

Cecil College Academic Program Review



Math

June 2013



Math Review

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Program Description:

The Math program consists of two parts. The first part is the Arts and Sciences Transfer Degree in Mathematics which consist of Calculus I with Analytic Geometry (MAT201), Calculus II with Analytic Geometry (MAT202), Multivariable Calculus (MAT203), Introduction to Linear Algebra (MAT240), Introduction to Differential Equations (MAT246) and Introduction to Statistics (MAT127). There are usually 2 to 4 graduates per year in this program with most of them graduating with dual degrees in Engineering, Computer Science or Physics in addition to Math. The second part of the math program is the collection of college-level math courses that support other disciplines and are used by students to fulfill their math requirement(s). There are five courses in this category listed in order of the enrollment: Introduction to Statistics (MAT127), Precalculus (MAT121), Finite Math (MAT123), Discrete Structures (MAT236) and Introduction to Statistics II (MAT128). Note that Introduction to Statistics is in both categories since it is required in the Math Program and it is the primary general education math course taken by most students in fulfilling their math requirement. In addition, the last two courses listed, Discrete Structures and Introduction to Statistics II have only run a couple of times with very small enrollments. Note: MAT133 and MAT134 will not be included in this report because they are not general education courses. They are math for elementary education courses and as such are only required for the Elementary Education Degree.

Math clearly supports the College Mission by providing learning experiences that meet the needs of Cecil College students, offers students an enriched supportive [learning environment](#) and empowers students with skills, knowledge, and values needed [for college](#) success, transfer to four-year institutions, workforce entry or advancement, and personal enrichment. Math also supports the Strategic Plan. Math supports Strategic Initiative 1: shift to an emphasis on student completion. Math redesigned the math developmental courses to make it possible for motivated students to complete the developmental math sequence in fewer semesters. math designed Bridge and Jump Start programs that offer students the opportunity to place higher in the math sequence. Math supports Strategic Initiative 3: create work force opportunities related to federal government expansion regionally and nationally especially regarding BRAC. The jobs offered by BRAC are essential high end STEM related jobs and math offers courses and a program that is essential to STEM. Math supports Strategic Initiative 4: become a regional leader in incorporating innovative technology for learning in that math embed technology in our classes and attend national conferences yearly that keep us abreast of the latest and best technologies for teaching math. Many of us also present at such conferences.

The following is a listing of Math Faculty Profiles:

Faculty Profiles	Credentials	Other College Activities
John Climent	<p>B.S. Engineering Science, Hofstra University 1968 M.A. Mathematics, Hofstra University, 1972 Ph. D. Statistics, University of Delaware, 1990</p> <p>Math Courses Taught All prefixes are MAT except 000 which represents the combined developmental math courses. Number of Sections in Parenthesis</p> <p>FY2013: 127(3), 202(2), 203(2) FY2012: 000(1), 127(1), 202(1) FY2011: 000(1), 127(1), 202(1) FY2010: 127(1), 202(1), 203(1) FY2009: 092(1), 201(1), 202(1), 240(1)</p>	<p>FY2013: Math Chair. Developmental Education Committee. Active participant in Statewide Math Group. Attended AMATYC conference in November. Served on Data Needs Committee. Served on PARC Committee which has yet to meet. Attended USCOTS conference in May.</p> <p>FY2012: Math Chair Developmental Education Committee. Active participant in Statewide Math Group. Served on County Math Steering Committee. Served on County STEM Committee. Served as Chair of AMATYC Statistics Committee Attended AMATYC conference in November. Served as Math Redesign Leader. Presented at redesign workshop in Dallas TX in March. Served on Data Needs Committee. Helped write and obtain a grant for MAT095. Wrote the syllabus for MAT095. Served on PARC Committee which has yet to meet. Helped write activities for statistics outcomes for common core standards. Serve on STEM grant committee.</p> <p>FY2011: Math Chair. Chair Developmental Math Committee Active participant in Statewide Math Group. Served on County Math Steering Committee. Served on County STEM Committee. Chair of AMATYC Statistics Committee Made presentation at ASA and AMATYC on Statway. Attended AMATYC conference in November. Chaired Computer Science Faculty Search Committee. Attended USCOTS conference in May. Served as Math Redesign Leader. Presented at redesign workshop in Dallas TX. Served on Data Needs Committee.</p> <p>FY2010: Senate Vice-President. Math Chair. Active participant in Statewide Math meetings (three meetings). Made Statway and Alternative Pathway presentation to Statewide Math Group. Served on County Math Steering Committee.</p>

Faculty Profiles	Credentials	Other College Activities
		<p>Served on County STEM Committee. Served as Chair of AMATYC sub-committee. Served as "content specialist" for Statway which is a proposed alternative pathway being developed by the Carnegie Foundation for the Advancement of Teaching and The Dana Center. Attended AMATYC conference in November and made a presentation there. Served on Developmental Ed. Committee and chaired it for the spring semester. Served on Math Faculty Search Committee. Worked with Rebecca Walker on a grant proposal for math course redesign. Attended conference on course (math) redesign in Orlando in the spring. Attend redesign workshop in Dallas TX in May. Did a study of math success rates from data given to me from Institutional Research. Wrote the Math Review for Middle States. Attended all Middle States meetings. FY2009: Senate Vice-President. Math Chair. Participated in the American Diploma Project. Active participant in Statewide Math Group. Served on County Math Textbook Steering Committee. Served on County STEM Committee. Selected as Chair of AMATYC sub-committee on statistics education. Attended some CMT meetings & Board meetings for Senate President. Oversaw Cecil's participation in ADP test pilot. Member of MMATYC committee on piloting the ADP. Algebra 2 test, Attended AMATYC conference in November, Served on Developmental Ed, Committee, Served on Engineering Faculty Search Committee, Did Campus visits for new Math/Engineering building, Rewrote Math Course Descriptions, Reviewed and revised prerequisites for math courses, Worked with English faculty on COL081 course, Served on Senate By-Laws revision subcommittee, Wrote Syllabus for MAT128, Attended USCOTS conference in May.</p>

Faculty Profiles	Credentials	Other College Activities
Brandie Bidy	<p>A.S. Mathematics, Cecil College A.S. Physics, Cecil College B.S. Pure Mathematics, Towson University M.S. Applied and Computational Mathematics, John's Hopkins University</p> <p>Math Courses Taught All prefixes are MAT except 000 which represents the combined developmental math courses. Number of Sections in Parenthesis</p> <p>FY2013: 000(3), 121(1), 127(1)</p> <p>FY2012: 000(5), 121(1), 123(1), 127(1)</p>	<p>FY2013: Milburn Stone Theatre Advisory Committee, Theatre Search Committee, Co-creator and co-advisor of Cecil College Math League, Faculty advisor for the Geekdom student group. Served as faculty advisor for Cecil Allies.</p> <p>FY2012: Milburn Stone Theatre Advisory Committee , Theatre Search Committee Theatre Search Committee , Co-creator and co-advisor of Cecil College Math League. Served as faculty advisor for the Cecil Allies student.</p>
Anne Edlin	<p>Math Courses Taught All prefixes are MAT except 000 which represents the combined developmental math courses. Number of Sections in Parenthesis</p> <p>FY2013:000(3), 121(1), 133(1), 134(1), 201(1) FY2012: 000(2), 121(2), 133(4), 210(1) FY2011: 000(1), 091(1), 092(1), 121(1) 134(2)</p>	<p>Info requested but not submitted.</p> <p>FY2013: FY2012: FY2011: FY2010: FY2009:</p>
Kristy Erickson	Ed. D. Teacher Leadership, Walden	<p>FY2013: AAT Inductions</p>

Faculty Profiles	Credentials	Other College Activities
	<p>University 2013 M.A. Mathematics, Rowan University 2004 BA Mathematics, Rowan University 2002, Physics Minor, Concentration in Applied Math, Certification in Secondary Education</p> <p>Math Courses Taught All prefixes are MAT except 000 which represents the combined developmental math courses. Number of Sections in Parenthesis</p>	<p>Co-advisor of Cecil College Math League Faculty Affairs Committee Senate Held a WebAssign demonstration that outlined new features for both full time and adjunct math faculty Brought representative from ALEXS to Cecil to demonstrate software for developmental education courses. Complete revision of MAT 202 lecture notes Created a variety of videos for online Precalculus FY2012: AAT Inductions. Attended AMATYC Conference Co-creator and co-advisor of Cecil College Math League Academic Affairs Committee. Complete revision of MAT 201 and 203 lecture notes FY2011: AAT Inductions. Attended webinars. Academic Affairs Committee. Engineering Hiring Committee. Computer Science Hiring Committee. Grading Policy Committee for M grade (Chair). FY2010: AAT Inductions. Attended AMATYC Conference Developmental Ed Committee. Search Committees Created the rubric for the Capstone Project in MAT 203 FY2009: Developmental Ed Committee. Faculty Affairs Committee. Web Site. Engineering Hiring Committee. AAT inductions. Attended AMATYC Conference Helped host AMATYC Conference in DC.</p>

Faculty Profiles	Credentials	Other College Activities
Alketa Gjikutria	<p>Ed. D. Walden University, Expected in January 2014, Specialization: <i>Higher Education & Adult Learning</i></p> <p>M.S. Mathematics, Florida Atlantic University, 2005</p> <p>B.S. Mathematics, Salisbury University 2003, Minor: Computer Science, Philosophy, Graduated Cum Laude, Dean's List, All-American Scholar</p> <p>Math Courses Taught All prefixes are MAT except 000 which represents the combined developmental math courses. Number of Sections in Parenthesis</p> <p>FY2013: 000(6), 091(2), 092(3), 093(2) 202(1)</p> <p>FY2012: 000(3), 093(1), 201(2), 202(1) 203(1), 246(1)</p> <p>FY2011: 000(3), 091(1), 092(1), 093(1) 121(1), 202(1), 246(1)</p> <p>FY2010: 091(1), 091/092(1), 092(4) 121(2), 246(1)</p> <p>FY2009: 092(5), 121(4), 246(1)</p>	<p>FY2013: MEHC Fellow. AFACCT Representative. Presentation with Kim Sheppard at 2013 AFACCT Conference: "Technology Infused Classroom".</p> <p>FY2012: AFACCT Representative, Academic Senate, AFACCT Conference.</p> <p>FY2011: AFACCT Representative. Academic Senate. Developmental Education Committee. AMATYC Conference. Presentation with Kim Sheppard at AMATYC Conference: "Engaging and interactive lesson plans and course delivery through innovative technology".</p> <p>FY2010: Academic Senate. Developmental Education Committee. NCAT Redesign Alliance Conference. AFACCT Conference. Presentation with Kim Sheppard AMATYC Conference: "Making communication and feedback Fun Using Jing". NCAT Grant - Math Redesign: Co-Develop the curriculum for all three developmental courses, as well as authored the three notebooks for each course.</p> <p>FY2009: MMATYC Conference, AMATYC Conference.</p>
Joe Kupresanin	<p>Master of Applied Statistics, The Ohio State University, Certificate in College Teaching, The Ohio State University</p>	<p>FY2013: Senate, Vice President. CMT, Attendee. Academic Affairs, Member. Completion / Bridge, Fall 2012 through early 2013. Faculty Affairs, Consultant and Author. Developed U-Tube motivational videos in Dev. Ed. Math. USCOTS.</p>

Faculty Profiles	Credentials	Other College Activities
	<p>Math Courses Taught All prefixes are MAT except 000 which represents the combined developmental math courses. Number of Sections in Parenthesis</p> <p>FY2013: 127(6), 128(1), 240(1)</p> <p>FY2012: 127(8), 240(1)</p> <p>FY2011: 093(1), 121(2), 127(6), 240(1)</p> <p>FY2010: 121(2), 127(8), 240(1)</p> <p>FY2009: 091(1), 092(1), 093(4), 127(7)</p>	<p>Developed motivational math posters for classrooms. Authored 200+ page Math 128 course manual. Development of advertising posters for Dev. Ed. Math. Coordinated Math 127 course materials for all instructors. Presented approved sabbatical to Board Developed Summer Bridge teaching materials. Taught Summer Bridge course. Developed Winter Jump Start teaching materials. Taught Winter Jump Start course. FY2012: English Lectureship Search Committee. Faculty Survey Committee. Mentor to two STEM high school students. AMATYC. Complete revision of Linear Algebra notes. FY2011: Faculty Affairs. AMATYC Conference in November, USCOTS Conference. FY2010: Served on the Speaker Series committee. Served on the Academic Senate Fall 2009 Presented at High School Recruitment Day. Presented at Minority Recruitment Day. Present at STEM night. Served on the search committee for Director of Institutional Research. Chaired the math search committee. AMATYC. FY2009: Served on the Speaker Series committee. Served on Developmental Education committee. Worked booth at the Cecil County Fair. Worked High School Recruitment Day. Worked at Minority Recruitment Day. Presented at fall 2008 All College Day. Search committee for Director of Institutional Research. AMATYC.</p>

Program Curriculum:

Arts and Sciences Transfer – Mathematics Option

MAT127 Introduction to Statistics
MAT201 Calculus I with Analytic
Geometry
MAT202 Calculus II with Analytic
Geometry
MAT203 Multivariable Calculus
MAT240 Introduction to Linear Algebra

MAT246 Introduction to Differential
Equations

College-Level Courses Offered in Math

MAT127 Introduction to Statistics
MAT121 Precalculus
MAT123 Finite Math
MAT236 Discrete Structures
MAT128 Introduction to Statistics II

Statistical Data:

Cecil College Mathematics Program Review (ASMS) Enrollment by Fiscal Year	
	Total Enrollment
FY 2007/2008	18
FY 2008/2009	16
FY 2009/2010	28
FY 2010/2011	28
FY 2011/2012	30

Cecil College Mathematics Program Review (ASMS) Number of Degrees Awarded	
	Total Degrees
FY 2007/2008	1
FY 2008/2009	1
FY 2009/2010	2
FY 2010/2011	2
FY 2011/2012	5

Program Evaluation History:

Student Profile – Five Year History

Cecil College Mathematics Program Review (ASMS) Full-time/Part-time Students						
	Total Enrollment	Full-time	% of Total	Part-time	% of Total	
<u>FY 2007/2008</u>	Summer 2007	6	0%	6	100%	
	Fall 2007	8	63%	3	38%	
	Spring 2008	10	50%	5	50%	
<u>FY 2008/2009</u>	Summer 2008	6	0%	6	100%	
	Fall 2008	11	73%	3	27%	
	Spring 2009	11	64%	4	36%	
<u>FY 2009/2010</u>	Summer 2009	7	0%	7	100%	
	Fall 2009	21	52%	10	48%	
	Spring 2010	16	75%	4	25%	
<u>FY 2010/2011</u>	Summer 2010	8	0%	8	100%	
	Fall 2010	20	55%	9	45%	
	Spring 2011	21	48%	11	52%	
<u>FY 2011/2012</u>	Summer 2011	10	0%	10	100%	
	Fall 2011	23	61%	9	39%	
	Spring 2012	21	62%	8	38%	

Cecil College Mathematics Program Review (ASMS) Students by Age										
	Total Enrollment	Less than 25	% of Total	26-30	% of Total	31-40	% of Total	41-50	% of Total	51 and over
FY 2007/2008	18	12	67%	2	11%	1	6%	3	17%	0
FY 2008/2009	16	15	94%	0	0%	1	6%	0	0%	0
FY 2009/2010	28	21	75%	2	7%	3	11%	2	7%	0
FY 2010/2011	28	20	71%	2	7%	2	7%	3	11%	1
FY 2011/2012	30	25	83%	2	7%	2	7%	1	3%	0

Cecil College Mathematics Program Review (ASMS) Students by Gender				
	Total Enrollment	Female Students	% of Total	Male Students
FY 2007/2008	18	6	33%	12
FY 2008/2009	16	2	13%	14
FY 2009/2010	28	8	29%	20
FY 2010/2011	28	7	25%	21
FY 2011/2012	30	8	27%	22

Cecil College Mathematics Program Review (ASMS) Students by Ethnicity									
FY	Total Enrollment	African-American	% of Total	American Indian	% of Total	Asian	% of Total	Hispanic	% of Total
FY 2007/2008	18	1	6%	1	6%	1	6%	0	0%
FY 2008/2009	16	0	0%	0	0%	0	0%	0	0%
FY 2009/2010	28	1	4%	0	0%	0	0%	0	0%
FY 2010/2011	28	0	0%	0	0%	0	0%	0	0%
FY 2011/2012	30	3	10%	0	0%	0	0%	0	0%

Grade Distributions:

Pass Rate is the total number of A, B, C, or D grades divided by the total number of A, B, C, D, or F grades.

Satisfactory Pass Rate is the total number of A, B, or C grades divided by the total number of A, B, C, D, or F grades.

Completion Rate is the total number of A, B, C, or D grades divided by the total number of A, B, C, D, F, W, M, or K grades.

All tables show a consistency over years. There are high rates in all three categories and the rates are increasing throughout the two hundred level courses. The only courses that should be watched closely are MAT121 Precalculus and MAT201 Calculus 1. MAT121 should be monitored closely because student readiness for it may be affected by the common core standards. In the case of MAT201 math has observed an increase in enrollment in the past few years particularly in Biology and Business. These students generally do not go on to Calculus 2. Our enrollment may be large enough to have a separate calculus course without the trig functions for these students. This is done at most colleges but in the past the enrollment at Cecil has not been large to have such a course.

MAT123 Grade Distribution and Pass & Completion Rates						
Grade	FT2009	FY2010	FY2011	FY2012	FY2013	Total
A,B,C	46	55	38	24	31	194
D	5	9	8	5	1	28
F	10	11	6	7	4	38
W,M,K	14	12	9	3	6	44
Pass Rate	84%	85%	88%	81%	89%	85%
Satisfactory Pass Rate	75%	73%	73%	67%	86%	75%
Completion Rate	68%	74%	75%	74%	76%	73%

MAT127 Grade Distribution and Pass & Completion Rates						
Grade	FT2009	FY2010	FY2011	FY2012	FY2013	Total
A,B,C	172	225	251	253	296	1197
D	21	23	18	20	22	104
F	41	45	60	52	45	243
W,M,K	32	29	48	41	30	180
Pass Rate	82%	85%	82%	84%	88%	84%
Satisfactory Pass Rate	74%	77%	76%	78%	82%	78%

MAT127 Grade Distribution and Pass & Completion Rates						
Completion Rate	73%	77%	71%	75%	81%	75%

MAT121 Grade Distribution and Pass & Completion Rates						
Grade	FT2009	FY2010	FY2011	FY2012	FY2013	Total
A,B,C	64	81	122	86	105	458
D	19	21	16	26	11	93
F	24	49	53	38	29	193
W,M,K	23	46	41	28	30	168
Pass Rate	78%	68%	72%	75%	80%	74%
Satisfactory Pass Rate	60%	54%	64%	57%	72%	62%
Completion Rate	64%	52%	59%	63%	66%	60%

MAT201 Grade Distribution and Pass & Completion Rates						
Grade	FT2009	FY2010	FY2011	FY2012	FY2013	Total
A,B,C	12	17	17	20	28	94
D	2	0	1	7	5	15
F	0	1	3	7	6	17
W,M,K	3	4	4	4	2	17
Pass Rate	100%	94%	86%	79%	85%	87%
Satisfactory Pass Rate	86%	94%	81%	59%	72%	75%
Completion Rate	82%	77%	72%	71%	80%	76%

MAT202 Grade Distribution and Pass & Completion Rates						
Grade	FT2009	FY2010	FY2011	FY2012	FY2013	Total
A,B,C	2	6	21	14	14	57
D	0	0	1	0	2	3
F	0	0	1	2	2	5
W,M,K	0	1	1	1	3	6
Pass Rate	100%	100%	96%	88%	89%	92%
Satisfactory Pass Rate	100%	100%	91%	88%	78%	88%
Completion Rate	100%	86%	92%	82%	76%	85%

MAT203 Grade Distribution and Pass & Completion Rates						
Grade	FT2009	FY2010	FY2011	FY2012	FY2013	Total
A,B,C	2	6	21	14	14	57
D	0	0	1	0	2	3
F	0	0	1	2	2	5
W,M,K	0	1	1	1	3	6
Pass Rate	100%	100%	96%	88%	89%	92%

	underlying mathematical concepts upon which the task is designed.	observations and/or connections.	The solution is completely typed. There is a clear explanation.
Practitioner	The solution shows that the student has a broad understanding of the problem and the major concepts necessary for its solution. The solution addresses all of the components presented in the task.	Uses a strategy that leads to a solution of the problem. Uses effective mathematical reasoning. Mathematical procedures used. All parts are correct and a correct answer is achieved.	There is appropriate use of accurate mathematical representation. There is effective use of mathematical terminology and notation. The solution is completely typed.
Apprentice	The solution is not complete indicating that parts of the problem are not understood. The solution addresses some, but not all of the mathematical components presented in the task.	Uses a strategy that is partially useful, leading some way toward a solution, but not to a full solution of the problem. Some evidence of mathematical reasoning. Could not completely carry out mathematical procedures. Some parts may be correct, but a correct answer is not achieved.	There is an incomplete explanation; it may not be clearly presented. There is some use of appropriate mathematical representation. There is some use of mathematical terminology and notation appropriate of the problem. The solution is partially typed.
Novice	There is no solution, or the solution has no relationship to the task. Inappropriate concepts are applied and/or procedures are used. The solution addresses none of the mathematical components presented in the task.	No evidence of a strategy or procedure, or uses a strategy that does not help solve the problem. No evidence of mathematical reasoning. There were so many errors in mathematical procedures that the problem could not be resolved.	There is no explanation of the solution, the explanation cannot be understood or it is unrelated to the problem. There is no use or inappropriate use of mathematical representations (e.g. figures, diagrams, graphs, tables, etc.). There is no use, or mostly inappropriate use, of mathematical terminology and notation. The solution is not typed.

General Education Objectives:

Program Outcomes	Student Learning Outcomes	Direct/Indirect Assessment Measure	Population	Reporting/Use
A. Students who complete the College's General Education Core Requirements will demonstrate college-level competency in critical and creative thinking skills and problem-solving strategies.	<ol style="list-style-type: none"> Students will identify, categorize and distinguish among elements of ideas, concepts, theories and/or practical approaches to standard problems. Students will analyze, evaluate, and/or criticize various academic disciplines and/or regional/national/global issues. 	<ol style="list-style-type: none"> Capstone Project CCLA CCSSE 	Students in Math Program & College-level Math Classes	2011 – CCLA results? 2012 CCSSE results? 2013 – CCLA results?
B. Students who complete the College's General Education Core Requirements will demonstrate College-level competency in writing.	<ol style="list-style-type: none"> Students will demonstrate accurate and effective explanatory writing skills. Students will locate, collect and organize evidence on an assigned research topic. 	<ol style="list-style-type: none"> Capstone Project Tests CCLA CCSSE 	Students in Math Program & College-level Math Classes	2011 – CCLA results? 2012 CCSSE results? 2013 – CCLA results? 'C' Standards rubric results ____
C. Students who complete the College's General Education Core Requirements will demonstrate college-level competency in oral communications.	<ol style="list-style-type: none"> Students will demonstrate effective public speaking skills. Students will demonstrate an ability to evaluate their own public speaking skills. 	<ol style="list-style-type: none"> Capstone Project CCSSE 	Students in Math Program	2012 CCSSE results?
D. Students who complete the College's General Education Core Requirements will	<ol style="list-style-type: none"> Students will demonstrate understanding of mathematical principles and methods. Students will demonstrate 	<ol style="list-style-type: none"> Mathematics rubric (see following this table) Tests 	Students in Math Program & College-level	2011 – CCLA results? 2012 CCSSE results? 2013 – CCLA results?

Program Outcomes	Student Learning Outcomes	Direct/Indirect Assessment Measure	Population	Reporting/Use
demonstrate college-level competency in quantitative analysis.	the ability to perform accurate calculations and symbolic operations.	c. Final Exams d. Projects e. Capstone Project f. CCLA g. CCSSE	Math Classes	
E. Students who complete the College's General Education Core Requirements will demonstrate college-level competency in computer literacy and in the ability to work productively with information technology.	1. Students will demonstrate the ability to determine or calculate the solution to a problem through the use of computer technology. 2. Students will demonstrate the ability to make effective use of writing-related computer technology.	a. Maple Labs in most 200 level math courses. b. StatCrunch in MAT127 c. Capstone Project d. CCSSE	Students in Math Program College-level Math Classes	2012 summer bridge program pilot of Information Technology Assessment tool results? Subsequent use of Information Technology Assessment tool? 2012 CCSSE results?
F. Students who complete the College's General Education Core Requirements will demonstrate college-level competency in awareness of ethics, cultural diversity, artistic expression, health-and-wellness issues, and the physical and social environment.	1. Students will demonstrate an awareness of ethical behavior. 2. Students will demonstrate an understanding of and appreciation for cultural diversity. 3. Students will demonstrate understanding of and appreciation for artistic expression. 4. Students will demonstrate understanding of and appreciation for health-and-wellness issues. 5. Students will demonstrate understanding of and	a. CCSSE	Students in Math Program & College-level Math Classes	Spring 2012 CCSSE results?

Program Outcomes	Student Learning Outcomes	Direct/Indirect Assessment Measure	Population	Reporting/Use
G. Students who complete the College's General Education Core Requirements will demonstrate college-level competency in information literacy including finding, evaluating, and using information effectively.	<p>appreciation for the physical and social environment.</p> <p>1. Students will identify, categorize, and evaluate multiple information resources.</p> <p>2. Students will cite multiple information resources in various course assignments.</p>	<p>a. Capstone projects</p> <p>b. CCLA</p> <p>c. CCSSE</p>	<p>Students in Math Program & College-level Math Classes</p>	<p>2012 summer bridge program pilot of Information Technology Assessment tool results?</p> <p>Subsequent use of Information Technology Assessment tool?</p> <p>2011 – CCLA results?</p> <p>2012 CCSSE results?</p> <p>2013 – CCLA results?</p>

Grading Rubric For Mathematical Brief Constructed Response Items

5	The student has the problem worked out completely, showing all the proper steps, and has the correct answer.
4	The student has worked out the problem using the correct mathematical procedure, but has made one minor mathematical (arithmetical) mistake giving the incorrect answer.
3	The student has used the correct mathematical procedure, but has several minor arithmetical errors or has one more major mathematical error in the problem.
2	The student has started the problem using the correct mathematical procedure, but has several mathematical errors and weak justification for the work.
1	The student response demonstrates understanding of at least one major concept, however, it is mostly incorrect. Justifications may be missing or may lack clear mathematical reasoning. Only the correct answer is given without any supporting work.
0	The student response is incorrect and lacks reasonable justification. The student did not respond to this problem

Program Strengths:

The Math Lab is one of the greatest strengths of the program. It is available for help to all math students during the vast majority of time that the College is open. Faculty attends national conferences yearly to present and to bring back best practices for use in their classes. The Math faculty are leaders in their field, e.g. Alketa Gjokuria is a MEHC fellow and John Climent participated in writing the outcomes for Statway a project sponsored by the Carnegie Foundation for the Advancement of Teaching.

Program Weaknesses:

There are no weaknesses in the Math Program.

Program Opportunities:

The Common Core Standards for Public Schools will be in place in a few years. These students may begin to arrive in fall 2015. It is most likely that it will be mandatory for us to place into college-level math any student who passes the math assessment of the common Core Standards. This may present Math with two opportunities. The first is that in order to ensure student success math may find it necessary to place a College Algebra course between Intermediate Algebra and Precalculus. The second opportunity is that since the common core standards will have a lot of statistics in them, math may want to revise our Introduction to Statistics course to pick up where these standards leave off.

Program Threats:

Cutback in tutoring hours this past year disproportionately impacted the availability and quantity of help from the math lab.

Other Program Information:

The math program does not have an Advisory Board nor is there a compelling need for one. Math courses are pretty much the same all over. The content of the course in the Math Program is pretty much the same everywhere. Our courses transfer readily to just about any institution.

Adequacy of Available Technology:

The college has always supported everyone with technology and there is no reason to expect that to change.

Adequacy of Facilities:

The temporary space that Math Lab and Testing Center currently occupy is too small for our needs. They are scheduled to move into the new Engineering and Math building in Fall 2014. It is unclear if the Math Lab space in the new building will be adequate. The Vice President of Administrative Services who oversaw this building rejected our requests for a larger Math Lab area. The new Testing Center Space should be adequate.

Articulation Agreements:

There are no articulation agreements with the math program and there has not been a need for any. Our math courses are readily accepted for transfer throughout the State System of Colleges and are accepted at other nearby institutions such as the University of Delaware.

Program Goals and Objectives:

Since this is the first review of the math program there are no goals from the previous review.

The future goals are in the following table:

Goals	Timetable for Completion	Required Resources	Obstacles to Completion (if any)
Replace Finite Math with Liberal Arts Math.	Summer 2014	Since the State Math Group is rewriting the outcomes for the Liberal Arts math course it makes sense to do this once that is completed, which should be by spring 2014.	None
Consider adding a College Algebra course between Intermediate Algebra and Precalculus.	Not before Fall 2015 or Fall 2016.	None	Internal Politics
Support Joe Kupresanin's revision of the Statistics course.	Fall 2013	Sabbatical Project	None
Consider revising Statistics once students arrive in numbers having learned under the Common Core Standards.	Not before Fall 2015 or Fall 2016.	None	Internal Politics
Add a non-trig based Calculus course for Majors that do not require Calculus 2, such as Business and Biology.	Fall 2014 or Fall 2015	None	Internal Politics
Combine MAT095 with Statistics so that students may take both concurrently.	Fall 2014	None	Internal Politics
Continue to tweak Developmental Math Courses and offer pilot sections when	Ongoing, and Fall 2014 for pilot courses.	None	Internal Politics

appropriate.			
Investigate options for MAT 091 students with Continuing Education.	Not before the Bridge Program is in place for all students and possibly not until the first students from the common core standards arrive.	Resources need to be allocated for Bridge Program.	This decision needs to be made College wide since it changes our mission as an open enrollment institution.

Assessment Results Summary:


Stated Skill or Competency	Strength of Evidence
Math program fulfills its mission.	<p>Evidence is strong:</p> <ul style="list-style-type: none"> • The grades on the Capstone project (see graph on page 24) is strong evidence that math fulfills its mission. • All of the math courses in the math program transfer easily to other colleges in Maryland and the surrounding region. <p>Evidence is Adequate:</p> <ul style="list-style-type: none"> • Students who have taken the math program and transferred have reported to us that they were better prepared than their classmates at the institutions to which they transferred.
College-level Math courses fulfill its mission.	<p>Evidence is strong:</p> <ul style="list-style-type: none"> • All of the college-level math courses in the math program transfer easily to other colleges in Maryland and the surrounding region. • The math faculty attends national conference yearly keeping up with best practices in the field. • The math faculty often present at national and regional conferences. • The entry level college-level math courses conform to the outcomes agreed to by the State Math Group.
Program effectively uses Cecil College resources.	<p>Evidence is strong:</p> <ul style="list-style-type: none"> • Math classes tend to run at or near the capacity of the classroom. • Our technology needs are minimal.
Math Program Currency: Program generates evidence of efforts to maintain currency, including curriculum review, outcomes, and/or other activities or efforts. To the extent feasible, the program is supported by an Advisory	<p>Evidence is strong:</p> <ul style="list-style-type: none"> • All of the college-level math courses in the math program transfer easily to other colleges in Maryland and the surrounding region. • The math faculty attends national conference yearly keeping up with best practices in the field. • The math faculty often present at national and regional conferences.

Board of community professionals.	<ul style="list-style-type: none"> The entry level college-level math courses conform to the outcomes agreed to by the State Math Group.
Sustainable Continuous Quality Improvement	<p>Strong evidence that student learning outcomes and assessment are ongoing, systematic and used for continuous quality improvement.</p> <p>Strong evidence that dialogue about student learning is ongoing, pervasive and robust.</p> <p>Strong evidence that student learning improvement is a visible priority in all practices and structures across the program.</p> <ul style="list-style-type: none"> The statistics course is undergoing a complete revision based on best practices from national conferences. Developmental math has been redesigned and tweaked over the past few years. All Math course assessments are up to date. The math faculty attend national conference yearly keeping up with best practices in the field. The math faculty often present at national and regional conferences.
The Program Review was thorough and candid.	<p>Strong evidence that the review was conducted with the best interest of the students and College in mind. If negative information or trends were evident, they were thoroughly explored and meaningful recommendations and/or corrective actions were brought forward. Actually I am insulted by this question.</p>

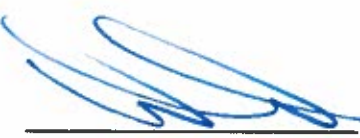
Recommendations:

Program should be allowed to continue as is.

Approvals

Signature of Division Chair  Date 9/6/13

Signature of the Chair of the  Date 2/5/2014
Academic Affairs Committee

Signature of the Dean of  Date 2-6-2014
Academic Programs

Signature of the Chief Mary Way Bolt Date 5/13/14
Academic Officer



