

FLORIDA GULF COAST UNIVERSITY
 College of Arts and Sciences
Mathematics Program (B.S.)
Integrated Program Matrix
Synthesis and Revision – May 2009

University and Program Learning Goals and Outcomes	Program Assessment Plan and Criteria	Use of Assessment Results for Continuous Program Improvement 2009-2010 (Due October 10)	Use of Assessment Results for Continuous Program Improvement 2012-13 (Due October 13)	Use of Assessment Results for Continuous Program Improvement 2015-16 (Due October 16)
<p><u>Aesthetic Sensibility</u> (University Level)</p> <p>A. Know and understand the variety of aesthetic frameworks</p> <p>B. Analyze and evaluate aesthetic principles at work</p> <p>C. Collaborate in projects involving aesthetic awareness and/or analysis</p> <p><u>Aesthetic Sensibility</u> (Program Level)</p> <p>Students must be able to:</p> <ul style="list-style-type: none"> • Demonstrate an awareness of the aesthetic frameworks that influence the philosophy of mathematics • Demonstrate an awareness of the aesthetic values present in logical and symbolic structures • Appreciate the aesthetic content of mathematical works 	<p><u>Plan and Criteria:</u> Work from graduating seniors, including final papers, presentations, and other assignments, will be collected every semester. An Aesthetic Sensibility rubric, which includes criteria allowing faculty to analyze student awareness of aesthetic frameworks and student abilities to examine aesthetic qualities, will be used to assess how well students meet this goal. Student average will exceed 3.5 on a 1-5 scale (5 best). Students will be given an Exit Survey to determine the extent to which they feel this program goal was supported by course work. Specific questions on the Exit Survey will address whether or not students feel that this program goal was achieved, and the expectation is that all students will “agree” or “strongly agree” that the program has met this goal.</p>			

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<p><u>Culturally Diverse Perspective</u> (University Level)</p> <p>A. Know and understand diversity in local/global communities</p> <p>B. Analyze and evaluate the impact of cultural differences</p> <p>C. Participate in projects involving interaction with diverse people, ideas, & values</p> <p><u>Culturally Diverse Perspective</u> (Program Level)</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> • Demonstrate an in-depth understanding of the influence of diverse cultures on the development of mathematics • Exhibit an awareness of mathematical thought emanating from diverse cultural traditions 	<p>Plan and Criteria: Graduating student schedules will be analyzed to determine if they have taken course work presenting the history and philosophy of mathematics. In addition, work from graduating seniors, including especially oral presentations and final papers, will be collected every semester. This work will be analyzed in order to determine if students are developing not only an understanding of traditional western mathematical thought, but non-traditional western and non-western mathematical philosophies. A Culturally Diverse Perspective rubric, which includes criteria allowing faculty to analyze student ability to consider diverse perspectives, will be used to assess how well students meet this goal. Student average will exceed 3.5 on a 1-5 scale (5 best). Students will be given an Exit Survey to determine the extent to which they feel this program goal was supported by course work. Specific questions on the Exit Survey will address whether or not students feel that this program goal was achieved, and the expectation is that all students will “agree” or “strongly agree” that the program has met this goal.</p>			

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<p><u>Ecological Perspective</u> (University Level)</p> <p>A. Know issues of ecological/ economic sustainability</p> <p>B. Analyze and evaluate local & global ecological issues</p> <p>C. Participate in ecological/environmental projects</p> <p><u>Ecological Perspective</u> (Program Level)</p> <p>This outcome is covered by student participation in the university required course IDS 3920 Colloquium</p>	<p><u>Plan and Criteria:</u> The University Quality Enhancement Plan provides an assessment strategy to determine how well students meet the learning goal of an Ecological Perspective.</p>			

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<p><u>Effective Communication</u> (University Level)</p> <p>A. Know principles for effective communication</p> <p>B. Organize thoughts and compose ideas</p> <p>C. Participate in collaborative communication projects</p> <p><u>Effective Communication</u> (Program Level)</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> • Write logically coherent mathematical proofs, problem solutions, and expository narratives (Academic Learning Compact 1.1) • Make effective oral presentations of mathematical ideas 	<p><u>Plan and Criteria:</u> Work from graduating seniors, including final papers, presentations, and other assignments, will be collected every semester. An Effective Communication rubric, which includes criteria allowing faculty to analyze student abilities to communicate both in written and oral formats, will be used to assess how well students meet this goal. Student average will exceed 3.5 on a 1-5 scale (5 best). Students will be given an Exit Survey to determine the extent to which they feel this program goal was supported by course work. Specific questions on the Exit Survey will address whether or not students feel that this program goal was achieved, and the expectation is that all students will “agree” or “strongly agree” that the program has met this goal.</p>			

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<p><u>Ethical Responsibility</u> (University Level)</p> <p>A. Know and understand ethical issues</p> <p>B. Analyze and evaluate ethical issues in a variety of contexts</p> <p>C. Participate in collaborative projects involving ethical analysis and/or decisions</p> <p><u>Ethical Responsibility</u> (Program Level)</p> <p>Note: Program needs to develop (a) learning outcome(s) that relate to this goal.</p>	<p><u>Plan and Criteria:</u> Work from graduating seniors, including final papers, presentations, and other assignments, will be collected every semester. An Ethical Responsibility rubric, which includes criteria allowing faculty to analyze student abilities to engage ethical issues, will be used to assess how well students meet this goal. Student average will exceed 3.5 on a 1-5 scale (5 best). Students will be given an Exit Survey to determine the extent to which they feel this program goal was supported by course work. Specific questions on the Exit Survey will address whether or not students feel that this program goal was achieved, and the expectation is that all students will “agree” or “strongly agree” that the program has met this goal.</p>			

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<p><u>Information Literacy</u> (University Level)</p> <p>A. Identify and locate sources of information</p> <p>B. Analyze and evaluate information in a variety of contexts</p> <p>C. Participate in collaborative analysis/application of information</p> <p><u>Information Literacy</u> (Program Level)</p> <p>Students must be able to:</p> <ul style="list-style-type: none"> • Search databases and resource systems in order to collect useful information • Judge the reliability and contextual nuances of publicly available information • Demonstrate an awareness of the general scope of mathematical resources available in different formats. 	<p><u>Plan and Criteria:</u> Work from graduating seniors, including final papers, presentations, and other assignments, will be collected every semester. An Information Literacy rubric, which includes criteria allowing faculty to analyze student abilities to use databases and resource systems and to communicate using technology, will be used to assess how well students meet this goal. Student average will exceed 3.5 on a 1-5 scale (5 best). Students will be given an Exit Survey to determine the extent to which they feel this program goal was supported by course work. Specific questions on the Exit Survey will address whether or not students feel that this program goal was achieved, and the expectation is that all students will “agree” or “strongly agree” that the program has met this goal.</p>			

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<p><u>Problem-Solving Abilities</u> (University Level)</p> <p>A. Understand multi/interdisciplinary nature of knowledge</p> <p>B. Apply critical, analytical creative and systems thinking</p> <p>C. Work individually and collaboratively to recognize and solve problems</p> <p><u>Critical Thinking and Problem-Solving Abilities</u> (Program Level)</p> <p>Learners will be able to:</p> <ul style="list-style-type: none"> • Solve mathematical problems in a variety of contexts, pure and applied (Academic Learning Compact 1.2) • Understand advanced, abstract algebraic structures, such as groups, rings and fields, and advanced analytical methodologies (Academic Learning Compact 1.3) 	<p><u>Plan and Criteria:</u> Work from graduating seniors, including final papers, presentations, and other assignments, will be collected every semester. In addition, course work from Abstract Algebra II and Analysis II will be collected. A Critical Thinking rubric, which includes criteria allowing faculty to analyze student abilities to analyze texts and connect the study of mathematics to other disciplines, will be used to assess how well students meet this goal. Student average will exceed 3.5 on a 1-5 scale (5 best). Students will be given an Exit Survey to determine the extent to which they feel this program goal was supported by course work. Specific questions on the Exit Survey will address whether or not students feel that this program goal was achieved, and the expectation is that all students will “agree” or “strongly agree” that the program has met this goal.</p>			

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<p><u>Technological Literacy</u> (University Level)</p> <p>A. Develop knowledge of modern technology</p> <p>B. Process information through use of technology</p> <p>C. Collaborate with others using technology tools</p> <p><u>Technological Literacy</u> (Program Level)</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> • Search databases and resource systems in order to collect useful information • Use software to perform symbolic or numerical calculation 	<p><u>Plan and Criteria:</u> Work from graduating seniors, including final papers, presentations, and other assignments, will be collected every semester. A Technological Literacy rubric, which includes criteria allowing faculty to analyze student abilities to analyze texts and connect the study of mathematics to other disciplines, will be used to assess how well students meet this goal. Student average will exceed 3.5 on a 1-5 scale (5 best). Students will be given an Exit Survey to determine the extent to which they feel this program goal was supported by course work. Specific questions on the Exit Survey will address whether or not students feel that this program goal was achieved, and the expectation is that all students will “agree” or “strongly agree” that the program has met this goal.</p>			

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<p><u>Community Awareness and Involvement</u> (University Level)</p> <p>A. Know and understand relationships between individuals and their communities</p> <p>B. Analyze, evaluate and assess human needs and practices</p> <p>C. Participate collaboratively in community service projects</p> <p><u>Community Awareness and Involvement</u> (Program Level)</p> <p>Note: Program needs to develop (a) learning outcome(s) that relate to this goal.</p>	<p><u>Plan and Criteria:</u> Work from graduating seniors, including final papers, presentations, and other assignments, including evidence of community service activities, will be collected every semester. A Community Awareness and Involvement rubric, which includes criteria allowing faculty to analyze student engagement of the local and professional communities, will be used to assess how well students meet this goals. Student average will exceed 3.5 on a 1-5 scale (5 best). Students will be given an Exit Survey to determine the extent to which they feel this program goal was supported by course work. Specific questions on the Exit Survey will address whether or not students feel that this program goal was achieved, and the expectation is that all students will “agree” or “strongly agree” that the program has met this goal.</p>			