has conducted numerous water quality studies for local jurisdictions, and he serves as a member of the Northwest Florida Legislative Delegation Environmental Advisory Group (as does Meyer-Arendt). These are but a few of the examples of service performed by Biology and Environmental Studies faculty in the community.

XI. HISTORY

Provide a history page at the end of the proposal document to display approvals at each level (see page 51 at the end of this document).
### UWF Table One A

**Number of Anticipated Majors from Potential Sources**

**Baccalaureate Degree Program**

**Name of Program:** B.S. in Oceanography  
**CIP Code:** 40.0607

<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>
<th>HC</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper-level students who are transferring from other majors within UWF</td>
<td>1</td>
<td>0.75</td>
<td>3</td>
<td>2.25</td>
<td>4</td>
<td>3.00</td>
<td>5</td>
<td>3.75</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Students who initially entered UWF as FTIC students and who are progressing from the lower to the upper level</td>
<td>1</td>
<td>0.75</td>
<td>3</td>
<td>2.25</td>
<td>4</td>
<td>3.00</td>
<td>5</td>
<td>3.75</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Florida community college transfers to the upper level</td>
<td>2</td>
<td>1.5</td>
<td>5</td>
<td>3.75</td>
<td>6</td>
<td>4.5</td>
<td>7</td>
<td>5.25</td>
<td>9</td>
<td>6.75</td>
</tr>
<tr>
<td>Transfers to the upper level from other Florida colleges/universities</td>
<td>2</td>
<td>1.5</td>
<td>5</td>
<td>3.75</td>
<td>6</td>
<td>4.5</td>
<td>7</td>
<td>5.25</td>
<td>9</td>
<td>6.75</td>
</tr>
<tr>
<td>Other (Explain)</td>
<td>10</td>
<td>7.5</td>
<td>20</td>
<td>15.0</td>
<td>25</td>
<td>18.75</td>
<td>30</td>
<td>22.5</td>
<td>35</td>
<td>26.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>12.0</td>
<td>36</td>
<td>27.0</td>
<td>45</td>
<td>33.75</td>
<td>54</td>
<td>40.5</td>
<td>65</td>
<td>48.75</td>
</tr>
</tbody>
</table>

Notes:  
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 40 credit hours for undergraduate courses. The average student is calculated as 0.75 FTE (30 sh/year) and graduating within two years of entering the upper-division B.S. in Oceanography program.
**UWF TABLE TWO**

**FACULTY PARTICIPATION IN PROPOSED DEGREE PROGRAM BY FIFTH YEAR**

<table>
<thead>
<tr>
<th>Faculty Code (see below)</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</td>
<td>EVR</td>
<td>Professor</td>
<td>Tenured</td>
<td>Ph.D.</td>
<td>2004</td>
<td>0.0 FTE</td>
</tr>
<tr>
<td>A</td>
<td>Liebens</td>
<td>EVR</td>
<td>Associate Professor</td>
<td>Tenured</td>
<td>Ph.D.</td>
<td>2005</td>
<td>0.0 FTE</td>
</tr>
<tr>
<td>E</td>
<td>Snoeckx</td>
<td>EVR</td>
<td>Adjunct Instructor</td>
<td>Non-tenured</td>
<td>Ph.D.</td>
<td>2004</td>
<td>0.5 FTE</td>
</tr>
<tr>
<td>D</td>
<td>Bennett</td>
<td>BIO</td>
<td>Assistant Professor</td>
<td>Tenured</td>
<td>Ph.D.</td>
<td>2004</td>
<td>0.2 FTE</td>
</tr>
<tr>
<td>A</td>
<td>Jeffrey</td>
<td>BIO/CEDB</td>
<td>Associate Professor</td>
<td>Tenured</td>
<td>Ph.D.</td>
<td>2005</td>
<td>0.0 FTE</td>
</tr>
<tr>
<td>A</td>
<td>Pomory</td>
<td>BIO</td>
<td>Assistant Professor</td>
<td>Tenure-track</td>
<td>Ph.D.</td>
<td>2005</td>
<td>0.0 FTE</td>
</tr>
<tr>
<td>A</td>
<td>Snyder</td>
<td>BIO/CEDB</td>
<td>Associate Professor</td>
<td>Tenured</td>
<td>Ph.D.</td>
<td>2005</td>
<td>0.0 FTE</td>
</tr>
<tr>
<td>E</td>
<td>New hire</td>
<td>EVR</td>
<td>Administrative Assoc.</td>
<td></td>
<td></td>
<td>2006</td>
<td>0.5 FTE</td>
</tr>
<tr>
<td>E</td>
<td>New hire</td>
<td>EVR</td>
<td>Research Associate</td>
<td></td>
<td></td>
<td>2006</td>
<td>1.0 FTE</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></td>
</tr>
<tr>
<td>B</td>
<td>Current General Revenue</td>
<td>New Faculty -- To Be Hired on Existing Vacant Line</td>
<td></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>0.2 FTE</td>
</tr>
<tr>
<td>E</td>
<td>Contracts &amp; Grants</td>
<td>New Faculty -- To Be Hired on Contracts &amp; Grants</td>
<td>2.0 FTE</td>
</tr>
</tbody>
</table>

**Overall Total for 5th Year** 2.2 FTE
Narrative (based in part on questions listed on page 20):

1) There are sufficient faculty members with expertise in oceanography to kick-start this upper-level distance-learning B.S. program in Oceanography. The development of the courses will be done either as part of the normal teaching assignment of the instructors or with summer or overload stipends (on the order of $3000-$5000 per class). Most of the faculty listed on Table 2 will be involved in the development of the courses but not in the administration of the courses. Dr. Pam Northrup, not listed on Table 2, will need to devote perhaps 0.2 of her time to help develop the courses, but her expertise will no longer be needed by Year 5. Dr. Hilde Snoeckx, a Ph.D. in Marine Geology, will serve as initial program administrator as well as distance-instruction coordinator in this program. As the program grows, and more students enroll, an administrative assistant (half-time) and a research associate (full-time) will be needed to maintain the program. We anticipate starting this program through the Division of Continuing Education, so that tuition/fee revenues can operate the program and generate resources for the Departments of Biology and Environmental Studies as well as the College of Arts and Sciences and the University.

In terms of experience in oceanography, the faculty are fully capable of developing the courses needed for a top-notch B.S. program in Oceanography. The appendix includes a record of publication, grants, and ship-time experience for the principal UWF participants.

2) There is no need for any new faculty to begin this program. There are at least eight UWF faculty members (or adjunct instructors) with expertise in Oceanography (Appendix). However, UWF personnel do not have expertise in all aspects of Oceanography, and contractual arrangements with personnel at the University of South Florida are the most viable solution to this minor problem. One meeting at the USF campus was quite positive, and oceanographers expressed interest in entering into contractual agreements with UWF.
## Costs for Proposed Program

<table>
<thead>
<tr>
<th></th>
<th>First Year</th>
<th>First Year</th>
<th>Fifth Year</th>
<th>Fifth Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General Revenue</td>
<td>Contracts &amp; Grants</td>
<td>Summary</td>
<td>General Revenue</td>
</tr>
<tr>
<td></td>
<td>Current</td>
<td>New</td>
<td></td>
<td>Current</td>
</tr>
<tr>
<td><strong>Instruction &amp; Research</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positions (FTE)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>A&amp;P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USPS</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Salary Rate</strong></td>
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<td></td>
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<tr>
<td>Faculty</td>
<td>30,000</td>
<td></td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td>A&amp;P</td>
<td></td>
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<tr>
<td>USPS</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>30,000</td>
<td></td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td><strong>I&amp;R</strong></td>
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<tr>
<td>Salaries &amp; Benefits</td>
<td>39,000</td>
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<tr>
<td>Other Personal Services</td>
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<tr>
<td>Expenses</td>
<td>1,000</td>
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<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>1,000</td>
<td></td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Learning Resources</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Special</td>
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<tr>
<td>Total I&amp;R</td>
<td>41,000</td>
<td></td>
<td>41,000</td>
<td></td>
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<tr>
<td><strong>Non-I&amp;R</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Activities</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Library Staffing</td>
<td>480</td>
<td>480</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Univ Support</td>
<td>1,200</td>
<td>1,200</td>
<td>5,000</td>
<td>5,000</td>
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<tr>
<td>Financial Aid</td>
<td>280</td>
<td>280</td>
<td>1,200</td>
<td>1,200</td>
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<tr>
<td>Student SvCs</td>
<td>600</td>
<td>600</td>
<td>2,500</td>
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<tr>
<td>Total Other Activities</td>
<td>2,560</td>
<td>2,560</td>
<td>10,700</td>
<td>10,700</td>
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<tr>
<td><strong>Summary</strong></td>
<td>41,000</td>
<td>2,560</td>
<td>43,560</td>
<td>14,980</td>
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</table>
APPENDIX. Publications and Research Activities of Key Faculty of the Departments of Biology and Environmental Studies, 1990-2003.

WAYNE BENNETT
Assistant Professor of Vertebrate Physiology
University of West Florida, Pensacola, Florida

EDUCATION:
Ph.D., Animal Physiology
University of North Texas, Denton, Texas
Major Advisor: Dr. Thomas L. Beitinger.
1994

M.S., Biological Science
University of Texas, Pan American, Edinberg, Texas
Major Advisor: Dr. Frank W. Judd.
1990

B.S., Biological Science
Michigan State University, East Lansing, Michigan
1980

PUBLICATIONS:


RESEARCH GRANTS:
Florida Institute of Oceanography – $12,000. Title: Use of Marginal Habitats by Reef Fishes of the Dry Tortugas (Funded Summer 2001).

College of Arts and Sciences, Student Travel Grant Proposal – $738. Title: Funding for Student Accommodations at the Southern Division Meeting of the American Fisheries Society (Funded Spring 2001).

Florida Institute of Oceanography – $8,000. Title: A study of Ichthyofauna and Reef Ecology of the Dry Tortugas (Funded Summer 2000).

University of West Florida, Enhancement Funds Proposal - $110,000. Title: Construction of a Marine Research Facility (Funded 2000).

College of Arts and Sciences, Enhancement Fund Proposal – 10,000. Title: Funding for a Public Display and Education Materials (Funded 2000).

Florida Department of Environmental Protection & Benedict Engineering Co., Inc., – $103,869. Title: Biological Monitoring of Porous Groyne Installation at Eglin AFB (Funded Fall 2000).

Office of Research and Graduate Studies - $8,250. Graduate students in my laboratory have awarded either $250 or $500 for their theses proposals from 1999 to present.

Florida Sea Grant Research Proposal – $30,000. Title: Modeling effects of near-lethal high temperature exposure on Florida estuarine fishes (not funded in 2000)

Florida Sea Grant Research Proposal – $23,000. Title: Bioenergetics modeling of differential growth rates of largemouth bass, Micropterus salmoides, in estuarine and freshwater habitats (not funded in 2000)

Solutia Inc., grant-in-aid of research in science and technology – $1,500. Award of to support a proposal titled “Characterization of the Methodological and Physiological Bases of Discrepancy Between Dynamic and Static Thermal Tolerance Limits” (Summer 1998).

CoST Award for curriculum and research development – Awarded 0.25 reduction in summer requirement to pursue proposed research titled “Temporal and Spatial Reproductive Resource Partitioning between Gulf Toadfish (Opsanus beta) and Florida Blenny, Chasmodes saburrae” (Summer 1998).

National Research Council competitive postdoctoral grant - 1995 & 1996 - The grant included $32,000 annual stipend and $40,000 start-up funding and incidental expenses. Initially awarded for 1995, the grant (annual stipend and incidental expenses) was renewed for 1996. Resigned grant in September of 1996 to accept a position of Visiting Assistant Professor at University of West Florida.

WADE JEFFREY

2000-pres. Associate Professor, Department of Biology and Center for Environmental Diagnostics and Bioremediation (CEDB). University of West Florida, Pensacola, FL.

EDUCATION

Dissertation Title: Validation of [3H]thymidine incorporation and its application to detecting natural transformation in the environment Dissertation Advisor: John H. Paul

Thesis Title: The activity of attached and free-living estuarine bacteria Thesis Advisor: John H. Paul

B.S. Biology. Virginia Polytechnic Institute and State University, Blacksburg, Virginia, 1981.

PUBLICATIONS


RESEARCH CRUISE EXPERIENCE
1982 R/V BELLOWS, 2 days, Gulf of Mexico, G. Vargo, Chief Scientist
1983 R/V BELLOWS, 6 days, Gulf of Mexico, S. Vargo, Chief Scientist
1984 R/V BELLOWS, 6 days, Gulf of Mexico, Ken Carder, Chief Scientist
1985 R/V BELLOWS, 5 days, Dry Tortugas, J.H. Paul, Chief Scientist
1985 R/V SUNCOASTER, 14 days, Gulf of Mexico, J.H. Paul, Chief Scientist
1986 R/V BELLOWS, 6 days, Gulf of Mexico, W.H. Jeffrey, Acting Chief Scientist
1987 R/V BELLOWS, 5 days, Dry Tortugas, J.H. Paul, Chief Scientist
1988 R/V BELLOWS, 6 days, Cay Sal, Bahamas, J. Paul, Chief Scientist
1990 R/V CAPE HATTERAS, 8 days, Bahamas, J.H. Paul, Chief Scientist
1992 OSV P. W. ANDERSON, 8 days, Northern Gulf of Mexico, R.B. Coffin, Chief Scientist
1992 R/V BELLOWS, 5 days, Northeastern Gulf of Mexico, W.H. Jeffrey, Chief Scientist
1992 R/V GYRE, 5 days, Northern Gulf of Mexico, L. Cifuentes, Chief Scientist
1992 OSV P. W. ANDERSON, 8 days, Northern Gulf of Mexico, W.H. Jeffrey, Chief Scientist
1993 R/V CAPE HENLOPEN, 3 days, Bermuda (BATS), J.W. Ammerman, Chief Scientist
1993 OSV P. W. ANDERSON, 9 days, Key West, FL, R.B. Coffin, Chief Scientist
1994 OSV P.W. ANDERSON, 7 days, Northern Gulf of Mexico, R.B. Coffin, Chief Scientist
1994 R/V BELLOWS, 5 days, Northeastern Gulf of Mexico, W.H. Jeffrey, Chief Scientist
1994 R/V BELLOWS, 4 days, Northeastern Gulf of Mexico, W.H. Jeffrey, Chief Scientist
1994 OSV P.W. ANDERSON, 4 days, Gulf of Mexico, R.B. Coffin, Chief Scientist
1995 R/V LONGHORN, 10 days, Gulf of Mexico, C. Suttle, Chief Scientist
1995 R/V POLAR DUKE, 40 days, Gerlache Straits, Antarctica, W.H. Jeffrey, Chief Scientist
1996 R/V POLAR DUKE, 40 days, Gerlache Straits, Antarctica, W.H. Jeffrey, Chief Scientist
1997 R/V POLAR DUKE, 22 days, Chile to Louisiana, W.H. Jeffrey, Chief Scientist
1997 R/V BELLOWS, 4 days, Biol. Oceanogr. Teaching Cruise, W.H. Jeffrey, Chief Scientist
1998 R/V BELLOWS, 3 days, Oceanogr. Tech. Teaching Cruise, W.H. Jeffrey, Chief Scientist
1998 R/V LAWRENCE M. GOULD. 40 days, Weddell Sea, Patrick Neale, Chief Scientist
1999 R/V BELLOWS, 3 days, Oceanogr. Tech. Teaching Cruise, W.H. Jeffrey, Chief Scientist
2000 R/V BELLOWS, 3 days, Oceanogr. Tech. Teaching Cruise, W.H. Jeffrey, Chief Scientist
2000 RVIB NATHANIAL B. PALMER, 25 days, Chile to Louisiana, W. Jeffrey, Chief Scientist
2000 R/V BELLOWS, 4 days, Biol. Oceanogr. Teaching Cruise, W.H. Jeffrey, Chief Scientist

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2001  R/V BELLOWS, 3 days, Oceanogr. Tech. Teaching Cruise, W.H. Jeffrey, Chief Scientist
2001  R/V PELICAN, 13 days, Gulf of Mexico, W.H. Jeffrey, Chief Scientist

GRANTS AND CONTRACTS


National Science Foundation. *Ultraviolet radiation induced DNA damage in bacterioplankton in the southern ocean*. Principal Investigator. 8/1/95 - 7/31/98. $421,041.


National Oceanographic and Atmospheric Administration National Undersea Research Program. *Ultraviolet radiation induced DNA damage in corals of the northeastern Gulf of Mexico*. Principal Investigator. 4/1/97 - 6/1/99. $37,876


National Science Foundation. *Ultraviolet radiation induced DNA damage in bacterioplankton in the southern ocean. II*. Photochemical & trophic interactions and seasonal patterns of UV response. Principal Investigator. 8/1/98 - 7/31/01. $344,422. (Total project budget: $759,522).

National Science Foundation. *UV effects on marine production by bacteria and phytoplankton: Assessing the impact of UVB*. Co-Principal Investigator. 10/1/98 - 9/30/01. $156,697 (Total project budget: $ 335,750).


National Science Foundation. *Ultraviolet radiation induced DNA damage in bacterioplankton in the southern ocean*. Supplemental Funding: Latitudinal effects of ultraviolet radiation on marine microbial communities and molecular diversity of genes important in biogeochemical cycles. Principal Investigator: $12,810

National Science Foundation. *UV effects on marine production by bacteria and phytoplankton: Assessing the impact of UVB*. Supplemental Funding: *Summer Research Experience for Undergraduates (REU)*. Principal Investigator. $5000.


National Science Foundation: *LexEn Collaborative research: Glacial Ahitchhiking: A mechanism for bacterial speciation in an extremely cold environment.* Co-Principal Investigator. 10/1/00 - 9/30/03. $138,459. (Total project budget: $500,000)


University of West Florida. University Summer Research Award. *Spatial Heterogeneity of marine bacterial community structure and function.* Principal Investigator. $7,500 (declined).

National Science Foundation. *Ultraviolet radiation induced DNA damage in bacterioplankton in the southern ocean.* Supplemental Funding: *Summer Research Experience for Undergraduates (REU).* Principal Investigator. $5,000.

**JOHAN LIEBENS**

2001 - present  
Associate professor, Department of Environmental Studies, University of West Florida.

**Education**

**Ph D** (Geography) Michigan State University, 1996  

**M Sc** (Quaternary geology) Free University Brussels, Belgium, 1983  
*Thesis:* Investigation of the Quaternary in relation to the prospecting of the "stone of Balegem".

**B Sc** (Geography) Free University Brussels, Belgium, 1981  
*Thesis:* The influence of geographical factors on the distribution of heavy fog in the region of Lummen and Halen (Belgium).

**Publications**

2003  
Liebens, J. and Van Molle, M. Effect of estimation procedure on soil organic carbon stock assessments in Flanders, Belgium. *Soil Use and Management* [page #s missing]

2003  
Liebens, J. Map and database construction for a historic cemetery: Methods and applications. *Historical Archaeology*, 37(4):56-68.

2001  

2001  

2000  

2000  

1999  

1997  

1995  

1991  

**Research Grants**

<p>| Mapping and Analysis of CATE Project Data | 2002 | $10,000 | Escambia County, FL, Health Department: |
| Effects of gully erosion on nutrient loading to estuaries along the Gulf of Mexico | 2002 | $74,376 | U.S. Department of Agriculture, National Research Initiative Competitive Grants Program |
| Effects of land use in low- | 2001 | $7,500 | University of West Florida, University Research |</p>
<table>
<thead>
<tr>
<th>Order watersheds on sediment and nutrient input into Escambia Bay, FL</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human effects and physical processes in the Great Smoky Mountains National Park: A field experience (with Dr. Stephen Thorne)</td>
<td>2000 $10,000</td>
</tr>
<tr>
<td>Paleoenvironmental reconstruction of Santa Rosa Island, FL</td>
<td>1999 $1,990</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 $77,000</td>
</tr>
<tr>
<td>Distance learning program in oceanography: Request for core faculty</td>
<td>1998 $17,150</td>
</tr>
</tbody>
</table>

**KLAUS J. MEYER-ARENDT**

Professor and Chair, Department of Environmental Studies, UWF (since 1998)

**Education**

Ph.D., Coastal Geography, Louisiana State University, 1987  
M.A. Geography, Louisiana State University, 1979  
B.A., Geography, Portland State University, 1975

**Selected Publications**


Meyer-Arendt, K.J., 1993, Geomorphic Impacts of Resort Evolution along the Gulf of Mexico Coast: Applicability


**GRANTS & RESEARCH:**

- Research Grant: Greenway Project. Economic Development Council, Okaloosa County, FL, $250,000. May -December 2003. (with Dr. Chris Pierce, Haas Center)
- Research Grant: Northwest Florida Comprehensive Assessment. Economic Development Council, Okaloosa County, FL, $75,000. February -April 2003. (with Dr. Chris Pierce)
- Research Grant: Valuation of Wetlands in Escambia County, Florida. Neighborhood and Environmental Services Department, Escambia County, $7,040. October 2001-April 2002. (with Drs. Mel Droubay & Rick Harper)
- Research Grant: Monitoring Beach Nourishment Sands at Quietwater Beach, Pensacola, FL, Faculty Small Grant Award, Univ. of West Florida, $2,000. April-September 2000.
- Teaching Grant: Coastal Environments: An Advanced Summer Geography Institute, MS Geography Education Fund, National Geographic Society, $20,000, June-August 1998.
- Research Grant: Wetlands Mapping of Coastal Mainland Mississippi, Office of Geology, MS Department of
Environmental Quality (DEQ), $5,661, January-June 1994.

Research Grant: Mississippi Coastal Geology & Regional Marine Study (year 3): Beach and Nearshore Sediment Budget of Harrison County, Mississippi: A Historical Analysis & Geomorphic Mapping of Coastal Mainland Mississippi, Office of Geology, MS DEQ, $11,457, January-September 1993.


Research Grant: Mississippi Coastal Geology & Regional Marine Study (year 1): Historical Human Modification of Mississippi's Mainland Shoreline, Office of Geology, MS DEQ, $15,000, January-June 1991.


CHRISTOPHER POMORY

Assistant Professor. Department of Biology, University of West Florida, Pensacola, Florida: 2000 - present.

Education


M.S. Zoology, 1990. Texas A&M University, College Station, Texas.


Publications


**HILDE SNOECKX**

Coordinator, B.S. in Oceanography Program, University of West Florida, 2004-.

Adjunct instructor, Department of Environmental Studies, University of West Florida, 1996-present.

Adjunct instructor, Department of Biology, University of West Florida, 1999-2001.

**Education**

Ph.D. (Oceanography: Marine Geology and Geochemistry), University of Michigan, 1995.


B.Sc. (Geography), Vrije Universiteit Brussel, 1982.

**Selected Publications**


**RICHARD SNYDER**

Associate Professor, Center for Environmental Diagnostics and Bioremediation (CEDB) and Biology Department,
University of West Florida, 2002-present.

Education

M.S., Ph.D. in Zoology, 1989
University of Maryland, College Park. Dissertation Title: *Chemosensory Mediated Reactions of a Suspension Feeding Ciliate Protist to Surface Compounds of its Bacterial Prey.*

Graduate Study in Oceanography & Salt Marsh Ecology, 1982-83
Virginia Institute of Marine Science, College of William & Mary, Gloucester Point, Virginia

B.S. Biology, 1980
College of Charleston, Charleston, South Carolina.

Publications


Research Grants


Assessing fisheries as vectors for toxic materials from the environment to humans. Snyder, R.A., Centers for Disease Control (Part of larger PERCH project; R. Rao, PI) $397,098


Microbial Biofilms as indicators of estuarine ecosystem condition. J.E. Lepo & R.A. Snyder, U.S. EPA (2001-2005) $1,563,111 (part of a consortium proposal, $5,000,000 total).


Biological Survey of FCT Project #96-035-P7A Holmes County Wrights Creek site. R.A. Snyder, West Florida Planning Council (1999) $1805.


R/V BELLOWS Ship time Awards, Estuarine Ecology, Tropical Marine Ecology. Florida Institute of Oceanography: 1992 ($8,000); 1993 ($8,000); 1994 ($8,000); 1995 ($8,000); 2000 ($12,000); 2001($4,000) 2002 ($8000).


**SHIPTIME EXPERIENCE**

*Large Sailing Vessels*

Schooner ARIADNE (123 ft)
Atlantic Crossing (21 days; 1979)
Brigantine PHOENIX (112 ft)
Baltic Sea, Scandinavia & Russia (4 months; 1979)
Topsail Schooner PRIDE OF BALTIMORE (120 ft)
EAST COAST US, BERMUDA, CARIBBEAN, VENEZUELA, GULF OF MEXICO (7 MONTHS; 1980)
CHESAPEAKE BAY LOG CANOE MYSTERY (30 FT), CHESAPEAKE BAY (DAY TRIPS; 1980-1989)

Research Vessels/Cruises
R/V RIDGLEY WARFIELD, John Hopkins University
Southern Chesapeake Bay 1981
Offshore Cape Charles 1981
Northern Chesapeake Bay Day Trips 1982-1989
R/V AQUARIUS, University of Maryland
Chesapeake Bay Day trips 1982-1989
R/V ORION, University of Maryland
Chesapeake Bay Day trips 1982-1989
R/V CAPE HATTERAS, University of North Carolina
Offshore Cape Hatteras 1984
R/V CAPE FLORIDA, RSMAS, UNIVERSITY OF MIAMI
OUTER BAHAMAS ISLANDS 1986
R/V COLUMBUS ISLEN, RSMAS, University of Miami
Outer Bahamas Islands 1987
R/V ANDERSON, U.S. Environmental Protection Agency
Gulf of Mexico Mississippi River Delta 1993, 1994
R/V GYRE, Texas A & M University
Western Gulf of Mexico and Mississippi River Delta 1995
R/V BELLOWS, Florida Institute of Oceanography (FIO)
Northern Gulf of Mexico Estuaries 1994, 1995,
Dry Tortugas 2000,
R/V SUNCOASTER, Florida Institute of Oceanography (FIO)
Gulf of Mexico, 2001, 2002
R/V NAUTILUS, University of West Florida
Pensacola Bay System, 2003
Owner/Operator 20ft Mako center console outboard
Small craft handling, sail and power.
Coastal and Celestial Navigation
Marine electronics operator (Radio, Loran, GPS, Depth Sounder, CTD)

PEGGY WINTER
Associate Professor, Department of Biology, University of West Florida, 1977-present.

Education:
1972 Ph.D. in Botany, University of Connecticut.
1969 NSF Fellowship, Organization for Tropical Studies, Panama and the U.S. Virgin Islands.
1967 NSF Fellowship, Friday Harbor Laboratories, University of Washington. Marine Algal
1966 Taxonomy and Ecology (Dr. Peter Dixon) and Algal Physiology (Dr. William Vidaver).

Publications


**Reports**


**Research**


"Culture Studies of the Seagrasses *Ruppia maritima* and *Halodule wrightii*." Florida Sea Grant Immediate Response Funds. $5,000. 1976.


"Transplant Studies of the Seagrass *Ruppia maritima*." Florida Sea Grant. $34,500. 1979.

"Science Day." Venture Fund $1,325. 1985-86.


"Anatomy & Subcellular Structure of Local Seagrasses." University Research Council. $5000. 1993


"Learning How to Use Ultracentrifugation to Separate Nuclear, Chloroplast, and Mitochondrial DNA. UWF Small Grants Award. $1350. 1996."
NSF Improvements in Laboratory Instruction Program “Molecular Experiences in Plant Science at the University of West Florida.” $45,751. 1998-2000.
“Enhancing Teaching and Learning with Technology in Marine Algae BOT 4990/5990.” $2500 and a laptop computer. 2001.

**Shiptime**
Cruise to Dry Tortugas off Florida Coast with Biology of the Algae class BOT 5405. Investigated Algal Zonation, Flora of the Fort Jefferson Moat, Distribution of Phytoplankton with Increasing Depth, and Benthic Algae at a Depth of 70 feet. April 30 to May 6, 1978.
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: ________________