6-8-2011


University of South Florida St. Petersburg.
USF Board of Trustees
June 8, 2011

Issue: B.S. Biology Degree Proposal

Proposed action: Approve implementation of a B.S. in Biology for USF St. Petersburg

Background information: USF St. Petersburg currently offers 19 bachelor's degree programs. The proposed major in the College of Arts and Sciences will expand and enhance our science offerings. This degree is the most requested by prospective students. In addition, it assists in meeting Florida's critical need for more STEM degree holders. The B.S. in Biology is designed to address the curricular needs of those students who are seeking admission to graduate and professional schools (MD, DVM, PharmD, DDS, PhD) as well as those students who may want to pursue careers in the private sector, particularly in the growing biotechnology industry in Florida. The degree proposal anticipates collaboration with USF Health for research opportunities for students and USF College of Marine Science for possible courses to articulate into the degree.

The proposed program is fully supportive of USF St. Petersburg’s Mission to serve its region and is consistent with the strategic direction of the USF System, the goals and priorities of the USF System Board of Trustees, and the Florida Board of Governors as expressed through the New Florida Initiative. The proposed program has been approved by the USF St. Petersburg College of Arts & Sciences Faculty Council, the USFSP Undergraduate Council, the USFSP Regional Chancellor and the USF System Academics and Campus Environment Advisory Council.

Significant Policy Issues for the Board to Consider:
The USF System Board of Trustees has the authority to approve new degree programs at the bachelor's, Master's, and Specialist level. Proposed new programs require evaluation of budget and resource implications and a determination that the programs advance the USF System mission and are in accord with the strategic plans and priorities of the USF System Board of Trustees and the Florida SUS Board of Governors. All of these issues were addressed in the development and review of this proposal.

Strategic Goal(s) Item Supports: Goal 1 of USF St. Petersburg’s Strategic Plan
Workgroup Review: Academics & Campus Environment
Supporting documentation: Proposal for the BS in Biology
Prepared by: Norine E. Noonan, Regional Vice Chancellor for Academic Affairs, 727-873-4260
December 14, 2010
Florida Board of Governors
Request to Offer a New Degree Program

University of South Florida St. Petersburg
University Submitting Proposal
Fall, 2012
Proposed Implementation Date

College of Arts and Sciences
Name of College or School
Environmental Science, Policy, Geography
Name of Department(s)

Biology, General
Academic Specialty or Field
BS in Biology CIP 26.0101
Complete Name of Degree
(Including Proposed CIP Code)

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

<table>
<thead>
<tr>
<th>Implementation Timeframe</th>
<th>Projected Student Enrollment (see Appendices-Table 1A)</th>
<th>Projected Program Costs (see Appendices-Table 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
</tr>
<tr>
<td>Year 1</td>
<td>30</td>
<td>22.5</td>
</tr>
<tr>
<td>Year 2</td>
<td>35</td>
<td>26.25</td>
</tr>
<tr>
<td>Year 3</td>
<td>60</td>
<td>45</td>
</tr>
<tr>
<td>Year 4</td>
<td>85</td>
<td>63.75</td>
</tr>
<tr>
<td>Year 5</td>
<td>100</td>
<td>75</td>
</tr>
</tbody>
</table>

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).
INTRODUCTION

I. Program Description and Relationship to System-Level Goals

A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.

The University of South Florida St. Petersburg (USFSP) proposes a new Bachelor of Science degree in Biology. USFSP’s proposal offers a general biology program that balances organismal (macro) approaches and content with cellular and molecular approaches and content. USFSP expects that students seeking a strong foundation to prepare for graduate school as well as those seeking careers in the health professions (MD, DDS, DVM, etc) will pursue this degree. This degree will also offer students in the region as well as throughout the state increased access to a STEMM (science, technology, engineering, mathematics, medical) degree that will prepare them for work in the growing life sciences/biotechnology industry in Florida. The prerequisites for our BS in Biology meet the State’s Prerequisite Requirements.

Summary:

(a) Undergraduate BS degree in Biology.

(b) Undergraduates seeking this degree must complete core courses, upper-division elective courses comprised of organismal or cellular/molecular biology content and a required senior capstone course that will focus on a research project guided by a faculty mentor.

(c) The Biology major will be 45 credit hours consisting of 30 hours of core courses, at least 12 hours of electives and at least 3 hours of the biology capstone research course.

(d) This degree will be open to FTIC and transfer students.

(e) This biology degree is designed to prepare students for entrance into post-baccalaureate studies in STEMM programs or into professional schools—medical, dental, pharmacy, and veterinary medicine.

(f) USFSP is located in downtown St. Petersburg at the center of a major medical, environmental and marine science complex that includes: USF Health and USF/ACH Children’s Research Institute, USF College of Marine Sciences, USGS, Florida Fish and Wildlife, NOAA, and many others. Preliminary conversations with senior administrators from these agencies and organizations have made it clear that undergraduate biology graduates will be in high demand and that our students will have multiple opportunities for field placement, research and internships.

(g) The Biology program at USFSP will provide education and research opportunities for undergraduate students in the fields of cell biology, molecular biology, genetics, microbiology,
behavior and ecology. This degree will provide students with a strong foundation of knowledge in the biological sciences, an understanding of the scientific method which is the basis for all scientific research, proper statistical techniques, and effective verbal and written communication skills. USFSP fully intends that this degree will prepare students for the rigors of professional schools as well as graduate programs in biology, biomedicine, biotechnology and other STEM-related programs. To accomplish its mission, USFSP typically offers relatively small classes with specialized curricula taught by faculty dedicated to excellence in their area of expertise. In its 2010 Annual Report for the Board of Governors, USFSP reported that about 80 percent of its classes had fewer than 50 students.

B. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which goals the program will directly support and which goals the program will indirectly support. (See the SUS Strategic Plan at (http://www.flbog.org/StrategicResources/).

Medical professions are listed as a critical need in State University System’s Board of Governors Strategic Plan for professional and workforce needs (I.B.2. Critical needs: health care; I.B.3.c. Medical science and technology programs). In addition, a BS degree in Biology will meet the following State University System goals:

1. Increase the number of degrees granted with an emphasis on producing more degrees in STEMM programs;
2. Increase the number of degrees that will place graduates in high-wage positions;
3. Emphasize natural sciences, biomedical technology and STEMM courses.
4. Support the 2010 "New Florida" focus on advancing STEMM fields.

INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY

II. Need and Demand

A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.

National Need

STEMM fields--science, technology, engineering, mathematics and medical--are those academic and professional disciplines that have been identified as critical to the economic competitiveness of the US. The second “M” for medical sciences was added to recognize the growing need for health care workers of all types in the next decade. According to both the National Academies of Science and Engineering/National Research Council and the National Science Foundation, STEMM fields are collectively considered core technological underpinnings of an advanced
society. In many forums (including political/governmental and academic) the strength of the STEMM workforce is viewed as an indicator of a nation's ability to sustain itself economically.

The National Science Foundation (NSF) is the only American federal agency whose mission includes support for all fields of basic science and engineering. In the NSF strategic plan, Biological Science is at the top of the list of essential disciplinary program areas.

The Department of Labor's (DOL) Bureau of Labor Statistics publishes an Occupational Outlook Handbook that describes a wide variety of jobs and careers, and includes forecasts for job growth in STEM areas. STEMM-related careers are some of the best-paying and have the greatest potential for job growth in the early 21st century.

In 2006, the American Competitiveness Initiative was established to address shortfalls in federal government support for educational development and progress at all academic levels in the STEM fields. The initiative called for significant increases in federal funding for advanced R&D programs (including a doubling of federal funding support for advanced research in the physical sciences) and an increase in U.S. higher education graduates within STEM disciplines. Both the America Competes Act and the American Reinvestment and Recovery Act (ARRA, or the Federal Stimulus bill) authorized and appropriated significant additional funding for a number of agencies that fund STEM(M) research and education. The proposed Biology program meets the STEMM goals established by NSF and the Department of Labor.

Statewide Need
The New Florida Initiative, launched in 2010 in partnership with the Florida’s Governor and Legislature, is a multi-year endeavor to ensure that Florida’s knowledge and innovation economy is sustained by high-technology, high-wage jobs in the fields of science, technology, engineering, mathematics and medicine (STEMM). The Initiative also includes medicine and health care, finance, insurance, professional services, education and the arts, which are the foundation of a modern society. The New Florida Initiative is the State University System’s collaborative effort — alongside business and government — to deliver the economy, talent and innovations that Florida must have to be globally competitive. The New Florida Initiative envisions significant increases in degree production in the STEMM fields as well as the associated disciplines, additional faculty conducting path-breaking research, and enhanced quality of life with the development of medical breakthroughs. It is in this context that the Florida Legislature has provided incentives and support to attract major private sector organizations to the state to provide high-paying STEMM-related jobs as well as partnership opportunities for research. Three major organizations have established operations in Florida: Scripps Research Institute (translational research, drug discovery), Sanford-Burnham Medical Research Institute (stem cells, drug discovery, nanomedicine), and, most recently, Jackson Laboratories (genetics-based research in heart disease, diabetes, Alzheimer’s). These organizations and other smaller companies are in need of both baccalaureate and advanced degree holders to support their research enterprise. To better transition our USFSP Biology undergraduates into post-graduate programs in the state of Florida, we are currently exploring collaborations with the senior leadership of USF Health and the College of Marine Science to provide research and mentoring opportunities to our students.

B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.
Statewide Demand
In a 2010 survey of ~82,000 Florida college-bound high school seniors taking the SAT, 28% (~23,000 students) declared that they would be seeking degrees in Biology, biomedical or health professions http://professionals.collegeboard.com/profdownload/FL_10_03_03_01.pdf page 13.

<table>
<thead>
<tr>
<th>Degrees sought by college-bound high school seniors</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology, Biomedical, Health Professions</td>
<td>28</td>
</tr>
<tr>
<td>Business</td>
<td>11</td>
</tr>
<tr>
<td>Engineering</td>
<td>8</td>
</tr>
<tr>
<td>Visual-Performing Arts</td>
<td>8</td>
</tr>
<tr>
<td>Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Undecided</td>
<td>6</td>
</tr>
<tr>
<td>Other degrees (each had fewer than 4% of surveyed students)</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

USFSP Demand
A 2010 survey of 498 USFSP FTIC students indicated that 17% were seeking degrees in a pre-health professions area. Of these, USFSP expects a significant number to seek a degree in Biology. Based on the expressed interest of current students and information from students who transfer from USFSP, we expect that the number of students pursuing a Biology degree to increase by steadily, reaching approximately 100 students by year five.

STEMCareer.com provides a wide variety of information on STEMM careers for students. A 2009 survey of USFSP freshmen identified a subset of students interested in STEMM professional careers. The vast majority of STEMM students were seeking Bio-medical and biology programs (see list below). For USFSP, the proposed biology degree program will satisfy the needs of students who want to pursue pre-health professions (MD, DDS, DVM, PharmD) study as well as students who wish to pursue graduate work in biological/biomedical sciences.

<table>
<thead>
<tr>
<th>Freshmen Major</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio-Medical Science</td>
<td>51.4</td>
</tr>
<tr>
<td>Biology</td>
<td>22.9</td>
</tr>
<tr>
<td>Chemical Engineer</td>
<td>2.9</td>
</tr>
<tr>
<td>Chemistry</td>
<td>8.6</td>
</tr>
<tr>
<td>Nursing</td>
<td>14.2</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Representatives from the Office of Admissions and Outreach at USFSP point out that the single most requested degree in the sciences remains Biology and further, that the institution loses many potential applicants each year because of biology is not among our degree offerings.

There is little doubt that for USFSP to adequately serve the Tampa Bay region including the 909,000 Pinellas County residents, it will need to expand its number of STEMM degrees. The establishment of a Biology degree at USFSP will provide our students with an appropriate background in the biological sciences to pursue graduate work and careers in a variety of life sciences.
science fields, and it will allow USFSP to better address the national need for the growth and development of STEM disciplines. In addition, it will enrich the course offerings for students in the baccalaureate programs in Environmental Science and Health Science. The triad of degree programs (Environmental Science, Health Science, and Biology) forms a powerful suite of STEMM options that constitute synergistic domains of intellectual pursuit. Students will be able to choose electives that will best suit their career aspirations and that will facilitate interdisciplinary areas of study such as environmental health sciences and emerging infectious diseases, zoology and zoonotic diseases, global climate change and its impact on human and ecosystem health.

C. If similar programs (either private or public) exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of any communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). Provide data that support the need for an additional program.

Undergraduate degrees in biology are available at 11 Florida universities: University of South Florida (Tampa), Florida International University (Miami), University of Florida (Gainesville), Florida A & M University (Tallahassee), Florida Atlantic University (Boca Raton), University of West Florida (Pensacola), University of Central Florida (Orlando), University of North Florida (Jacksonville), Florida Gulf Coast University (Ft. Myers), New College of Florida (Sarasota) and Florida State University (Tallahassee). Degrees in Biology are standard at most public and private colleges and universities that offer a natural or physical science curriculum. Currently, USFSP offers only one undergraduate degree in natural or physical science, an interdisciplinary degree in Environmental Science and Policy, with required course work from biology, chemistry, geology, geography, mathematics, and physics. Although this degree is popular on our campus, it does not provide appropriate or adequate preparation for graduate or professional work in the life and biomedical sciences. It is also not geared for those students seeking admission to the health professions (MD, DDS, PharmD, DVM, etc).

USF St Petersburg included the B.S. degree in Biology as part of its 2010 Board of Governors Work Plan. This Work Plan was also approved by the USF System Board of Trustees. Since USF Tampa is the most likely institution to be affected by the initiation of this degree program, Dean Biafora (CAS USF St. Petersburg) contacted Dean Eisenberg (CAS USF Tampa) to discuss the potential impacts. Currently, USF Tampa has about 3,000 students in the suite of majors that would correspond to the USFSP proposal (Biomedical Sciences, Biology, Integrative Biology, Microbiology.) The estimated number of additional students at USFSP in Biology is a small percentage of this total.

Currently, USFSP’s general-education biology courses serve its native students as well as students from other locations within the USF system. Many of these students were unable to register for these courses at their home institution due to limited seat availability in existing sections. For example, an average of 29 percent of students enrolled at USFSP in BSC 2010 and BSC 2011 lecture sections were science majors at other USF System institutions. The important point here is that a Biology program at USFSP will provide greater access for Florida resident students to acquire a STEM degree in a timely fashion within the USF System. The ability to offer lower and upper-level courses in Biology as part of a Biology program will have an overall positive impact on students’ selection of and success in STEM degree programs within the USF System.
The Dean of the College of Arts and Sciences at USFSP has had productive conversations with senior leadership at USF Health about collaborative opportunities between USFSP and USF Health regarding this new undergraduate Biology degree. Opportunities currently exist to provide undergraduates pursuing this degree with research experience on NIH and other federally-funded research projects, and for them to receive mentoring by USF Health faculty. The USF/ACH Children’s Research Institute is located at USFSP.

The USF-St. Petersburg waterfront campus is located at a nexus of marine science research and interaction in downtown St. Petersburg. Nearby marine science entities and institutions include the USF College of Marine Science and its Center for Ocean Technology, the state Fish and Wildlife Conservation Commission’s Fish and Wildlife Research Institute, the U.S. Geological Survey’s Center for Coastal Geology, a branch of NOAA National Marine Fisheries Service, The Florida Institute of Oceanography, U.S. Coast Guard St. Petersburg station, and SRI-St. Petersburg (a private engineering firm engaged in development of marine and environmental monitoring technology). These facilities are all located within a 1/4 mile of the USFSP campus. In addition, Mote Marine Lab is located about 1 hour away in Sarasota. USF College of Marine Science, Florida Institute of Oceanography, Fish and Wildlife Research Institute, the USGS and Mote all have watercraft and engage in field research, along with significant lab-based research activities. All these entities are either actively or potentially interactive, and could provide opportunities for broadened instructional resources and undergraduate research. In 2010, senior leadership at USFSP and the College of Marine Science began to dialogue about potential opportunities for collaboration in undergraduate instruction at USFSP in marine science. The Dean and faculty of the College of Marine Science have expressed a strong interest in developing a cognate in marine biology within USFSP’s proposed Biology degree.

An undergraduate degree in Biology at USFSP will also provide important teaching opportunities for postdoctoral associates and graduate students within the USF System, providing them with mentoring and training for university and college careers. For example, faculty and postdoctoral associates from the USF Tampa College of Marine Science are currently teaching general education courses in biology at USFSP. Post-doctoral associates are also participating in the supervision and training of Environmental Science and Policy Masters students acting as graduate teaching assistants for the laboratory courses for Biology. In the past, USFSP has offered opportunities for graduate students in the USF Tampa College of Marine Sciences to serve as graduate teaching assistants for undergraduate science courses, and in Fall 2010 a postdoctoral associate from the Department of Integrative Biology (USF Tampa) taught general education biology at USFSP. These courses provide opportunities for research associates and graduate students to hone teaching skills, explore pedagogical issues, and acquire valuable teaching experience that will provide them with a competitive advantage in the job market. Currently, College of Marine Science postdoctoral associates and graduate students have few opportunities to teach undergraduate courses as the College only offers graduate programs. As our Biology program grows and the demand for biology courses increases, we anticipate an expansion of teaching opportunities for College of Marine Science faculty, post-doctoral associates and graduate students.

D. Use Table 1 (A for undergraduate and B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 40 credit hours per year and graduate FTE will be calculated as 32 credit hours per year. Describe the rationale underlying enrollment projections. 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.

See Table 1A (Appendix). The proposed Biology program at USFSP will have little effect on enrollment in existing disciplines. Instead, the proposed Biology program will attract new STEM students to USFSP, thus increasing access for Florida residents. In the first year or two of the program, there is the possibility that a small number of USFSP students will change their major to this new BS degree. Transfer students with the appropriate prerequisites taken as part of the Associate of Arts degree will be able to finish the Biology degree within 120 hours.

E. Indicate what steps will be taken to achieve a diverse student body in this program, and identify any minority groups that will be favorably or unfavorably impacted. The university’s Equal Opportunity Officer should read this section and then sign and date in the area below.

USFSP is dedicated to achieve a diverse student body. As part of its five-point strategic plan for this year, the USFSP Office of Admissions and Outreach (OAO) is dedicated (Goal #3) to “Increase new undergraduate minority headcount to 26 percent of total new headcount by 2012-2013.” To achieve this target, the OAO has retained a recruiter who has primary responsibility for expanding minority student outreach and enrollment. As part of this effort recruiters make regular visits to local and regional minority organizations and churches, expand invitations to diverse groups to attend USFSP admissions events, and develop focused advertising campaigns in targeted media outlets that have a wider reach to diverse audiences.

III. Budget

A. Use Table 2 to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)

B. If other programs will be impacted by a reallocation of resources for the proposed program, identify the program and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).

Because biology/biomedical sciences is an area that many prospective students want to pursue, USFSP expects that a BS degree in Biology will have a salient effect on overall enrollment. USFSP also expects that having this degree will increase retention at this institution. It is clear that currently some number of students who have completed their general education requirements and pre-requisite courses leave USFSP for other universities offering a biology
degree. Additionally, USFSP estimates that by year five approximately 70 FTIC and 30 transfer students will apply to USFSP and enroll in this degree program. With increased student enrollment and increased student retention, we expect significant positive impacts in other USFSP degree programs including Environmental Science and Policy and Health Sciences. As noted above, this triad of degree programs will be synergistic and will open interdisciplinary areas of study and research for students to pursue.

C. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).

Initially, this program will be housed within the Department of Environmental Science, Policy, and Geography (ESPG). The ESPG Department Chair, who is a biologist by training, is responsible for faculty assignments and for ensuring that student learning outcomes are measured. USFSP’s College of Arts and Sciences already offers the necessary prerequisite and general education courses for the BS degree in Biology. USFSP anticipates that student enrollment for those general education courses that are prerequisites for the Biology program will increase commensurate with increased enrollment in the proposed program. To accommodate the increased student enrollment in lower-level classes, additional part-time faculty can be enlisted to teach added sections of the necessary general education courses. The CAS Dean has already authorized the hiring of two additional full-time faculty members who will support both the already-approved BS in Health Sciences as well as this proposed program and additional part-time faculty as needed. USFSP does not anticipate that other academic units will have to offer required or elective courses for the proposed Biology program.

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

Over the past two years, during data gathering and proposal development, a number of conversations have been held between the faculty/administration of USFSP and senior leadership of local health care providers, including St. Anthony’s Hospital, Tampa General Hospital, and Bayfront Medical Center. All of these stakeholders strongly encouraged USFSP to initiate a BS in Biology degree program, and each stakeholders welcomed the opportunity to collaborate with USFSP to provide learning opportunities (e.g., internship placements) for students, and also professional support (e.g., guest lectures, advisory board, etc.). Internship opportunities for prospective Biology majors could be available at All Children’s Hospital, Bayfront Hospital, Suncoast Clinic and Bayfront Medical Plaza, and the Center for Women’s Health. In addition, internships for pre-veterinary students are available to maintain the animal collection for the Florida Fish and Wildlife Research Institute. Finally, the State of Florida supports the immigration of biotechnology that will provide employment/internship opportunities with for-profit organizations such as Scripps Florida (http://www.scripps.edu/florida), Sanford-Burnham (http://www.sanfordburnham.org), (http://www.sanfordburnham.org/about/locations/lake_nona_florida.aspx) and Jackson Laboratories http://www.businessweek.com/ap/financialnews/D9LNPECO0.htm
IV. Projected Benefit of the Program to the University, Local Community, and State

Use information from Table 1, Table 2, and the supporting narrative for “Need and Demand” to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.

At the national level, the strength of a STEM(M) workforce is a significant indicator of an advanced society and a nation’s ability to sustain itself economically. The Department of Labor expects significant job growth for STEM(M) professionals and these jobs are typically high-paying. Accordingly, a number of Federal agencies including the National Science Foundation, Department of Energy, National Institutes of Health, and NASA, support STEM programs to ensure that there is an adequate number STEM(M) professionals available to fill the anticipated STEM(M) jobs. New Florida, the partnership between the State University System, the Governor and the Legislature continues to emphasize the need for increasing STEM(M) degrees that will place university graduates in high-wage positions. In Florida, the number of biotechnology jobs with high pay is increasing. Parents and students alike are aware of this demand as indicated by the fact that 28 percent of Florida’s university-bound high school students express a desire to pursue STEM(M) degrees. Finally, 17 percent of incoming USFSP students express a desire for STEM degrees. Thus, for USFSP to serve its region effectively and in keeping with its mission and vision it will need to expand the number of science degrees to include a program in Biology to increase options for students to pursue STEM degrees in a timely fashion. The USFSP Biology program will integrate multiple levels of biological organization: from cellular and molecular processes to organism to communities of organisms. In addition, research experiences including data collection, statistical analysis, publications in the USFSP Undergraduate Research Journal, oral presentations and poster sessions will be required in a number of elective courses and the Biology capstone course. The emphasis on research will prepare students for success in graduate-level research programs, professional programs and careers in a variety of STEM fields.

V. Access and Articulation – Bachelor’s Degrees Only

A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a request to the BOG for an exception along with notification of the program’s approval. (See criteria in BOG Regulation 6C-8.014)

Not Applicable. The BS in Biology degree program will not exceed 120 hours.

B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see Common Prerequisite Manual http://www.facts.org). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs
designated as “limited access.”

General Education Prerequisites (24 not including math and science)

Biology (SUS mandated) Prerequisites (33)
- BSC 2010 Biology I (3) and 2010L lab (1)
- BSC 2011 Biology II (3) and 2011L lab (1)
- CHM 2045 Chemistry I (3) and 2045L lab (1)
- CHM 2046 Chemistry II (3) and 2046L lab (1)
- CHM 2210 Organic Chemistry (3) and 2210L (2)
- CHM 2211 Organic Chemistry II (3) and 2211L (2)
- MAC 2311 Calculus I (4)
- STA 2023 Introductory Statistics I (3)

C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that community college transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in BOG Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.

USFSP does NOT intend to seek formal Limited Access status for the proposed program.

D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see Statewide Articulation Manual http://www.facts.org). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.

Not applicable. Our Biology degree is not an AS-to-BS capstone program.

INSTITUTIONAL READINESS

VI. Related Institutional Mission and Strength

A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan.

The proposed Biology program relates to the USF System Strategic Plan (2010-2015) as follows:

Goal 1: Academic Excellence, Student Access, and Student Success

USFSP seeks to increase the number of STEM programs that are recognized regionally and nationally for their rigor, intellectual challenge and high expectations. The proposed Biology program is a STEM program that will increase student access to STEM courses and degrees. The
core courses of the proposed Biology degree will challenge students to approach STEM courses with a high level of academic ability and critical thinking. For example, the required research assignments and projects assigned in selected upper-level courses will provide an intellectual framework allowing students to complete their own research and effectively evaluate the research of others.

Goal 2: Impactful Research, Economic Leadership and Community Engagement

USFSP science and mathematics faculty will collectively establish research-based themes that connect core and elective courses to each other. Such coordination will allow students to begin a research project in one course and complete that project in another. After the first year of implementation, two additional courses will be developed to provide students with foundational skills in modeling communities of organisms and molecules (proteins and DNA). Students who possess the knowledge and intellectual tools to understand and apply modeling concepts to actual data are in high demand in academia and in the private sector.

The proposed Biology program supports the USFSP Strategic Plan 2009-2013, “Points of Focus” as follows:

Goal 4: Support faculty research and creative activities, and engage students in local, national, and international scholarship

Strategies:

- Create a vibrant culture of faculty research and creative scholarship
- Promote and support undergraduate research as a meaningful aspect of campus life
- Enhance and support research and scholarly collaborations with community partners

Undergraduate research experiences are a key element for students who will pursue the proposed Biology program. Faculty will collectively develop research themes, each theme being integrated into majors courses, thus allowing students to complete research projects over the course of contiguous semesters. Students will design experiments, gather and analyze data, and write manuscripts for submission to the USFSP Online Undergraduate Research Journal or more traditional peer-reviewed journals with their faculty mentors.

Undergraduate research opportunities are already established with the USF Tampa College of Marine Science and Florida Wildlife Research Institute. Research opportunities will be available with USF Health. USFSP intends to seek other research and internship opportunities with life sciences organizations such as Scripps Florida, Sanford-Burnham and, in time, Jackson Laboratories. In addition, students who wish to pursue veterinary medicine will be able to complete formal internships in a number of local veterinary practices.

B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.

The proposed Biology program builds on USFSP’s Strategic Plan and existing academic programs in Health Sciences and Environmental Science. The proposed Biology program is a necessary step toward offering STEM degree options for our 21st century students. The capstone-internship-research requirement will enhance and support research and scholarly collaborations with local and regional partners. At this time, USFSP has more than sufficient laboratory and classroom space to accommodate the influx of students who wish to pursue a BS degree in
Biology. The new Science and Technology Building (STG) has 4 state-of-the-art teaching labs in chemistry, biology, earth sciences and physics, technologically sophisticated general science teaching classrooms, and modern faculty research laboratories.

C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology (table) of activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.

Planning for a Biology undergraduate degree began in the summer of 2009 when the Dean of the College of Arts and Sciences, Frank Biafora, convened faculty, students and community liaisons for a series of meetings to discuss the prospect of a Biology degree at USFSP. During the summer and fall of 2010, a proposal was drafted and presented to the department of Environmental Science, Policy and Geography (ESP). ESP faculty voted in favor of the proposed program (including the curriculum) and the proposal was submitted to the College’s Academic Programs Committee for review (see below for details).

**Planning and Implementation Process**

<table>
<thead>
<tr>
<th>Date</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2009 Four meetings in June and July</td>
<td>College of Arts and Sciences Dean Biafora chaired meetings with selected faculty, advisors, student leaders and community health providers to discuss STEM degrees, including Biology and Health Sciences, for USFSP students.</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>Two adjuncts were hired to teach the large enrollment of students in Biology I and II courses.</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>Dean Frank Biafora and faculty representatives met with local physicians, clinicians and administrators from All Children’s Hospital and Bayfront Hospital to explore internship opportunities for a future Biology program.</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>Later in the semester, biologist Dr. Cassill was appointed by Dean Biafora and Department Chair, Dr. Whitmore to write the first draft of the degree proposal.</td>
</tr>
<tr>
<td>Sep 2010</td>
<td>Proposed Biology curriculum was reviewed by ESP faculty (Drs. Carvalho-Knighton, Smoak, Dixon, Hoare, Asano, Dorsey, Meindl, Cassill and Whitmore). Modifications were made and on September 16, 2010, ESP faculty voted to approve the Biology curricula.</td>
</tr>
<tr>
<td>Nov 19, 2010</td>
<td>The Biology program proposal was forwarded to the College of Arts and Sciences Academic Programs Committee (APC) for review. After discussion and revision APC Chair Thomas Smith reported that the committee had approved the Biology program proposal on 12/13/2010.</td>
</tr>
<tr>
<td>Spring 2011</td>
<td>Student enrollment in biology courses increased. Two instructors were hired to teach Microbiology and additional sections of Bio I and Bio II.</td>
</tr>
<tr>
<td>February 2011</td>
<td>The Biology program proposal was forwarded to the USFSP Undergraduate Council for review. The proposal was approved on 02/24/2011.</td>
</tr>
<tr>
<td>February 25, 2011</td>
<td>The Biology program proposal was forwarded to RVCAA, Norine Noonan.</td>
</tr>
<tr>
<td>March 10, 2011</td>
<td>Dean Biafora met with Dean Eisenberg to discuss impact of Biology</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 28, 2011</td>
<td>The Biology program proposal was presented to the USF System ACE Advisory Council.</td>
</tr>
<tr>
<td>April 4, 2011</td>
<td>Dean Biafora and Dr. John Curran discussed possible research collaborations and student field placements at neighboring USF Health Children’s Research Institute</td>
</tr>
<tr>
<td>April 4, 2011</td>
<td>Dean Biafora and Dean Dixon from CMS discussed collaborative possibilities between the two colleges with respect to research, graduate and post graduate teaching opportunities, as well as the possibility of a cognate in Marine Science</td>
</tr>
</tbody>
</table>
Events Leading to Implementation

<table>
<thead>
<tr>
<th>Period</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall, 2011</td>
<td>Develop promotional materials for marketing and recruitment, including catalog description</td>
</tr>
<tr>
<td>Fall, 2011</td>
<td>Obtain approval for course equipment and supplies fees</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>Develop lab sections for Genetics, Cell Biology, and Biochemistry</td>
</tr>
<tr>
<td>Spring / Summer 2012</td>
<td>Purchase necessary supplies and materials</td>
</tr>
<tr>
<td>Fall, 2012</td>
<td>Kick off major</td>
</tr>
</tbody>
</table>

VII. Program Quality Indicators - Reviews and Accreditation

Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.

Not applicable.

VIII. Curriculum

A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor’s degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.

The specific learning outcomes associated with this proposed program are consistent with the existing Academic Learning Compact structure and requirements of the State of Florida.

The Biology Academic Learning Compact includes courses that prepare students for graduate school in biology (or closely-related fields) and health professions doctoral programs (MD, DDS, DVM, PharmD, DPT).

<table>
<thead>
<tr>
<th>No.</th>
<th>Category</th>
<th>Competency definition and courses designed to achieve outcomes and competencies</th>
</tr>
</thead>
</table>
| 1   | Discipline knowledge      | Understand and apply the principles of evolution, physiology, ecology, cell biology, and genetics to the field of biology.  
PCB 3043    Principles of Ecology (3) and 3043L lab (1)  
PCB 3023    Cell Biology (3) and PCB 3023L (1)  
PCB 3063    Genetics (3) and PCB 3063L (1)  
PCB 4674    Organic Evolution (3)  
PCB 3712    General Physiology (3) and 3712L lab (1)  |
| 2   | Communication skills      | Speak and write correctly and clearly at a level appropriate to peers.  
BSC 4910    Research Capstone(3)  |
| 3   | Civic engagement          | Understand concepts and apply theories in the use and presentation of images and information to the general public. Understand the importance of |
B. Describe the admission standards and graduation requirements for the program.

Admission to the program is as follows: completion of all Biology pre-requisites (C- or better in each course), and a 2.5 overall GPA standing. Graduation requirements are as follows: 2.5 GPA in the major with the lowest acceptable grade of C- in major courses. Students must complete a total of 120 credit hours of coursework of which 60 hours will be in the Biology major. In addition to the requirements listed for admission to the program, the university exit requirements include Gordon Communications and Gordon Computation requirements, 48 minimum upper level hours, at least 25% (i.e. 30 credit hours) residency hours. At the beginning of the senior capstone experience students will complete a written proposal summarizing their work for the semester as it relates to student learning outcomes.

C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements.

Identify the total numbers of semester credit hours for the degree.

The proposed Biology program is broad in discipline knowledge but will still allow students the opportunity to choose a set of electives in several target areas: (1) community/organismal biology or marine biology; (2) physiology and cellular processes or (3) modeling group structure or molecular structure. To graduate, students will complete 120 course hours including required general study prerequisites, required biology prerequisites, core biology courses and electives in biology. Note that one course with XXX in prefix or is currently in process of being added to the curriculum.

1. General Education Prerequisites (24 not including math and science)

2. Biology Prerequisites (33)

- BSC 2010 Biology I (3) and 2010L lab (1)
- BSC 2011 Biology II (3) and 2011L lab (1)
- CHM 2045 Chemistry I (3) and 2045L lab (1)
- CHM 2046 Chemistry II (3) and 2046L lab (1)
- CHM 2210 Organic Chemistry (3) and 2210L (2)
- CHM 2211 Organic Chemistry II (3) and 2211L (2)
- MAC 2311 Calculus I (4)
- STA 2023 Introductory Statistics I (3)
3. Biology Core Requirements (30)
   PHY 2053  Physics I (3) and 2053L lab (1)
   PHY 2054  Physics II (3) and 2054L lab (1)
   MMC 3xxx  Science Communication (3)
   PCB 3043  Principles of Ecology (3) and 3043L lab (1)
   PCB 3063  Genetics (3) and PCB 3063L (1)
   PCB 3023  Cell Biology (3) and PCB 3023L (1)
   PCB 4674  Organic Evolution (3)
   PCB 3712  General Physiology (3) and 3712L lab (1)

4. Science Electives (at least 12 - up to 33 hrs)
   BSC 2093C  Anatomy and Physiology I (4)
   BSC 2094C  Anatomy and Physiology II (4)
   BSC 4057*  Environmental Issues (3)
   BOT 3373C  Vascular Plants, Form and Function (4)
   BCH 3023  Introduction to Biochemistry (3) and Lab (2)
   BSC 4937  Seminar in Marine Biology (2)
   MCB 3020C  General Microbiology & lab (4)
   PCB 4843  Principles of Neuroscience (3)
   PCB 5307  Limnology (3) and 5307L (1)
   GLY 4734*  Beaches and Coastal Environments
   ZOO 2303  Vertebrate Zoology (3)
   ZOO 4513  Animal Behavior (3)

5. Biology Capstone (3-6)
   BSC 4910  Undergraduate Research (3 minimum)

6. Exit Courses (9 total credit hours) (Note: 6 of these Exit hours may be counted under science electives (see * above), leaving a remaining 3 Exit hours in Literature and Writing.
   * Also serve as exit courses.

   D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.

Four-Year Course Schedule

Fall 1 (14)
   CHM 2045 General Chemistry I (3)
   CHM 2045L General Chemistry I Laboratory (1)
   ENC 1101 Composition I (3)
   MAC 2311 Calculus I (4)
   XXX XXXX Social Science GE Course (3)

Spring 1 (14)
   BSC 2010 Biology I - Cellular Processes (3)
   BSC 2010L Biology I Cellular Processes Laboratory (1)
CHM 2046 General Chemistry II (3)  
CHM 2046L General Chemistry II Laboratory (1)  
ENC 1102 Composition II (3)  
XXX XXXX Social Science GE Course (3)  

Fall 2 (12)  
STA 2023 Introductory Statistics I (4)  
BSC 2011 Biology II – Diversity (3)  
BSC 2011L Biology II Diversity Laboratory (1)  
CHM 2210 Organic Chemistry I (3)  
CHM 2210L Organic Chemistry Laboratory I (2)  

Spring 2 (15)  
CHM 2211 Organic Chemistry II (3)  
CHM 2211L Organic Chemistry II Laboratory (2)  
PHY 2053 General Physics I (3)  
PHY 2053L General Physics I Laboratory (1)  
XXX XXXX Fine Arts GE Course (3)  
XXX XXXX Historical Perspectives GE Course (3)  

Summer 2 (6)  
XXX XXXX ALAMEA GE Course (3)  
XXX XXXX Historical Perspectives GE Course (3)  

Fall 3 (15)  
PCB 3044 Principles of Ecology (3)  
PCB 3044L Principles of Ecology Laboratory (1)  
PCB 3063 Genetics (3)  
PCB 3063L Genetics Laboratory (1)  
XXX XXXX Biology Elective (3)  
PHY 2054 General Physics II (3)  
PHY 2054L General Physics II Laboratory (1)  

Spring 3 (15)  
XXX XXXX Biology Elective (4)  
MMC 3xxx Science Communication (3)  
PCB 3022 Cell Biology (3)  
PCB 3022L Cell Biology Laboratory (1)  
XXX XXXX Exit-Major Works/Major Issues (3)  

Summer 3 (3)  
BSC 4910 (Biology Capstone) (3)  

Fall 4 (14)  
XXX XXXX Biology Elective (4)  
PCB 3712 General Physiology (3)  
PCB 3712 General Physiology Laboratory (1)  
XXX XXXX Exit-Literature/Writing (3)  
XXX XXXX Biology Elective (3)
Spring 4 (12)
XXX XXXX Biology Elective (3)
XXX XXXX Exit-Major Works/Major Issues (3)
XXX XXXX Biology Elective (3)
PCB 4674 Organic Evolution (3)

Total 120 hours including 48 hours of upper division courses (in major and out of major)

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

** Note that ALL selected topics courses listed below (as well as those with XXX in course number) are currently in process of being created as permanent courses.

BCH 3023 Introductory Biochemistry (3) AS CHM PR: CHM 2200 or CHM 2211 and BSC 2010. Introduction to the chemistry and intermediary metabolism of biologically important substances. Lec.

BCH 3023L Basic Biochemistry Laboratory (2) AS CHM CR: BCH 3023. Practical work in determination and characterization of important biomolecules. Lec.-lab.


BSC 2010L Biology I Cellular Processes Laboratory (1) AS BIO CR: BSC 2010. Laboratory portion of Biology I Cellular Processes relating to cellular and sub-cellular structure and function. Mitosis, meiosis, and Mendelian genetics will be stressed.


BSC 2011L Biology II Diversity Laboratory (1) AS BIO CR: BSC 2011. Laboratory portion of Biology II Diversity relating to organismal structure and function. Microscopy, as well as, plant and animal development will be stressed.

BSC 2093C Anatomy and Physiology I (4) AS BIO PR: BSC 2010, BSC 2010L, BSC 2011, BSC 2011L and CHM 2045. May be taken by majors for free elective credit only. Basic biochemistry, cell structure and function, tissues, anatomical terminology, anatomy and physiology of the integumentary, skeletal, muscular, and nervous systems. Lecture and Laboratory.

taken by majors for free elective credit only. Anatomy and physiology of the autonomic nervous, endocrine, circulatory, lymphatic, immune, respiratory, digestive, excretory, and reproductive systems. Lecture and Laboratory.

**BSC 4057 Environmental Issues (3)**

Study of biological, economic, ethical, legal, political and social issues relating to current environmental problems.

**BSC 4910 Undergraduate Research (1 – 4)**

PR: CHM 2210 and MAC 1105 or higher MAC course or STA 2023 or CI. CP: PCB 3023 or PCB 3043 or PCB 3063 or PCB 3712 and CHM 2211. S/U only. Junior standing and 3.0 GPA required. Individual investigation with faculty supervision. Written contract by department is necessary prior to registration.

**BSC 4937 Seminar in Marine Biology (2) AS BIO**

PR: BSC 3312C and CHM 2210 and MAC 1105 or higher-level MAC course or STA 2023. CP: PCB 3023 or PCB 3043 or PCB 3063 or PCB 3712 and CHM 2211. Course focuses on developing the student's understanding of contemporary research in the field of Marine. Background information presented and assigned reading will vary according to instructor.

**CHM 2045 General Chemistry I NS (3) AS CHM**

PR: 530 SAT Quantitative score or completion of MAC 1105 College Algebra with a C or better AND one year of high school chemistry or completion of CHM 2023 with a grade of C or better. Principles and applications of chemistry including properties of substances and reactions, thermochemistry, atomic-molecular structure and bonding, periodic properties of elements and compounds.

**CHM 2045L General Chemistry I Laboratory (1) AS CHM**

CP: CHM 2045. Laboratory portion of General Chemistry I. Introduction to laboratory techniques; study of properties of elements and compounds; synthesis and analysis of natural and commercial materials.

**CHM 2046 General Chemistry II NS (3) AS CHM**

PR: CHM 2045 or CHM 2045L or equivalent. Continuation of General Chemistry. Lecture.

**CHM 2046L General Chemistry II Laboratory (1) AS CHM**

PR: CHM 2045L. Laboratory portion of General Chemistry II. Continuation of chemistry laboratory.

**CHM 2210 Organic Chemistry I (3) AS CHM**

PR: CHM 2046, CHM 2046L. Fundamental principles of organic chemistry. Lecture.

**CHM 2210L Organic Chemistry Laboratory I (2) AS CHM**

CP: CHM 2200 or CHM 2210. Laboratory portion of Organic Chemistry I. Introduction of organic laboratory principles and techniques.

**CHM 2211 Organic Chemistry II (3) AS CHM**

PR: CHM 2210 or equivalent. Continuation of organic chemistry. Lecture.

**CHM 2211L Organic Chemistry Laboratory II (2) AS CHM**


**GLY 4734 Beaches and Coastal Environments MW (3) as GLY**
A comprehensive introduction to the nature of all coastal environments including beaches, dunes, tidal inlets, estuaries, reefs, and river deltas. Emphasis will be on the natural state of these environments and how human activities have and will impact them. Consideration of coastal management policies involving economics, ethics, policy, and environmental law.

**MAC 2311 Calculus I 6A QM (4) AS MTH**

PR: C (2.0) or better in MAC 1114 and C (2.0) or better in MAC 1140, or C (2.0) or better in MAC 1147, or 650 or better SAT Math score, or 29 or better ACT Math score, or 90 or better College-Level Math CPT score, and knowledge of trigonometry. No credit for students with credit in MAC 2233, MAC 2241, or MAC 2281. Differentiation, limits, differentials, extremes, indefinite integral. No credit for students with credit in MAC 2233 or MAC 2243 or MAC 2311

**MCB 3020C General Microbiology (4) AS BIO**

PR: BSC 2010, BSC 2010L, BSC 2011, BSC 2011L, and CHM 2210 and MAC 1105 or higher-level MAC course or STA 2023. CP: PCB 3023 or PCB 3043 or PCB 3063 or PCB 3712. Structure and function of bacteria, archaea, viruses, and eukaryotic microbes. Laboratory includes media preparation and culturing, staining and enumeration techniques. Lecture and Laboratory. PCB 3063 is recommended.

**MMC 3XXX Science Communication (3)**

This skills-oriented course will give students interested in research and other scientific fields basic tools for communicating clearly with lay audiences. It will also bring a scholarly understanding of general communication-related issues. PERMANENT COURSE CREATION IN PROGRESS

**PCB 3023 Cell Biology (3) AS BIO**

PR: BSC 2010, BSC 2010L, BSC 2011, BSC 2011L & CHM 2045, CHM 2046 & MAC 1105 or higher-level MAC course or STA 2023. CP: CHM 2210. A survey of the marine environment, the types of organisms found inhabiting a variety of marine habitats, and the adaptations of the organisms to those habitats. Emphasis is placed on shallow water Florida environments. Lecture only.

**PCB 3023L Cell Biology Laboratory (1) AS BIO**

CP: PCB 3023. Laboratory portion of Cell Biology. Metabolic processes within the cell.

**PCB 3043 Principles of Ecology (3) AS BIO**

BSC 2010, BSC 2010L, BSC 2011, BSC 2011L & CHM 2045, CHM 2046 & MAC 1105 or higher-level MAC course or STA 2023. An introduction to the basic principles and concepts of ecology at the ecosystem, community, and population level of organization. Lecture only.

**PCB 3043L Principles of Ecology Laboratory (1) AS BIO**


**PCB 3063 General Genetics (3) AS BIO**

BSC 2010, BSC 2010L, BSC 2011, BSC 2011L & CHM 2045, CHM 2046 & MAC 1105 or higher-level MAC course or STA 2023. CP: CHM 2210. Introduction to genetics including the fundamental concepts of Mendelian, molecular and population genetics. Lecture only.

**PCB 3063L General Genetics Laboratory (1) AS BIO**

CP: PCB 3063. Laboratory investigation techniques in general genetics including Mendelian and non-Mendelian relationships, and gene interactions.

**PCB 3712 General Physiology (3) AS BIO**

PR: BSC 2010, BSC 2010L, BSC 2011, BSC...
2011L and CHM 2045, CHM 2046 and MAC 1105 or higher-level MAC course or STA 2023. Comparative analysis of animal structure and function: organ systems and activities of body tissue and organs. Functional responses of plants to both internal and environmental signals lecture only.

**PCB 3713L General Physiology Laboratory (1) AS BIO** PR: PCB 3712. Laboratory portion of General Physiology.

**PCB 4674 Organic Evolution (3) AS BIO** PR: PCB 3063. An introduction to modern evolutionary theory. Lecture on population genetics, adaptations, speciation theory, phylogeny, human evolution and related areas. Lecture-discussion.

**PCB 4843 Principles of Neuroscience (3) AS BIO** PR: PCB 4723 and CHM 2210 and MAC 1105 or higher-level MAC course or STA 2023 and PHY 2053. CP: CHM 2211. Study of the mammalian brain's structure and function, with an emphasis on human neuroanatomy, neuropharmacology, and neurophysiology. Topics include brain imaging, dementia, mechanisms of learning/memory, and neuropathological processes. Lecture only.

**PHY 2053 General Physics I NS (3) AS PHY** PR: MAC 1140 and MAC 1114, or MAC 1147. Must be taken concurrently with lab and, if dropped, then dropped simultaneously. May not receive credit for both the PHY 2053 and PHY2048 PHY 2048 courses. First semester of a two semester sequence of non-calculus-based general physics (mechanics, heat, wave motion, sound, electricity, magnetism, optics, modern physics) for science students.

**PHY 2053L General Physics I Laboratory (1) AS PHY** 263 Must be taken concurrently with lecture and, if dropped, then dropped simultaneously. May not receive credit for both the PHY 2053L and PHY 2048L courses. First semester of a two semester sequence of general physics (mechanics, heat, wave motion, sound, electricity, magnetism, optics, and modern physics) laboratory for science students.

**PHY 2054 General Physics II NS (3) AS PHY** PR: PHY 2053, PHY 2053L. Must be taken concurrently with lab and, if dropped, then dropped simultaneously. May not receive credit for both the PHY 2054 and PHY 2049 courses. Second semester of non-calculus-based general physics for science students.

**PHY 2054L General Physics II Laboratory (1) AS PHY** PR: PHY 2053, PHY 2053L. Must be taken concurrently with lecture and, if dropped, then dropped simultaneously. May not receive credit for both the PHY 2054L and PHY 2049L courses. Second semester of general physics lab for science students.

**STA 2023 Introductory Statistics I 6A QM (4) AS MTH** PR: C (2.0) or better in MAT 1033, or 440 or better SAT Math score, or 19 or better ACT Math Score, or 72 or better Elementary Algebra CPT score. No credit for Mathematics Majors. Descriptive statistics, basic probability principles, discrete and continuous probability distributions: binomial, Poisson, uniform, normal, t, chi-square and F; point estimation, confidence limits, hypothesis testing, correlation analysis and linear regression. Emphasis on applications to social sciences, life sciences, physical sciences, engineering and business.

**ZOO 2303 Vertebrate Zoology (3) AS BIO** PR: BSC 2010, BSC 2010L, BSC 2011, BSC 2011L. The origin, diversity, and adaptations of the vertebrates. Phylogenetic systematics
(cladistics) will be used as the basis for determining evolutionary relationships of organisms. Monophyletic groupings provide a framework for examining behavior, physiology, and ecology in an explicit evolutionary context. Vertebrates common to Florida and the southeastern United States will be emphasized.

**ZOO 4513 Animal Behavior (3) AS BIO**

PR: PCB 3023 or PCB 3043 or PCB 3063 & CHM 2210 & MAC 1105 or higher-level MAC course or STA 2023. CP: CHM 2211. An introduction to comparative animal behavior, with analysis of types of animal behavior, their function and evolutionary origin. Lecture only.

**F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and identify if any industry advisory council exists to provide input for curriculum development and student assessment.**

The Dean of the College of Arts and Sciences (CAS) has developed an advisory board consisting of three physicians, a chiropractor, a senior hospital administrator, a clinic administrator, faculty, advisor, and student representatives from the pre-medical club and the pre-veterinary society. All have helped in the design of the curricula and the establishment of student learning outcomes. Modifications will be completed as needed.

**G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.**

Accreditation is not available for Biology degrees.

**H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor’s or master’s programs associated with the proposed program. Are the programs accredited? If not, why?**

Not applicable.

**I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.**

The BS in Biology degree program will follow a traditional delivery of classroom lectures and laboratories. Opportunities for research are available with USFSP biology faculty as well as nearby marine science entities and institutions including the USF College of Marine Science and
its Center for Ocean Technology, the state Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute, the U.S. Geological Survey's Center for Coastal Geology, a branch of NOAA National Marine Fisheries Service, The Florida Institute of Oceanography, U.S. Coast Guard St. Petersburg station, SRI-St. Petersburg (a private engineering firm engaged in development of marine and environmental monitoring technology) and the Mote Marine Lab in Sarasota. USF College of Marine Science, Florida Institute of Oceanography, Fish and Wildlife Research Institute, the USGS and Mote all have watercraft and engage in field research, along with significant lab-based research activities. All these entities are either actively or potentially interactive, and could provide opportunities for broadened instructional resources and undergraduate research. Community collaborations for research also include Boyd Hill Nature Park, Weedon Island Sanctuary, Lowry Park Zoo and Big Cat Rescue. USFSP is negotiating internship and practicum opportunities with All Children’s Hospital, Bayfront Hospital, Suncoast Clinic, Bayfront Medical Plaza, the Millennium clinic and the Center for Women’s Health. In addition, internships for pre-veterinary students are available at the Florida Fish and Wildlife Research Institute as well as six veterinary clinics within five miles of USFSP. Internships will be explored in for-profit medical and diagnostic labs such as Quest Diagnostics, International Medical Labs, Nutraceutical Clinical Labs, Scripps Florida (http://www.scripps.edu/florida), Sanford-Burnham (http://www.sanfordburnham.org), (http://www.sanfordburnham.org/about/locations/lake_nona_florida.aspx) and Jackson Laboratories Florida which will be located in Sarasota County.

IX. Faculty Participation

A. Use Table 4 to identify existing and anticipated ranked (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising, supervising internships and practica, and supervising thesis or dissertation hours).

See attachment

B. Use Table 2 to display the costs and associated funding resources for existing and anticipated ranked faculty (as identified in Table 2). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.

See attachment.

C. Provide the number of master's theses and/or doctoral dissertations directed, and the number and type of professional publications for each existing faculty member (do not include information for visiting or adjunct faculty).
<table>
<thead>
<tr>
<th>Name</th>
<th>position</th>
<th>Department</th>
<th># directed MS /PhD</th>
<th># publications</th>
<th>Type of publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alegria, Henry</td>
<td>Assoc Professor</td>
<td>ESP</td>
<td>2</td>
<td>12</td>
<td>Air Pollution, Organic Chemistry</td>
</tr>
<tr>
<td>Cassill, Deby</td>
<td>Assoc Professor</td>
<td>ESP</td>
<td>7</td>
<td>36</td>
<td>Evolution, Animal Behavior</td>
</tr>
<tr>
<td>Mark Walters</td>
<td>Associate Professor</td>
<td>MVD, Journalism</td>
<td>0</td>
<td>5 books</td>
<td>Science Journalism</td>
</tr>
<tr>
<td>Hardy, Leon</td>
<td>Instructor</td>
<td>ESP</td>
<td>0</td>
<td>4,+ 1 book</td>
<td>Theoretical Math and Physics</td>
</tr>
<tr>
<td>Hoare, Armando</td>
<td>Assistant Professor</td>
<td>ESP</td>
<td>4</td>
<td>0</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Asano, Erika</td>
<td>Assistant Professor</td>
<td>ESP</td>
<td>1</td>
<td>0</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Riedinger-Whitmore, M.</td>
<td>Associate Professor</td>
<td>Chair, ESP</td>
<td>5</td>
<td>10</td>
<td>Biology, Ecology, Limnology</td>
</tr>
<tr>
<td>Heather Judkins</td>
<td>Visiting Associate Professor</td>
<td>ESP</td>
<td>0</td>
<td>2</td>
<td>Marine Biology, Organismal biology</td>
</tr>
<tr>
<td>David John</td>
<td>Visiting Associate Professor</td>
<td>ESP</td>
<td>0</td>
<td>12</td>
<td>Microbiology, Molecular biology</td>
</tr>
</tbody>
</table>

D. 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 HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.

The Department of Environmental Science and Policy (ESP) employs nine tenure-track faculty, four visiting assistant professors and graduates ~60 students per year. Together, faculty has external grants totaling $358,336. Each faculty member averages one to four peer-reviewed publications per year. Faculty participate in an average of nine university service committees per year and five national service events per year including manuscript reviews, NSF grant reviews and journal editor.

E. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university’s students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved for all doctoral level proposals.

The Poynter Nelson Library at USFSP has access to thousands of biology, nursing and health science journals via the USF online system including Science, Nature, JAMA, New England Journal of Medicine, Annual Reviews, American Psychologist, Health Care Management Review, Health Economics, etc. Online access is available for all of the relevant electronic
databases including Medline, PsycINFO, PsycARTICLES, BIOSIS, Web of Science, ABI/INFORM, JSTOR, and SciFinder Scholar.

Currently, students and faculty have access to 10,231 print titles and 12,410 online e-books in medicine (Library of Congress call numbers R, QP, and QR) at the USFSP Library. In addition, the USFSP Library has interlibrary loan agreements with the USF Tampa Library, the USF Health Sciences Library.

USFSP offers no masters or doctoral degrees in Biology, thus a signed statement from the Library Dean is not needed.

F. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 3.

To build and sustain an adequate collection of monographs is complicated by the relatively high cost of STM books, and the need for clinical as well as scholarly works, combined with robust publishing in biology. Medical books are frequently superseded and must be replaced with newer editions, with core lists of medical reference works regularly updated. Maintaining basic coverage of the Brandon-Hill lists alone costs approximately $2,000.00 a year, with another $6,000 to $8,000 needed to maintain the current acquisitions commitment of the library, totaling $8,000 to $10,000 per year needed for monographic acquisitions. In addition, the USFSP Library is responsible for providing a yearly allocation of funding to help maintain the USF system-wide online resource collection.

G. Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.

USFSP has four large auditorium-style classrooms that can hold up to 75 students. USFSP has seven teaching laboratories that hold 24 students each for biology, anatomy and physiology, chemistry, physics and earth sciences. Faculty members have individual offices in Davis Hall. USFSP has 14 research labs: eight are located in the University Research Laboratory, four in the Science and Technology Building and two in the USGS building. The STG and Davis Hall have at least 20,000 sq ft of lab and classroom space for Biology students.

H. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2. Do not include costs for new construction because that information should be provided in response to X (J) below.

We do not anticipate demand outstretching our capacity. However, should demand increase faster than anticipated, in the near term, USFSP will have access to auditorium seating space at the Fish and Wildlife Research Institute (FWRI) Steidinger Auditorium, one block away from the USFSP classrooms. This auditorium can accommodate approximately 200 students. The College of Arts and Sciences currently has permission to use this as a classroom. In the longer term (2 years), USFSP’s newest building (Harbor Hall, formerly the Dali Museum) is expected to be developed into a facility and will have large suitable space.
I. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.

USFSP currently has adequate equipment in existing laboratories necessary to begin this new bachelors program. We expect expenditures of about 10,000 from existing E&G to get started. Student fees will be calculated to appropriately cover later purchases. Section J (below) specifies equipment we anticipate to acquire as the program moves from years two to five.

J. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2.

As the program progresses we will assess and enhance equipment as necessary. Among these items we might purchase down the line include: UV-transilluminator with camera for gel imaging system, portable anaerobic growth chamber, Bioinformatic Software packages, stirring hotplates, PCR thermocycler, benchtop autoclave, (12) 100x objectives for teaching microscopes, vacuum pump and filtration funnels, centrifuge (15-ml capacity), benchtop microcentrifuge, spectrophotometer, (12) micropipettes.

K. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2.

Not applicable.

L. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2.

All undergraduate scholarships are competitive and awarded based on need and/or merit. Scholarships are not program specific. As such biology majors will have the same opportunities as students in other majors. The use of graduate teaching assistants will continue as usual. Teaching assistants currently assist with laboratory instruction and are paid as OPS employees. Inasmuch as many of these courses are already running, additional teaching assistant costs will be negligible.

M. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.

Not applicable – this program requires an undergraduate research capstone project. Any internship and practicum experience will be elective only.

N. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Table 2 includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular
would necessitate increased costs in non-I&R activities.

Not applicable.
## TABLE 1-A
**PROJECTED HEADCOUNT FROM POTENTIAL SOURCES**
(Baccalaureate Degree Program)

<table>
<thead>
<tr>
<th>Source of Students (Non-duplicated headcount in any given 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><strong>HC</strong></td>
<td><strong>FTE</strong></td>
<td><strong>HC</strong></td>
<td><strong>FTE</strong></td>
<td><strong>HC</strong></td>
<td><strong>FTE</strong></td>
</tr>
<tr>
<td>Upper-level students who are transferring from other majors within the university**</td>
<td>5</td>
<td>3.75</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Students who initially entered the university as FTIC students and who are progressing from the lower to the upper level***</td>
<td>15</td>
<td>11.25</td>
<td>21</td>
<td>15.75</td>
<td>42</td>
</tr>
<tr>
<td>Florida community college transfers to the upper level***</td>
<td>10</td>
<td>7.5</td>
<td>10</td>
<td>7.5</td>
<td>15</td>
</tr>
<tr>
<td>Transfers to the upper level from other Florida colleges and universities***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Transfers from out of state colleges and universities***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other (Explain)***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>30</strong></td>
<td><strong>22.5</strong></td>
<td><strong>35</strong></td>
<td><strong>26.25</strong></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

* List projected annual headcount of enrolled students majoring in the program.
** If numbers appear in this category, they should go DOWN in later years.
*** Do not include individuals counted in any PRIOR CATEGORY in a given COLUMN.
<table>
<thead>
<tr>
<th>Instruction &amp; Research Costs (non-cumulative)</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reallocated Base* (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other New Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Non-Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal E&amp;G and C&amp;G</strong></td>
<td>$282,324</td>
<td>$150,957</td>
</tr>
<tr>
<td>Continuing Base** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other*** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal E&amp;G and C&amp;G</strong></td>
<td>$317,758</td>
<td>$166,800</td>
</tr>
</tbody>
</table>

*Identify reallocation sources in Table 3.

**Includes recurring E&G funded costs ("reallocated base," "enrollment growth," and "other new recurring") from Years 1–4 that continue into Year 5.

***Identify if non-recurring.

Faculty and Staff Summary

<table>
<thead>
<tr>
<th>Total Positions (person-years)</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>2.53</td>
<td>2.53</td>
</tr>
<tr>
<td>A &amp; P</td>
<td>0</td>
<td>0</td>
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<tr>
<td>USPS</td>
<td>0</td>
<td>0</td>
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</table>

Calculated Cost per Student FTE

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total E&amp;G Funding</td>
<td>$292,324</td>
<td>$317,758</td>
</tr>
<tr>
<td>Annual Student FTE</td>
<td>22.5</td>
<td>75</td>
</tr>
<tr>
<td>E&amp;G Cost per FTE</td>
<td>$12,992</td>
<td>$4,237</td>
</tr>
</tbody>
</table>

Worksheet Table 2 Budget
### TABLE 3
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS

<table>
<thead>
<tr>
<th>Program and/or E&amp;G account from which current funds will be reallocated during Year 1</th>
<th>Base before reallocation</th>
<th>Amount to be reallocated</th>
<th>Base after reallocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS E&amp;G</td>
<td>6,007,000</td>
<td>144,124</td>
<td>$5,862,876</td>
</tr>
</tbody>
</table>

| Totals | $6,007,000 | $144,124 | $5,862,876 |
### TABLE 4
ANTICIPATED FACULTY PARTICIPATION

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot;</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>Mos. Contract Year 1</th>
<th>FTE Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>Mos. Contract Year 5</th>
<th>FTE Year 5</th>
<th>% Effort for Prg. Year 5</th>
<th>PY Year 1</th>
<th>PY Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Melanie R-Whitmore PhD</td>
<td>Assoc</td>
<td>Tenured</td>
<td>Fall 2012</td>
<td>9</td>
<td>0.75</td>
<td>0.25</td>
<td>0.19</td>
<td>9</td>
<td>0.75</td>
<td>0.25</td>
<td>0.19</td>
</tr>
<tr>
<td>B</td>
<td>Deby Cassill, PhD</td>
<td>Assoc</td>
<td>Tenured</td>
<td>Fall 2012</td>
<td>9</td>
<td>0.75</td>
<td>0.75</td>
<td>0.5625</td>
<td>9</td>
<td>0.75</td>
<td>0.75</td>
<td>0.5625</td>
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<tr>
<td>A</td>
<td>Henry Alegria, PhD</td>
<td>Assoc</td>
<td>Tenured</td>
<td>Fall 2012</td>
<td>9</td>
<td>0.75</td>
<td>0.125</td>
<td>0.09</td>
<td>9</td>
<td>0.75</td>
<td>0.125</td>
<td>0.09</td>
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<tr>
<td>A</td>
<td>Tiffany Chenneville</td>
<td>Assoc</td>
<td>Tenure</td>
<td>Fall 2012</td>
<td>9</td>
<td>0.75</td>
<td>0.125</td>
<td>0.09</td>
<td>9</td>
<td>0.75</td>
<td>0.125</td>
<td>0.09</td>
</tr>
<tr>
<td>A</td>
<td>Mark Walters, PhD</td>
<td>Assoc</td>
<td>Tenured</td>
<td>Fall 2012</td>
<td>9</td>
<td>0.75</td>
<td>0.125</td>
<td>0.09</td>
<td>9</td>
<td>0.75</td>
<td>0.125</td>
<td>0.09</td>
</tr>
<tr>
<td>C</td>
<td>New Hire, PhD</td>
<td>Full-Time</td>
<td>Non-Ten</td>
<td>Fall 2012</td>
<td>9</td>
<td>0.75</td>
<td>1</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
<td>1</td>
<td>0.75</td>
</tr>
<tr>
<td>C</td>
<td>New Hire, PhD</td>
<td>Full-Time</td>
<td>Non-Ten</td>
<td>Fall 2012</td>
<td>9</td>
<td>0.75</td>
<td>1</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
<td>1</td>
<td>0.75</td>
</tr>
</tbody>
</table>

**Total Person-Years (PY)**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Source of Funding</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Current Education &amp; General Revenue</td>
<td>1.03</td>
<td>1.03</td>
</tr>
<tr>
<td>B</td>
<td>Current Education &amp; General Revenue</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>C</td>
<td>New Education &amp; General Revenue</td>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td>D</td>
<td>Contracts/Grants</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>E</td>
<td>Contracts/Grants</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Overall Totals for**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.53</td>
<td>2.53</td>
</tr>
</tbody>
</table>

Worksheet Table 4 Faculty