**Assessment of student learning** Assessment of Student Learning for the major: Actuarial Science

| **ULOs** | **CWEO** | **Program Learning Objective (**Students will demonstrate the ability to…) | **Courses** which support the program learning objective. | What is the **depth** of the student learning on the program objective as a result from EACH course? **(**Foundational, developing, competent) | **Course-level student learning objectives that support the program objective.** | Critical student product used to assess level of learning (exam, paper, project, presentation, etc.) | Is the product used as an Assessment measure for the major?(i.e. is it reported in WEAVE) (Yes/No) | If product is part of program assessment data, when and how often will the product be assessed in WEAVE? |
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| **2. Breadth and depth of knowledge** Develop knowledge common to the liberal arts and sciences in the fields of arts, humanities, natural sciences, and social sciences. Students will also develop specialized nowledge and disciplinary expertise | **4.1 Breadth and depth of knowledge:** Understanding the foundational content and philosophical assumptions of one’s specialized area of study | Students will demonstrate the knowledge of key content for actuarial science majors. This will include:   * Calculus * Algebra * Mathematics of Finance * Regression and Time Series * Probability Theory * Economics * Corporate Finance | MATH 111, 112, 195, 211, 261, 350, 362, 412, 450, 494, STAT 291, 291, 345, 407 (PHYS 211, COSC 181, ECON 120, 220, ACCT 131, FIN 301, 307, 351, 401) | Developing | General MATH and STAT courses prepare students with foundational content for the Mathematics Major Field Test. This is a unique strength of our program.  MATH 450: All objectives prepare students for SOA Exam FM. (See above)  STAT 407: All objectives prepare students for SOA Exam P. (See above) | Major Field Test – ETS Mathematics Major Field test, taken by all mathematics seniors in the final month of the degree plan  SOA FM Exam, SOA P Exam | Yes  Yes | This will be evaluated at the same times as it is for the MATH/MATT majors.  Three year pass rate will be evaluated for both exams. Since the first graduating class is projected for 2021, assessment of this will begin in 2024. |
| **4.2 Specialized scholarship.** Become proficient in the scholarship of their discipline and demonstrate specialized skills needed to pursue a career and/or graduate school | **4.2 Scholarship:** Engaging in scholarship in one’s specialized area of study | Students will demonstrate the scholarly skills needed in this field. This will include demonstrating the ability to:   * Design computer programs and interfaces * Use Calculus appropriately in modeling and analysis of problems * Understand and develop rigorous proofs in mathematics * Effectively model and solve financial problems including forecasting and risk * Explain the results of their mathematical work plainly in terms appropriate to their audience * Identify key assumptions of their analyses and justify the validity and quality of their models and results * Understand key financial models within corporations | MATH 350/450, STAT 291/407 | Competent | MATH 450: All objectives prepare students for SOA Exam FM. (See above)  STAT 407: All objectives prepare students for SOA Exam P. (See above) | SOA FM Exam, SOA P Exam | Yes | Three year pass rate will be evaluated for both exams. Since the first graduating class is projected for 2021, assessment of this will begin in 2024. |
| **4.3 Specialized skills** Become proficient in the scholarship of their discipline and demonstrate specialized skills needed to pursue a career and/or graduate school | **4.3 Specialized skills:** Developing proficiency in one’s specialized area of study sufficient to pursue a career and/or continue education at the graduate level | Students will demonstrate proficiency in specialized skills needed in an entry level position in actuarial science:   * Modeling economic trends * Developing financial models and understanding how they fit into the larger corporate picture * Use regression and time series analysis to make business projections and decisions * Articulate the probabilistic underpinnings of their work and be able to describe plainly the assumptions and limitations of their work | MATH 350/450, ECON 120/220, FIN 350, STAT 345, STAT 407 | Competent | MATH 450: All objectives prepare students for SOA Exam FM. (See above)  STAT 407: All objectives prepare students for SOA Exam P. (See above) | SOA FM Exam, SOA P Exam | Yes | Three year pass rate will be evaluated for both exams. Since the first graduating class is projected for 2021, assessment of this will begin in 2024. |
| **5. Self-Awareness** Gain awareness of identity, character, and vocational calling | **4.4 Intrapersonal Awareness:** Gaining an awareness of options for employment, voluntary service, and/or graduate education in one’s specialized area of study | Students will demonstrate an ability to discuss employment options within the actuarial field, as well as in related mathematical disciplines. | MATH 195, MATH 494 | Foundational (MATH 195), Competent (MATH 494) | MATH 195: To increase understanding of the employment opportunities in the mathematical sciences.  MATH 494:   * To become familiar with the major professional organizations. * To attend at least one professional mathematical presentation or meeting. | Students will complete assignments in both MATH 195 and MATH 494 related to vocational and educational options in mathematics and actuarial science. | Yes | Once every 3 years (Earliest will be 2023, synced with MATH/MATT assessment), the department will randomly select 3 graduates of the ACSC major and analyze the quality of these assignments longitudinally, looking for evidence of *gained awareness*, according to a rubric written by the department. |
| **3. Faith knowledge & application** Develop informed and mature convictions about Christian faith and practice | **4.5 Faith knowledge & application:** Articulating how faith connects to one’s specialized area of study and to potential career options in that area of study | Students will demonstrate a growing ability to meaningfully discuss the relationship between their faith and their chosen field. | MATH 195, MATH 494 | Foundational (MATH 195), Competent (MATH 494) | MATH 195: To begin a major-specific consideration of issues of Christian vocation and the  integration of faith and mathematical thought.  MATH 494:   * To reflect on the philosophical and faith related questions which are part of mathematics. * To search for and share the overall beauty of mathematics. | Students will complete assignments in both MATH 195 and MATH 494 related to vocational and educational options in mathematics and mathematics education. | Yes | Once every 3 years (Earliest will be 2023, synced with MATH/MATT assessment), the department will randomly select 3 graduates of the ACSC major and analyze the quality of these assignments longitudinally, looking for evidence of *gained awareness*, according to a rubric written by the department. |