### Mathematics BS/Minor – School of Sciences and Mathematics

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<tr>
<th>Outcome</th>
<th>Assessment Method</th>
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| SLO1: Using algebra, geometry, calculus and other track-appropriate sub-disciplines of mathematics, STUDENTS WILL model phenomena in mathematical terms. | **Mathematics Track:**  
**Measure 1.1** Student performance on a signature assignment will be ON THE FINAL EXAM related to modeling phenomena will be measured in Math 203, Linear Algebra, a core course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Measure 1.2** Student performance on a signature assignment ON THE FINAL EXAM related to modeling phenomena will be measured in Math 221, Calculus III, a required course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Teaching Track**  
**Measure 1.1** Student performance on a signature assignment will be ON THE FINAL EXAM related to modeling phenomena will be measured in Math 203, Linear Algebra, a core course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Measure 1.2** Student performance on a signature assignment ON THE FINAL EXAM related to modeling phenomena will be measured in Math 221, Calculus III, a required course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Statistics Track:**  
**Measure 1.1** Student performance on a signature assignment will be ON THE FINAL EXAM related to modeling phenomena will be measured in Math 203, Linear Algebra, a core course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Measure 1.2** Student performance on a signature assignment ON THE FINAL EXAM related to modeling phenomena will be measured in Math 221, Calculus III, a required course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Actuarial Track**  
**Measure 1.1** Student performance on a signature assignment will be ON THE FINAL EXAM related to modeling phenomena will be measured in Math 203, Linear Algebra, a core course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Measure 1.2** Student performance on a signature assignment ON THE FINAL EXAM related to modeling phenomena will be measured in Math 221, Calculus III, a required course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  

As mentioned above, as a result of past program assessment, the Department of Mathematics modified the tracks that make up the Mathematics B.S. program. The changes became effective this Fall 2018. Consequently, the FY 19 B.S./minor program assessment is a modification of that for FY 18. At our Departmental Assessment Committee meetings on August 20 and 22 2018, after analyzing the results of FY 18 program assessment, closing the loop, we decided to change the courses used for Measure 1.2 and 2.2, making uniform across tracks the course that will be used to obtain artifacts for Measure 1.2. and 2.2 and add another student learning outcome. This uniformity should provide better consistency in the data that we collect and improve its reliability. The FY 19 plan was approved by the Department of Mathematics faculty on August 28, 2018.
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| SLO2: Using algebra, geometry, calculus and other track-appropriate sub-disciplines of mathematics, STUDENTS WILL derive correct answers to challenging questions by APPLYING THE MODEL USED IN STUDENT Learning Outcome 1 | **Mathematics Track:**

- **Measure 2.1** Student performance on a signature assignment will be ON THE FINAL EXAM related to applying models will be measured in Math 203, Linear Algebra, a core course for all four tracks.

- **Performance Target:** At least 75% of students meet or exceed expectations.

- **Measure 2.2** Student performance on a signature assignment ON THE FINAL EXAM related to applying models will be measured in Math 221, Calculus III, a required course for all four tracks.

- **Performance Target:** At least 75% of students meet or exceed expectations.

**Teaching Track**

- **Measure 2.1** Student performance on a signature assignment will be ON THE FINAL EXAM related to applying models will be measured in Math 203, Linear Algebra, a core course for all four tracks.

- **Performance Target:** At least 75% of students meet or exceed expectations.

- **Measure 2.2** Student performance on a signature assignment ON THE FINAL EXAM related to applying models will be measured in Math 221, Calculus III, a required course for all four tracks.

- **Performance Target:** At least 75% of students meet or exceed expectations.

**Statistics Track:**

- **Measure 2.1** Student performance on a signature assignment will be ON THE FINAL EXAM related to applying models will be measured in Math 203, Linear Algebra, a core course for all four tracks.

- **Performance Target:** At least 75% of students meet or exceed expectations.

- **Measure 2.2** Student performance on a signature assignment ON THE FINAL EXAM related to applying models will be measured in Math 221, Calculus III, a required course for all four tracks.

- **Performance Target:** At least 75% of students meet or exceed expectations.

**Actuarial Track**

- **Measure 2.1** Student performance on a signature assignment will be ON THE FINAL EXAM related to applying models will be measured in Math 203, Linear Algebra, a core course for all four tracks.

- **Performance Target:** At least 75% of students meet or exceed expectations.

- **Measure 2.2** Student performance on a signature assignment ON THE FINAL EXAM related to applying models will be measured in Math 221, Calculus III, a required course for all four tracks.

- **Performance Target:** At least 75% of students meet or exceed expectations.

As mentioned above, as a result of past program assessment, the Department of Mathematics modified the tracks that make up the Mathematics B.S. program. The changes became effective this Fall 2018. Consequently, the FY 19 B.S./minor program assessment is a modification of that for FY 18. At our Departmental Assessment Committee meetings on August 20 and 22 2018, after analyzing the results of FY 18 program assessment, we decided to change the courses used for Measure 1.2 and 2.2 making uniform across tracks the course that will be used to obtain artifacts for Measure 1.2. and 2.2 and add another student learning outcome. This uniformity should provide better consistency in the data that we collect and improve its reliability. The FY 19 plan was approved by the Department of Mathematics faculty on August 28, 2018.
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| SLO3: STUDENTS WILL write complete, grammatically and logically correct arguments to prove their conclusions. | **Mathematics Track:** Measure 3.1 Student performance on a signature assignment will be ON THE FINAL EXAM related to writing proofs will be measured in Math 203, Linear Algebra, a core course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations. 
Measure 3.2 Student performance on a signature assignment ON THE FINAL EXAM related to writing proofs will be measured in Math 303, Abstract Algebra or Math 311, Advanced Calculus, one or the other is required for the Mathematics Track.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Teaching Track** Measure 3.1 Student performance on a signature assignment will be ON THE FINAL EXAM related to writing proofs will be measured in Math 203, Linear Algebra, a core course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
Measure 3.2 Student performance on a signature assignment ON THE FINAL EXAM related to writing proofs will be measured in Math 303, Abstract Algebra or Math 311, Advanced Calculus, both are required courses for the Teaching Track.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Statistics Track:** Measure 3.1 Student performance on a signature assignment will be ON THE FINAL EXAM related to writing proofs will be measured in Math 203, Linear Algebra, a core course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
Measure 3.2 Student performance on a signature assignment ON THE FINAL EXAM related to writing proofs will be measured in Math 431, Mathematical Statistics II, a required course for the Statistics Track.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
**Actuarial Track** Measure 3.1 Student performance on a signature assignment will be ON THE FINAL EXAM related to writing proofs will be measured in Math 203, Linear Algebra, a core course for all four tracks.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
Measure 3.2 Student performance on a signature assignment ON THE FINAL EXAM related to writing proofs will be measured in Math 431, Mathematical Statistics II, a required course for the Actuarial Track.  
**Performance Target:** At least 75% of students meet or exceed expectations.  
As mentioned above, as a result of past program assessment, the Department of Mathematics modified the tracks that make up the Mathematics B.S. program. The changes became effective this Fall 2018. Consequently, the FY 19 B.S./Minor program assessment is a modification of that for FY 18. At our Departmental Assessment Committee meetings on August 20 and 22 2018, after analyzing the results of FY 18 program assessment, we decided to change the courses used for Measure 1.2 and 2.2 making uniform across tracks the course that will be used to obtain artifacts for Measure 1.2. and 2.2 and add another student learning outcome. This uniformity should provide better consistency in the data that we collect and improve its reliability. The FY 19 plan was approved by the Department of Mathematics faculty on August 28, 2018.
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<td>SLO4: Students will demonstrate proficiency at the highest level of undergraduate mathematics courses.</td>
<td>Proficiency at the highest level. (Mathematics is referred to as the “language of nature” due to its singular power as a tool to model nature and use its models to answer questions. Mathematics is an exact science and as such its “truths” must necessarily be demonstrated exactly. All of these aspects of mathematics: modeling, applying models and answering questions clearly, correctly and logically are embodied in 400-level mathematics courses. These are culminating courses at the highest level in the undergraduate mathematics curriculum, taught by faculty who are teacher-scholars in small classrooms. Hence, SLO 4 aligns with items 3, 4 and 5 of the mission of the Bachelor of Science in Mathematics program as well as the Department of Mathematics mission to “…to impart mathematical knowledge, skills, and critical reasoning…” It aligns with the School of Sciences and Mathematics mission by equipping “…students who major in sciences and/or mathematics with the knowledge and skills to pursue careers in a wide variety of fields, including, science, engineering, medicine and allied health, law, social services, and journalism.” And it aligns with Goals 1 and Goals 2 of the College of Charleston Strategic Plan by enhancing the undergraduate academic core in support of a “…highly personalized education based on a liberal arts and science core; and by contributing to the well-being of the region, by giving students the mathematical foundation to pursue careers in science, technology, engineering and mathematics.”) For all four tracks the measures for SLO 4 will be the grades on the final exams or final projects for all 400 level mathematics courses taken by majors in the B.S. program. As such it serves as a high-level reflection of proficiency for SLO 1, 2 and 3. Hence it is meant to be the third measure for SLO 1, 2 and 3 reflected in a separate student learning outcome. Since we will be doing this for all 400 level courses taken by Mathematics BS majors and minors, each course is viewed as a measure, hence there will be multiple measures for SLO 4.</td>
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