### Undergraduate Degree Program

#### Physics - BA

**Mission Statement**
This program prepares students interested in physics and planning to enter professional schools in business, education, journalism, law, and medicine, and for liberal arts students desiring a strong background in physical science but with career objectives in other areas. The flexible program offers the opportunity for parallel studies in another discipline and/or pre-professional preparation. Students may choose to follow the standard B.A. or choose a specific area of emphasis: the Biophysics Concentration, the Business Concentration, or the Entrepreneurship Concentration.

### Student Learning Outcomes

**FIU Physics - BA graduates should be able to achieve the following:**

**Content/Discipline Knowledge Skills**
Graduates will demonstrate competency in the subject knowledge of Physics in the areas of mechanics, electricity and magnetism, thermodynamics, and quantum/wave mechanics.

**Direct Measures**

<table>
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<tr>
<th>Procedure</th>
<th>All students will take the Education Testing Service (ETS) Field Exam in Physics during their senior year.</th>
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<tr>
<th>Sampling</th>
<th>All Physics students in their senior year.</th>
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<th>Minimum Criteria for Success</th>
<th>The average student score on both the basic and advanced level of the ETS exam will be at or above the national average.</th>
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**Technology Integration:**

| Procedure | |
|-----------||
Graduates will demonstrate competency in writing computer programs to solve Physics problems and analyze experimental data, including reading data files, numerical computation, mathematical modeling and curve fitting.

A three-member faculty panel will use a rubric describing 3 indicators of computer programming skills (3 point rating scale; 9 point maximum) to assess the programs which are part of the laboratory reports required in the Senior Laboratory courses. A mean score for each student will be obtained from the faculty ratings.

**Sampling:**
All students will be evaluated.

**Minimum Criteria for Success:**
Graduates will attain an average minimum score of 6 on computer programming.

### Critical Thinking Skills

Graduates will demonstrate their ability to think critically in terms of identifying and summarizing a problem or question, analyzing and examining ideas and research findings, assessing the influence of context, and constructing and interpreting information within Physics.

A three member faculty panel will use the rubric describing 4 indicators of critical thinking (5 point rating scale; 20 point maximum) to assess the laboratory reports in the required courses Modern Physics Laboratory I and II, or the elective course Senior Laboratory. A mean score for each student will be obtained from the faculty ratings.

**Sampling:**
All students will be evaluated.

**Minimum Criteria for Success:**
Graduates will attain an average minimum score of 12 on critical thinking.

### Communication Skills

B.A. graduates will demonstrate effective written communication

**Direct Measures**

**Procedure:**
B.A. graduates will demonstrate effective written communication skills in Physics by explaining content and developing ideas, effectively organizing information, demonstrating a command of the written language, and using the conventions of language and documentation appropriately.
skills in Physics by explaining content and developing ideas, effectively organizing information, demonstrating a command of the written language, and using the conventions of language and documentation appropriately.

A three member faculty panel will use the attached rubric describing 4 indicators of written communication skills (5 point rating scale; 20 point maximum) to assess the laboratory reports in the required courses Modern Physics Laboratory I and II, or the elective course Senior Laboratory. A mean score for each student will be obtained from the faculty ratings.

**Sampling:**
All students will be evaluated.

**Minimum Criteria for Success:**
Graduates will attain an average minimum score of 12 points on the written communication rubric.

Graduates will demonstrate effective oral communication skills including demonstrating an advanced level of subject knowledge, and ability to effectively organize and present concepts and data.

**Procedure:**
A three-member faculty panel will use a rubric (5 point rating scale; 20 point maximum) consisting of 4 oral communication skill indicators to assess the oral communication skills.

**Sampling:**
All graduating students at the end of the senior lab courses will be sampled.

**Minimum Criteria for Success:**
Graduates will attain a minimum of 12 points total on the oral communication rubric.