Program Mission: The Biology curriculum is designed to provide students with a strong foundation in the Biological Sciences, to introduce students to standard research methods in Biology, and to help them develop critical thinking skills as well as competency in scientific writing and quantitative analysis. Our degree prepares students for professional schools (medicine, dentistry, veterinary medicine, pharmacology, physical therapy), graduate programs in the life sciences (botany, animal behavior, cell biology, ecology, zoology, microbiology, marine biology, molecular biology, biomedicine, biotechnology), and other STEM-related fields that require a strong background in Biology. Students majoring in Biology complete core course work in cell biology, ecology, evolution, and genetics, can select elective courses from five areas of emphasis: a) Biomedical Sciences, b) Marine Biology, and c) Ecology and Evolution, d) Plant Biology, and e) General Biology, where students can also tailor their elective course choices to satisfy their individual academic or research interests. Undergraduate research experience is one of the capstone options for this degree, and students are provided many opportunities to work closely with Biology faculty on field or laboratory-based research projects. Internship opportunities, another capstone option, are available for Biology majors through local state and federal government agencies, nonprofit groups, and at biomedical facilities adjacent to the USFSP campus. The mission of our program is to provide our students with a strong foundation in Biology, and the technical and research skills that will allow them to succeed in a wide variety of biological science careers.

Program Vision: The Biology program began in Fall 2012, and within the first semester attracted over 550 Biology majors. By Fall 2015, the program had more than 760 majors. Since we are truly establishing the foundation for this degree, we have decided to base our goals/objectives on the recent American Association for the Advancement of Science “Vision and Change in Undergraduate Biology Education: A Call to Action - Final Report 2011 (http://visionandchange.org/files/2011/03/Revised-Vision-and-Change-Final-Report.pdf; http://visionandchange.org/; The goals/objectives recommended by AAAS, and which we follow are quoted below:

1. Integrate core concepts and competencies throughout the curriculum
   Introduce the scientific process to students early, and integrate it into all undergraduate biology courses. Define learning goals so that they focus on teaching students the core concepts, and align assessments so that they assess the students’ understanding of these concepts. Relate abstract concepts in biology to real-world examples on a regular basis, and make biology concepts relevant by presenting problems in a real-life context. Develop lifelong science-learning competencies. Introduce fewer concepts, but present them in greater depth. Stimulate the curiosity students have for learning about the natural world. Demonstrate both the passion scientists have for their discipline and their delight in sharing their understanding of the world with students.

2. Focus on student-centered learning
   Engage students as active participants, not passive recipients, in all undergraduate biology courses. Use multiple modes of instruction in addition to the traditional lecture. Ensure that undergraduate biology courses are active, outcome oriented, inquiry driven, and relevant. Facilitate student learning within a cooperative context. Introduce research experiences as an integral component of biology education for all students, regardless of major. Integrate multiple forms of assessment to track student learning. Give students ongoing, frequent, and multiple forms of feedback on their progress. View the assessment of course success as similar to scientific research, centered on the students involved, and apply the assessment data to improve and enhance the learning environment.

3. Promote a campus-wide commitment to change
   Mobilize all stakeholders, from students to administrators, to commit to improving the quality of undergraduate biology education. Support the development of a true community of scholars dedicated to advancing the life sciences and the science of teaching. Advocate for increased status, recognition, and rewards for innovation in teaching, student success, and other educational outcomes. Require graduate students in the biological sciences to participate in training in how to teach biology. Provide teaching support and training for all faculty, but especially postdoctoral fellows and early-career faculty, who are in their formative years as teachers.

4. Engage the Biology community in the implementation of change
   Promote more concept-oriented undergraduate biology courses, and help all students learn how to integrate facts into conceptual contexts. Ensure that all undergraduates
have authentic opportunities to experience the processes, nature, and limits of science. Create active-learning environments for all students, even those in first-year biology courses. Encourage all biologists to move beyond the “depth versus breadth” debate. Less really is more.

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<th>Program Outcomes</th>
<th>Means of Assessment</th>
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| **Content/Discipline Skills (Evolutionary Process)** - Demonstrate ability to discuss evolutionary processes and concepts  
Outcome Status: Active  
Planned Assessment Cycle: 2017 - 2018, 2018 - 2019 | **Direct Measure** - PCB 4674 - Organic Evolution: In class assignments that requires students to recognize and/or describe evolutionary concepts and processes  
**Criterion for Success**: 90% of students complete assignments with a minimum grade of 75%. | **Reporting Period**: 2018 - 2019  
**Conclusion**: Meets Expectations  
Sample data 95% of students complete assignment with minimum grade of 75% (04/23/2019) | **Use of Findings**: This course will be part of the required core following consolidation. During the next year we will be adding more activities to engage students during the weekly meetings. (04/23/2019) |
| **Content/Discipline Skills (Cell Processes)** - Demonstrate understanding of cell structure, function of cell components, and cellular processes.  
Outcome Status: Active  
Class assignments that requires students to identify components of the cell and the function of these components, and/or to describe key cellular processes.  
**Criterion for Success**: 90% of students complete assignments with a minimum grade of 75%. BSC 2010 – Bio I – Cell Processes | **Reporting Period**: 2018 - 2019  
**Conclusion**: Did Not Meet Expectations  
Depending on the section, between 59 and 83% of students met the criteria for success. (05/27/2019) | **Use of Findings**: The high DWF rate for this course has prompted us to explore using embedded TAs. We started doing this in Spring 2019. These TAs are working individually with students, to encourage student attendance and provide additional informal instruction on core topics. We hope to be able to continue this in 2019-2020, depending on college funding. (05/27/2019) |
| **Content/Discipline Skills (Ecology)** - Demonstrate understanding of principles of ecology at the population to ecosystem levels.  
Outcome Status: Active  
Completion of in class assignments on key concepts in ecology  
**Criterion for Success**: 90% of students complete assignments with a minimum grade of 75%. | **Reporting Period**: 2018 - 2019  
**Conclusion**: Meets Expectations  
Approximately 95% of students completed assignments with a minimum grade of 80%. Attendance was good. (05/27/2019) | **Use of Findings**: We are adding additional assignments to lectures to expand on the content areas covered, and we are working to add more interactive assignments in the lab portion of this course. (05/27/2019) |
| **Content/Discipline Skills (Genetics)** -  
Outcome Status: Active  
Completion of | | |

10/30/2019
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| **Demonstrate understanding of genetics, and chromosomal and molecular inheritance**  
**Outcome Status:** Active  
**Planned Assessment Cycle:** 2017 - 2018, 2018 - 2019 | in-class assessments on genes, and the processes of inheritance  
**Criterion for Success:** 90% of students complete this assignment with a minimum grade of 75% | **Reporting Period:** 2018 - 2019  
**Conclusion:** Meets Expectations  
Greater than 90% of the students met expectations. (05/27/2019) | **Use of Findings:** We are adding more online quizzes to help prepare students for lecture topics. (05/27/2019) |

| **Critical Thinking Skills (Research) - Ability to apply the process of science in designing original research**  
**Outcome Status:** Active  
**Planned Assessment Cycle:** 2017 - 2018, 2018 - 2019 | BSC 4910 - Undergraduate Research  
Students complete original research project that involves determining research question, experimental design, data analysis and interpretation  
**Criterion for Success:** 90% of students will complete research project with a satisfactory grade | **Reporting Period:** 2018 - 2019  
**Conclusion:** Meets Expectations  
100% of the students who registered for Undergraduate research met this benchmark. (05/27/2019) | **Use of Findings:** Following consolidation, undergraduate research will no longer be a capstone course. It will most likely be a general education upper-level option for our Biology students. Since our faculty value these research experiences for our students, we will be working closely with our advisors to encourage students to pursue research with faculty as they progress through their degree. (05/27/2019) |

| **Critical Thinking Skills (Quantitative Analysis) - Ability to use quantitative reasoning: Apply quantitative analysis to interpret biological data**  
**Outcome Status:** Active  
**Planned Assessment Cycle:** 2017 - 2018, 2018 - 2019 | BSC 3402L – Experimental Biology lab  
Students complete projects that require data analysis and interpretation  
**Criterion for Success:** 90% of students complete assignments with a minimum grade of 75% | **Reporting Period:** 2018 - 2019  
**Conclusion:** Meets Expectations  
About 97% of students met this benchmark. (05/27/2019) | **Use of Findings:** We need to expand data analysis to other courses, especially other core courses. We also need to expand this to our undergrad research experiences, where relevant. (05/27/2019) |

| **Civic Engagement - Demonstrate engagement with community partners**  
**Outcome Status:** Active  
**Planned Assessment Cycle:** 2017 - 2018, 2018 - 2019 | BSC 4940 – Biology Internship  
Students will complete internship in the community Active membership in one of our Biology student organizations  
**Criterion for Success:** 90% of students completing internship will have reference letters that are positive and will receive a grade of satisfactory. | **Reporting Period:** 2018 - 2019  
**Conclusion:** Meets Expectations  
100% of our students met this benchmark. (05/27/2019) | **Use of Findings:** Internship opportunities will become an upper-level general education option following consolidation. We want to work more closely with our internship coordinator to make sure that our students are being placed in appropriate venues that will help them gain skills needed for employment, or |
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<td>50% of our majors will be a member of a Biology student organization.</td>
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<td>for graduate or professional schools. We do not have data on the membership in student organizations. (05/27/2019)</td>
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**Multiculturalism / Diversity** - Ability to understand the relationship between science and society: Identify social and historical dimensions of biology practice

**Outcome Status:** Archived

**Planned Assessment Cycle:** 2018 - 2019

Not measured in 2017-2018.

**Criterion for Success:** We don’t have formal units in our courses that address this. We need to add these components at the introductory, and upper-level core course level.

**Reporting Period:** 2018 - 2019

**Conclusion:** Inconclusive

This was not measured in 2018-2019. We need to develop assessment strategies for this ALC. (05/27/2019)

**Use of Findings:** Because we will be consolidated in 2020, our ALCs will change dramatically since they will need to be consistent with what is offered at USF Tampa and Sarasota/Manatee. We will be working with them to add a more formal ALC for this category. Right now, we have several elective courses that do include aspects of history, social dimensions, but they have not been added as specific courses for our ALCs. (05/27/2019)