### Undergraduate Degree Program

#### Mathematics - BA

#### Mission Statement
The mission statement of the Dept. of Mathematics at FIU is to provide excellent teaching, perform high quality research in several different subfields of Mathematics, and serve the university, discipline, community, state and beyond. We aim to provide our students with a sound education in Mathematics providing a unique opportunity to make a significant contribution to the welfare of our contemporary society.

#### Student Learning Outcomes

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

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<tr>
<th>Content/Discipline Knowledge Skills</th>
<th>Direct Measures</th>
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| Graduates will demonstrate competency in the subject knowledge of Mathematics, especially in writing and critiquing mathematical proofs of statements about the structure of mathematical theories. Graduates will demonstrate competency in classroom management and in using a variety of teaching techniques. | **Procedure:** An exit exam will be given to all students in the Problem Seminar in Mathematics. The test includes 5 problems that are worth 20 points each. The exam will assess the following indicators of subject knowledge:  
  - Demonstrates a core knowledge of Calculus, and Elementary Ordinary Differential Equations, their applications, and their solutions by several well-understood techniques.  
  - Identifies basic theories, structures, and computational techniques of Linear Algebra and Discrete Mathematics.  
  - Applies general mathematical models and theories and abstract reasoning to solve concrete problems and/or formulate mathematical proofs  
  - Analyzes and critiques proofs and solutions to problems for correctness  |

**Sampling:**
All students enrolled in the course Problem Seminar in Mathematics (MAT 4510)

**Minimum Criteria for Success:**
Graduates will attain a minimum score of 70% of the possible points on subject knowledge.

**Technology Integration:**
Graduates will demonstrate competency in using technology to present ideas by using PowerPoint and other multimedia tools.

**Procedure:**
This outcome will not be implemented until AY 2016-2017. An assessment method is currently being developed.

**Critical Thinking Skills**
Graduates will demonstrate competency in critical thinking by evaluating the correctness and relevance of mathematical proofs and computations.

**Direct Measures**

**Procedure:**
A three member faculty panel will use a rubric describing 4 indicators of written communication skills (5 point rating scale; 20 point maximum) to assess students’ performance on an expository essay. Indicators will include:
- Identifies & summarizes the problem/question
- Analyzes & examines
- Assesses the influence of context
- Constructs & interprets
A mean score for each student will be obtained from the faculty ratings.

**Sampling:**
### Communication Skills

B.S. graduates will demonstrate effective oral communication skills through their subject knowledge of Mathematics, organization of ideas, adequate connection to an audience, and efficient delivery.

### Direct Measures

| **Procedure:** | 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 students’ performance on an oral presentation based on the expository essay. Indicators will include:  
- Subject knowledge  
- Organization  
- Connection to audience  
- Delivery  
A mean score for each student will be obtained from the faculty ratings. |
| **Sampling:** | All students enrolled in the course Problem Seminar in Mathematics (MAT 4510) |
| **Minimum Criteria for Success:** | Graduates will attain an average minimum score of 12 on critical thinking. |
skills through their ability to provide appropriate content, organize arguments, make effective use of language, logic and standard mathematical notations, and use scientific editors such as TEX to present their work.

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 students' performance on an expository essay. Indicators will include:
- Content & development
- Organization
- Language
- Conventions and use of technology
A mean score for each student will be obtained from the faculty ratings.

**Sampling:**
All students enrolled in the course Problem Seminar in Mathematics (MAT 4510)

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