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1. Dreaman (dissipling mission (see la and link to strategic plan	
1. Program/discipline mission/goals and link to strategic plan	4
1A. Describe progress toward goals set in previous review, annual budget presentations, and/or strategic budget planning	4
IB. Have you met your previously set goals? If not, now do you plan to meet them?	4
Results for Strategic Plan 1.0 goals	4
2. Program/discipline description and overview	5
2A. Provide the catalog description of the program	5
General Education Mission	5
2b. Describe how and to what degree the program description reflects the program's overall goals. If it does not, revise progra description.	m 5
2C. Community labor market need analysis and projection	5
2C.i. Has the demand for graduates changed in the past five years? If so how and to what degree?	6
2C.ii. What is the expected market demand for the future? How might the program adjust to these projections?	6
2D. Describe the specific curricular, instructional, or other changes made in the previous five years	6
3. Resources	6
3A. Describe faculty composition, qualifications, and professional development.	6
3A.i. What percentage of faculty are full time? Part time?	6
3A.ii. What are the minimum degree qualifications? What percentage of faculty exceed minimum degree qualifications?	6
3A.iii. List the specific professional development program faculty attended including both on-site and off-site trainings; how the professional development impact instruction, design, and delivery?	did 7
3A.iv. Are faculty composition, qualifications, and professional development meeting instructional needs? If not, describe ar plans that will address this	пу 8
3B. Describe the specific facilities, equipment, and materials used by the program	8
3B.i. Are facilities meeting instructional needs? If not, describe any plans that will address this.	8
3B.ii. Is equipment meeting instructional needs? If not, describe any plans that will address this.	9
3B.iii. Are instructional materials meeting program needs? If not, describe any plans that will address this	9
3C. Describe the instructional support services the program uses.	9
3C.i. Review Learning Resource Center (LRC) holdings for relevancy and currency to program	9
3C.ii. Review program student use of tutoring and e-tutoring	9
3C.iii. Review students' use of testing services	11
3C.iv. Review other instructional support services (student clubs, advising, TRiO, Veterans Services, etc.) if applicable	11
3D. Describe to what degree the program uses the College's learning management system (Canvas) for all methods of delivery (face-to-face, online, synchronous, hybrid)	11
4. Effectiveness	11
4A. Student learning outcomes assessment	11
- 4A.i. Course learning outcomes (CLO)	11
4A.ii INstitutional learning outcomes (ILO)	12
4A.ii.1 Describe evidence of student proficiency in ILOs. If there is no evidence, describe plans to address this	12

4A.ii.1 Identify and give examples of changes made in instruction that occurred as the result of PLO assessmer occurred, describe plans to address this.	nt. If this has not 13
4B. Student success	13
4B.i. Describe enrollment trends and plans to address them	13
4B.ii. Describe degree awarded trends and plans to address them	14
4B.iii. Review transferability of courses	14
4C. Student engagement and satisfaction	15
3C.i. Course evaluations data and analysis	15
3C.ii Job placement data and analysis (if available)	15
5. Budget	15
5A. Provide five-year cost margin data and analysis.	15
5B. Summarize previous annual program viability study results and explain how changes impacted student learn proficiency. If this has not occurred, describe plans to address this.	ing outcome 15
5C. Explain any budgetary challenges and any plans to address them	15
6. Conclusion	16
6A. Describe program strengths.	16
6B. Describe program weaknesses.	16
6C. Describe support needed	16
6D. Create new goals and link them to the strategic plan	16
7. Appendices	
Appendix 7.A. Course Descriptions foR MATH CLASSES currently offered	
Appendix 7.B. Percentage of Classes Taught by Full Time Faculty and Adjunct Faculty	20
Appendix 7.C. Course Learning OUTCOMES FOR MATHEMATICS	21
Appendix 7.D. Course Learning Outcome (CLO) Assessment samples	25
Appendix 7.E. Oregon state CORE transfer map	28
Appendix 7.F: course evaluation feedback from Students in mathematics courses	29
Appendix 7.G.: Cost Margin data and analysis For Collegiate-level MATHEMATICS courses 2017-2020	
Budget Year	
17-18	
18-19	
19-20	
Average	
Instructional Program Review Rubric	

## 1. PROGRAM/DISCIPLINE MISSION/GOALS AND LINK TO STRATEGIC PLAN

1A. DESCRIBE PROGRESS TOWARD GOALS SET IN PREVIOUS REVIEW, ANNUAL BUDGET PRESENTATIONS, AND/OR STRATEGIC BUDGET PLANNING.

This is the first review for the mathematics department. Below, in section 1.B, are the goals for Strategic Plan 1.0. New goals from Strategic Plan 2.0 are listed in the new goals section at the end of this program review.

#### 1B. HAVE YOU MET YOUR PREVIOUSLY SET GOALS? IF NOT, HOW DO YOU PLAN TO MEET THEM?

□Yes ⊠No

Following are the four goals we set for Strategic Plan 1.0, with outcomes included. We achieved three out of four goals but have faced challenges meeting goal 2, as shown below.

#### RESULTS FOR STRATEGIC PLAN 1.0 GOALS

GOAL 1 (EXCELLENCE): BUILD A CONNECTION WITH OUR STUDENTS AS WELL AS PROVIDE ADDITIONAL INSTRUCTION, BY IMPLEMENTING OUR OWN VIDEO LECTURES IN OUR ONLINE CLASSES. IN ADDITION, SUPPLYING OUR STUDENTS WITH LECTURE GUIDES TO HELP THEM TAKE BETTER NOTES.

George has completed and provided videos for MTH 95 and MTH 111. Joni Hansen is in the process of making videos for MTH 112 and MTH 243 and has completed videos for 111 DE. Wogan, Hansen, and Harpham gave individual video feedback on homework for Math 70, 95, 111, 112, and 243.

#### GOAL 2 (ACCESS): PILOT LOWER COST OPTIONS TO OUR ONLINE HOMEWORK SOFTWARE.

The software we were looking into was in Beta testing and did not go into production. Harpham has contacted Cengage Publishing regarding a demonstration of their online homework platform. Wogan has ordered books to go with this platform and we will be evaluating their quality to adopt them next year as a no or low cost option for our students. This term Lois Taysom and Mary Lou Wogan piloted XYZHomework online homework platform which is inexpensive, but not as robust as MyLab Math. Fall Term 2020, Mary Lou Wogan and Dan Solyst will pilot Webassign from Cengage in Math 95 and Math 211. Again, this is to find a quality online homework platform that will be less expensive for our students. MaryLou found that the Cengage platform does not currently integrate with Canvas. This is a feature we feel is important, so we do not want to transition to Cengage at this time. We will continue to look at options provide lower cost option to our online students.

#### GOAL 3 (ACCESS): PLACE STUDENTS IN MATH CLASSES THAT BEST MATCH THEIR ACADEMIC PREPAREDNESS.

The mathematics department uses a multiple measure approach to placing students into its classes. When students register for classes they are interviewed by Enrollment Services. The information gathered by Enrollment Services is then put into the Math Placement Tool. If the student has successfully taken a math class less than two years ago, Enrollment Services places the student accordingly. If it has been longer than two years since the student successfully completed a course in mathematics, then the student is given an access code for MyMath Test, our placement tool. Our MyMath Test placement tool was developed by the KCC mathematics department using a testing product from Pearson Publishing.

MyMath Test is a series of four tests that tests students out of each of our four levels of developmental mathematics. Students are allowed to take the tests at home. The tests are not timed and students can retake a test as many times as they are willing to. It also includes practice tests for each of the four tests and a Study Plan to help remediate the student's knowledge of mathematics. All work on MyMath Test placement tests feeds into a Study Plan that helps students to review by providing step by step instructions, video examples, and additional practice.

In addition, students who need remediation in mathematics have an option to take an emporium model math class, MTH 52, to raise their placement level.

GOAL 4 (EXCELLENCE): DECREASE THE NEED TO REPEAT THE GENERAL EDUCATION COURSE MATH 251 (CALCULUS) BY IMPLEMENTING NEW TEXBOOKS WITH ADDITIONAL CONTENT INTO OUR MTH 111 AND MTH 112 COURSES. THIS CONTENT WILL PROVIDE OUR FUTURE CALCULUS STUDENTS WITH IMPROVED FOUNDATIONAL SKILLS NEEDED FOR THEIR SUCESS.

New textbooks were implemented into MTH 111 and MTH 112.

### 2. PROGRAM/DISCIPLINE DESCRIPTION AND OVERVIEW

#### 2A. PROVIDE THE CATALOG DESCRIPTION OF THE PROGRAM.

Mathematics courses do not constitute a program, but they share the following mission with other general education courses:

#### GENERAL EDUCATION MISSION

Collectively, general education courses promote student success in program courses by developing foundational skills in thinking, communication, computation, computer literacy, information literacy, and the scientific method. General education courses offer access to specialized instruction in subject areas not encompassed in other programs.

By preparing students for success in college degree programs, general education departments promote community and career success with training in civic awareness, leadership, communication skills, and professionalism. Furthermore, by combining skills development and interdisciplinary instruction for transfer to university degrees, the general education departments support students' future success.

Following is a list of the college-level mathematic courses most commonly offered at KCC. Descriptions for all mathematic courses are included in Appendices 7A.

- MTH 105 Math in Society (4 credits)
- MTH 111 College Algebra (5 credits)
- MTH 112 Elementary Functions (4 credits)
- MTH 211 Foundations of Elementary Math 1 (4 credits)
- MTH 212 Foundations of Elementary Math 2 (4 credits)
- MTH 213 Foundations of Elementary Math 3 (4 credits)
- MTH 243 Statistics 1 (4 credits)
- MTH 244 Statistics 2 (4 credits)
- MTH 251 Calculus 1 (4 credits)
- MTH 252 Calculus 2 (4 credits)

# 2B. DESCRIBE HOW AND TO WHAT DEGREE THE PROGRAM DESCRIPTION REFLECTS THE PROGRAM'S OVERALL GOALS. IF IT DOES NOT, REVISE PROGRAM DESCRIPTION.

Not applicable to program review for general education disciplines.

#### 2C. COMMUNITY LABOR MARKET NEED ANALYSIS AND PROJECTION

Not applicable to program review for general education disciplines.

#### 2C.i. HAS THE DEMAND FOR GRADUATES CHANGED IN THE PAST FIVE YEARS? IF SO HOW AND TO WHAT DEGREE?

□Yes ⊠No

Not applicable to program review for general education disciplines.

2C.ii. WHAT IS THE EXPECTED MARKET DEMAND FOR THE FUTURE? HOW MIGHT THE PROGRAM ADJUST TO THESE PROJECTIONS?

Not applicable to program review for general education disciplines.

2D. DESCRIBE THE SPECIFIC CURRICULAR, INSTRUCTIONAL, OR OTHER CHANGES MADE IN THE PREVIOUS FIVE YEARS.

All course content and outcome guides (CCOGs) for regularly taught mathematics courses were updated to include more clearly assessable outcomes and to match the current CCOG template. Additionally, all syllabi were updated to conform to the 2016 syllabus template and to match the revised CCOGs.

Additionally, we have made a number of changes to improve instruction and feedback for our classes. These changes include the following:

- We have piloted flipped classrooms.
- We have written our own material for MTH 111 to make it bookless and to improve outcomes.
- We have recorded lectures for many of our course offerings.
- We have provided video feedback on homework assignments.

In an effort to improve the pass rate of students taking MTH 251, Calculus, new textbooks were adopted. These texts covered material that would improve the prerequisite skills needed to be successful in MTH 251.

To better meet the specific needs of our programs, MTH 85 and MTH 130 were developed for the Automotive and the Advanced Manufacturing and Engineering Technology Programs. In addition, the department has continued to work towards promoting the quantitative literacy path to statistics, which allows students to bypass college algebra and take statistics, which for some programs is more relevant.

Also, we have added MTH 52 to our course offerings. This one credit lab assists students in reviewing their mathematics so they may retake our placement test and place as high as they can in our math sequence of classes.

#### 3. RESOURCES

#### 3A. DESCRIBE FACULTY COMPOSITION, QUALIFICATIONS, AND PROFESSIONAL DEVELOPMENT.

#### 3A.i. WHAT PERCENTAGE OF FACULTY ARE FULL TIME? PART TIME?

Mathematics faculty include four full-time and seven part-time faculty. During Summer 2019 through Spring 2020, full time faculty taught 53% of developmental education courses and 77% of general education courses. Adjunct faculty taught 47% of developmental education courses and 23% of general education courses. A visual has been provided in Appendix 7.B to fully demonstrate this information.

## 3A.ii. WHAT ARE THE MINIMUM DEGREE QUALIFICATIONS? WHAT PERCENTAGE OF FACULTY EXCEED MINIMUM DEGREE QUALIFICATIONS?

Minimum degree qualifications for Developmental Education instructors establish that instructors must hold a master's degree in an appropriate subject area, e.g., Developmental Education, Special Education, Adult Education, Reading, Mathematics, or English, and

have recent experience working with disadvantaged students, **OR** Hold a master's degree in Education or MAT degree and have completed at least 20 quarter hours of graduate credit in the subject area or five+ years of teaching experience in the subject area, **OR** Hold a bachelor's degree in an appropriate subject area, e.g., Developmental Education, Special Education, Adult Education, Reading, Mathematics, or English, and have recent experience working with disadvantaged students, **OR** Have a high level of demonstrable competency gained through a combination of study, teaching experience, and/or professional performance in the subject area and/or have the qualifications set by the licensing or accrediting organization for the subject area.

Minimum degree qualifications for General Education instructors establish that instructors must hold a master's degree in the subject area (or hold a master's degree in a related area and have completed at least 20 quarter hours of graduate credit in the subject area), **OR** hold a bachelor's degree in the subject area (or hold a bachelor's degree in a related area and have completed at least 20 quarter hours of upper division credit in the subject area) and have a minimum of four years of recent full-time non-teaching experience in the subject area, **OR** hold a master's degree in Education or MAT degree and have completed at least 20 quarter hours of graduate credit in the subject area, **OR** have a high level of demonstrable competency gained through a combination of study, teaching experience, and/or professional performance in the subject area and/or have the qualifications set by the licensing or accrediting organization for the subject area.

### 3A.iii. LIST THE SPECIFIC PROFESSIONAL DEVELOPMENT PROGRAM FACULTY ATTENDED INCLUDING BOTH ON-SITE AND OFF-SITE TRAININGS; HOW DID THE PROFESSIONAL DEVELOPMENT IMPACT INSTRUCTION, DESIGN, AND DELIVERY?

Following is a list of faculty and their professional development activities:

## FULL-TIME FACULTY

#### MARYLOU WOGAN

- Oregon Mathematical Association of Two Year Colleges (ORMATYC) (2016, 2017, 2018, 2019)
- American Mathematical Association of Two-Year Colleges (AMATYC) (2017, 2019)

#### GEORGE HARPHAM

• ORMATYC (2016, 2017, 2018, 2019)

#### AHMED ADALA

- AMATYC (2016)
- ORMATYC (2017)
- 2019: International Conference on Technology in Collegiate Mathematics (ICTCM)

#### JONI HANSEN

- 2018 Present: Pursuing Master's degree in Sports Conditioning and Performance
- 2018 Present: Real world application of Statistics and Testing
- ORMATYC (2018, 2019)

#### PART-TIME FACULTY

Several part-time faculty have reported their participation in professional development activities.

#### LOIS TAYSOM

- 2015: Southern Oregon Ed Tech Summit
- 2018: Master's degree in Mathematical Education
- ORMATYC (2016, 2018, 2019)

## DAN SOYLST

Klamath County Schools Inservice Training

### IVAN MURPHY

• Klamath County Schools Inservice Training

#### JUSTIN RODRIGUEZ

• In the past five years, Justin has completed multiple courses for civil engineering.

#### MORGAN CHASE

- Fall 2016: Attended "3 Days to Better Teaching" workshop at Clackamas CC
- Fall 2016: Attended 3-day Quality Matters conference
- Fall 2016: Attended two 1-day workshops on developing and choosing OER materials
- Summer 2018: Attended 3-day training on Montessori Math Manipulatives
- Summer 2019: Completed 6-week Portland CC course on flipping the classroom
- Fall 2019: Attended short online workshops at PCC on topics such as improving accessibility of text documents and PowerPoints
- Summer 2020: Attended short online workshops at PCC on topics such as universal design and optimizing online courses for mobile devices
- AMATYC (2020)

### JAYME CRONQUIST

• No information available.

# 3A.iv. ARE FACULTY COMPOSITION, QUALIFICATIONS, AND PROFESSIONAL DEVELOPMENT MEETING INSTRUCTIONAL NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

□Yes □No ⊠Somewhat

Faculty composition, qualifications, and professional development are sufficient. Presently we have four full-time faculty, three who are qualified to teach the full range of mathematics classes. One of our faculty is a former high school teacher who is qualified to teach only developmental education.

Currently, the department's faculty are meeting the instructional needs of our college, but not without being stretched thin. Our faculty consistently are in overload by the end of every year, and often need to teach more than three preparations every term. We are a small college offering a full range of mathematics classes.

To address this, we need to request that when the schedule is developed that the administration do what they can to limit the number of preparations to three.

#### ATTRACTING AND MENTORING HIGH-QUALITY PART-TIME FACULTY

Keeping a pool of high-quality part-time faculty is a perennial issue for most academic departments. Mathematics is no exception.

Presently our pool of adjuncts meets the needs for developmental education, but finding adjuncts qualified to teach at the college level is extremely difficult. Currently we recruit instructors from our local high schools and retired professors from OIT.

#### 3B. DESCRIBE THE SPECIFIC FACILITIES, EQUIPMENT, AND MATERIALS USED BY THE PROGRAM.

Mathematics classes are typically taught in building 1, 6, and 8 and utilize the standard classroom setup. Mathematics courses have been able to use the computer labs in building 8 and in the LRC.

#### 3B.i. ARE FACILITIES MEETING INSTRUCTIONAL NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

□Yes

□No ⊠Somewhat

The facilities on campus are adequate in meeting the instructional needs of the math department, but there is room for improvement. In the department's 2020-21 budget a request was made to create a lab dedicated to mathematics instruction. This request was approved, but its completion was put on the back burner due to the impact of the Covid-19 virus on our campus.

This lab, when completed, will allow a home for the manipulatives used by the department and will be structed to promote group work. In addition, it will be the home of our MTH 52 and MTH 105 classes. The space will be designed to allow students to work both independently and in small groups as they review their math.

3B.ii. IS EQUIPMENT MEETING INSTRUCTIONAL NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

□Yes □No ⊠Somewhat

Equipment on campus are adequate in meeting the instructional needs of the math department, but there is room for improvement. Again, the department's 2020-21 budget a request was made to create a lab dedicated to mathematics instruction. This request was approved, but its completion was put on the back burner due to the impact of the Covid-19 virus on our campus.

This lab when completed will have laptop computers available for student use and furniture that is conducive to small group work. This space will be designed to allow students to work both independently and in small groups while using these laptops.

3B.iii. ARE INSTRUCTIONAL MATERIALS MEETING PROGRAM NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

⊠Yes

□No

□Somewhat

Instructional materials, including open educational resources (OERs), are widely available for mathematics courses.

## 3C. DESCRIBE THE INSTRUCTIONAL SUPPORT SERVICES THE PROGRAM USES.

Mathematics faculty and their students utilize the LRC's computer labs, placement testing, and tutoring services.

## 3C.I. REVIEW LEARNING RESOURCE CENTER (LRC) HOLDINGS FOR RELEVANCY AND CURRENCY TO PROGRAM.

#### ADEQUACY AND AVAILABILITY OF LIBRARY AND INFORMATION RESOURCES.

KCC's Learning Resource Center (LRC) has the resources necessary to support mathematics faculty and their students.

Math students primarily use the mathematical textbooks that are on reserve.

#### 3C.II. REVIEW PROGRAM STUDENT USE OF TUTORING AND E-TUTORING.

The KCC Tutoring Center provides supplemental instruction for individual students and study groups on a drop-in basis for all subjects taught at Klamath Community College. The LRC also offers student access to TutorMe.com, a twenty-four hour, seven day per week tutoring service for those students needing supplemental instruction while off campus or after Tutoring Center operating hours.

Students in mathematics courses are the primary users of tutoring and E-tutoring services.

LRC TUTORING IN 2019

The following represents LRC tutoring usage in 2019:

## LRC tutoring sessions in 2019 for math students, broken down by

ass	# of Visits
MTH 010: Basic Math	105
MTH 020: Pre-Algebra	208
MTH 052: Math Review for Higher Placement	89
MTH 060: Introductory Algebra I	25
MTH 065: Introductory Algebra II	54
MTH 070: Elementary Algebra	275
MTH 095: Intermediate Algebra	428
MTH 098: Intro to Quantitative Literacy	130
MTH 105: Math in Society	135
MTH 111: College Algebra	476
MTH 112: Elementary Functions	89
MTH 211: Foundations of Elementary Math I	1
MTH 213: Foundations of Elementary Math III	2
MTH 243: Statistics I	74
MTH 251: Calculus I	52
MTH 252: Calculus II	8

## E-TUTORING IN 2019

The following represents tutoring usage on TutorMe.Com in 2019:

## TutorMe.Com sessions in 2019 for math students. TutorMe does not break down the sessions by course, only by subject.

Subject	# of Visits
Algebra	114
Basic Math	14

Calculus	15
Discrete Math	1
Pre-Algebra	2
Pre-Calculus	1
Statistics	4
Trigonometry	12

## 3C.iii. REVIEW STUDENTS' USE OF TESTING SERVICES.

The KCC Testing Center provides the support necessary to administer all instructor exams for the mathematics department. The Testing Center personnel are nationally certified. Our mathematic courses use the Testing Center extensively for several reasons. First, requiring students to take tests in the Testing Center frees up time that was used for proctoring tests that can now be used for instruction. Second, mathematics instructors, like other instructors on campus, need to make accommodations for students with disabilities. These accommodations often include additional time on exams, which ends up being longer than a regular class period. Finally, our mathematics department has made the commitment to have a minimum 40% of our assessments proctored, including distance education classes. This ensures the integrity of the grades our students receive in our classes. Since many of our distance education students are local these students can take their tests at a time that works for them in the Testing Center.

3C.iv. REVIEW OTHER INSTRUCTIONAL SUPPORT SERVICES (STUDENT CLUBS, ADVISING, TRIO, VETERANS SERVICES, ETC.) IF APPLICABLE.

Not applicable to program review for general education disciplines.

3D. DESCRIBE TO WHAT DEGREE THE PROGRAM USES THE COLLEGE'S LEARNING MANAGEMENT SYSTEM (CANVAS) FOR ALL METHODS OF DELIVERY (FACE-TO-FACE, ONLINE, SYNCHRONOUS, HYBRID).

All mathematics courses (onsite, online, synchronous, and hybrid) utilize the college's LMS, Canvas.

## 4. EFFECTIVENESS

#### 4A. STUDENT LEARNING OUTCOMES ASSESSMENT

#### 4A.i. COURSE LEARNING OUTCOMES (CLO)

See Appendix 7.C for the CLOs in mathematics courses.

# 4A.i.1 DESCRIBE EVIDENCE OF STUDENT PROFICIENCY IN CLOS. IF THERE IS NO EVIDENCE, DESCRIBE PLANS TO ADDRESS THIS.

Our course learning outcome (CLO) reports provide extensive data regarding student proficiency in CLOs. Achievement gaps are generally attributed to students who do not complete the course. Course evaluation data indicates that students' assessment of their own learning closely matches the CLO analysis.

Refer to Table 4.1 below, of those classes assessed, 92% to 75% of the students achieved proficiency in the outcomes selected for assessment. This is evidence of student proficiency in CLOs.

See Appendix 7.D for examples of changes made to address assessment results that indicated a need for improvement.

Term/Year	Course(s)	Results	Outcome Assessed
<b>5-11 2018</b>	MTH 105M.01 DE	92%	Solve probability problems.
Fall 2018	MTH 111.01 77		Read and graph absolute value equations and functions.
Winter 2019	MTH 212.01	88%	Use various manipulatives to order and perform operations with fractions and decimals.
Spring 2019	MTH 105.01	80%	Solve probability problems.
Fall 2019	MTH 111.03	75%	Analyze algebraic equations and functions in order to graph them with and without a graphing calculator.
Winter 2020	MTH 243.01	80%	Solve application problems with probability theory including mutually exclusive events and independent/dependent events.

#### Table 4.1: CLO Assessment Schedule and Results, Fall 2018 – Winter 2020

# 4A.i.2 DESCRIBE THE SPECIFIC PROCESS FOR ADVISORY COMMITTEES FOR REVIEWING COURSE CONTENT AND OUTCOMES GUIDES (CCOGS). IF THERE IS NO PROCESS, DESCRIBE PLANS TO ADDRESS THIS.

All CCOGs are scheduled for review on a three-year cycle. During the term in which a CCOG is scheduled for review, faculty discipline lead for that area determine if revisions to outcomes and content are necessary. The faculty lead for the level (Dev. Ed., Gen. Ed.) reviews and revises the CCOG based on input from instructors who teach the course. Next, full-time mathematics faculty each review the CCOG independently. At the next department meeting, faculty members discuss and revise the CCOG if needed. The faculty lead then submits the revised document to the Assessment and Curriculum Coordinator for approval and eventual publication.

#### 4A.i.3 WHICH COURSES HAD LEARNING OUTCOMES REVISED/UPDATED AND WHY?

All of the mathematics courses CLO's were recently updated in order to comply with the current CCOG template at the beginning of the three-year cycle.

### 4A.i.4 IDENTIFY AND GIVE EXAMPLES OF CHANGES MADE IN INSTRUCTION THAT OCCURRED AS THE RESULT OF CLO ASSESSMENT. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

Please refer to Appendix 7.D for examples of changes made to instruction as a result of CLO Assessments.

#### 4A.ii INSTITUTIONAL LEARNING OUTCOMES (ILO)

\*Not applicable to program review for general education disciplines.\*

# 4A.ii.1 DESCRIBE EVIDENCE OF STUDENT PROFICIENCY IN ILOS. IF THERE IS NO EVIDENCE, DESCRIBE PLANS TO ADDRESS THIS.

\*Not applicable to program review for general education disciplines.\*

# 4A.ii.1 IDENTIFY AND GIVE EXAMPLES OF CHANGES MADE IN INSTRUCTION THAT OCCURRED AS THE RESULT OF PLO ASSESSMENT. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

\*Not applicable to program review for general education disciplines.\*

#### 4B. STUDENT SUCCESS

#### 4B.i. DESCRIBE ENROLLMENT TRENDS AND PLANS TO ADDRESS THEM.

#### ENROLLMENT

As shown in table 4.2 below, enrollment has remained relatively stable; however, as more students complete dual-credit courses, the enrollment in general education classes has gone down slightly. This is a positive trend for our students, even if it means fewer students in our classrooms.

#### Table 4.2. Enrollment Trends in Mathematics Courses (2015-19)

			Enrollment			
	2016	2017	2018	2019	2020	Grand Total
MTH010	69	101	75	80	56	381
MTH020	96	82	97	96	76	447
MTH052	0	0	6	24	12	42
MTH060	55	53	46	41	23	218
MTH065	61	33	37	20	16	167
MTH070	223	176	155	129	102	785
MTH085	0	0	0	0	16	16
MTH095	299	258	270	215	168	1210
MTH098	54	23	22	32	22	153
MTH099	13	0	0	0	0	13
MTH105	202	168	124	116	78	688
MTH111	207	238	260	227	114	1046
MTH112	40	74	47	63	23	247
MTH199	3	0	17	5	0	25
MTH211	22	24	21	17	24	108
MTH212	7	19	21	20	12	79
MTH213	10	20	20	18	19	87
MTH243	105	112	87	95	108	507
MTH244	8	1	5	1	0	15
MTH251	17	9	31	22	8	87
MTH252	12	11	12	10	10	55
MTH254	5	6	0	0	0	11

Table 4.3 below shows that during the same period, our pass rate has increased. We attribute this trend to students' taking more classes from full-time and experienced faculty.

	2016	2017	2018	2019	2020	Grand Total
MTH010	69.57%	67.33%	69.33%	73.75%	71.43%	70.28%
MTH020	79.17%	89.02%	74.23%	82.29%	84.21%	81.78%
MTH052	N/A	N/A	66.67%	95.83%	100.00%	87.50%
MTH060	85.45%	73.58%	82.61%	73.17%	78.26%	78.62%
MTH065	70.49%	75.76%	78.38%	85.00%	87.50%	79.43%
MTH070	65.47%	70.45%	71.61%	73.64%	73.53%	70.94%
MTH085	N/A	N/A	N/A	N/A	56.25%	56.25%
MTH095	62.21%	63.18%	67.78%	58.14%	59.52%	62.17%
MTH098	77.78%	82.61%	90.91%	96.88%	86.36%	86.91%
MTH099	76.92%	N/A	N/A	N/A	N/A	76.92%
MTH105	88.61%	80.95%	86.29%	81.03%	82.05%	83.79%
MTH111	63.29%	63.45%	63.46%	69.16%	66.67%	65.20%
MTH112	72.50%	64.86%	78.72%	73.02%	78.26%	73.47%
MTH199	100.00%	N/A	82.35%	100.00%	N/A	94.12%
MTH211	77.27%	91.67%	95.24%	100.00%	87.50%	90.34%
MTH212	100.00%	100.00%	90.48%	95.00%	100.00%	97.10%
MTH213	90.00%	90.00%	95.00%	94.44%	94.74%	92.84%
MTH243	81.90%	68.75%	82.76%	83.16%	87.04%	80.72%
MTH244	100.00%	100.00%	100.00%	100.00%	N/A	100.00%
MTH251	64.71%	44.44%	77.42%	72.73%	87.50%	69.36%
MTH252	91.67%	72.73%	91.67%	100.00%	100.00%	91.21%
MTH254	100.00%	100.00%	N/A	N/A	N/A	100.00%

Table 4.3. Success Rates in Mathematics Courses (2016-2020)

## 4B.ii. DESCRIBE DEGREE AWARDED TRENDS AND PLANS TO ADDRESS THEM.

Not applicable to program review for general education disciplines.

## 4B.iii. REVIEW TRANSFERABILITY OF COURSES

Mathematics courses are highly transferrable. All of our Gen-Ed math classes transfer throughout Oregon colleges and universities.

#### 4B.iii.1 DESCRIBE TRANSFERABILITY FROM HIGH SCHOOL TO KCC TO OUS.

MTH 105, MTH 111, MTH 112, and MTH 243 are all offered for dual credit in the high schools, and all courses transfer throughout Oregon colleges and universities.

## 4B.iii.2 HAS TRANSERFERABILITY CHANGED OVER THE LAST FIVE YEARS? IF SO, WHY? WHAT ARE THE IMPACTS ON STUDENTS AND THE PROGRAM?

In recent year there has been a statewide initiative to develop the non-stem pathway. Do to this initiative MTH 105 is now transferable throughout Oregon colleges and universities.

#### 4C. STUDENT ENGAGEMENT AND SATISFACTION

#### 3C.i. COURSE EVALUATIONS DATA AND ANALYSIS

Overall, students are highly satisfied with their mathematics courses, and numbers have remained consistent over the past five years. See Appendix 7.F for details.

3C.I.1 DESCRIBE CHANGES MADE IN INSTRUCTIONAL METHODS BASED ON STUDENT COURSE EVALUATION DATA. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

Instructors make changes individually based on responses within their own courses.

#### 3C.i.2 DESCRIBE CHANGES MADE TO THE COURSE BASED ON STUDENT COURSE EVALUATION DATA.

Instructors address changes individually based on responses within their own courses.

#### EXAMPLE: MTH 111

For example, in Ahmed Adala's Math 111 class, students indicated that they felt that the questions on the test did not always mirror what was in the homework. As a result, Ahmed Adala provided supplementary materials and sample tests to better prepare students.

#### 3C.II JOB PLACEMENT DATA AND ANALYSIS (IF AVAILABLE).

Not applicable to program review for general education disciplines.

### 5. BUDGET

#### 5A. PROVIDE FIVE-YEAR COST MARGIN DATA AND ANALYSIS.

The Mathematics department consistently has a very high CMA because our courses are required for all students, so we have large numbers. Our CMA has fluctuated over the years as it is dependent on class sizes, which have dropped for our developmental classes. Refer to Appendices 7.G for details.

## 5B. SUMMARIZE PREVIOUS ANNUAL PROGRAM VIABILITY STUDY RESULTS AND EXPLAIN HOW CHANGES IMPACTED STUDENT LEARNING OUTCOME PROFICIENCY. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

Not applicable to this program review.

## 5C. EXPLAIN ANY BUDGETARY CHALLENGES AND ANY PLANS TO ADDRESS THEM.

We have no budgetary challenges at this time.

### 6. CONCLUSION

#### 6A. DESCRIBE PROGRAM STRENGTHS.

In the mathematics department, we have experienced, well-qualified faculty who are innovative, collaborative, and dedicated to student success. We provide solid instruction and operate from a continuous improvement mindset. In addition, we are fortunate to have exceptional part-time faculty who are part of our team.

#### 6B. DESCRIBE PROGRAM WEAKNESSES.

Workload: Frequently, our full-time faculty teach an overload of credits. Additionally, we find ourselves with four more preparations each term.

#### 6C. DESCRIBE SUPPORT NEEDED.

When the term schedule is designed, it needs to take into consideration the number of preparations for each full-time faculty. Furthermore, we need to reduce the number of course offerings. Also, given the difficulties of finding adjuncts, we are hoping in the future to hire another full-time faculty member.

### 6D. CREATE NEW GOALS AND LINK THEM TO THE STRATEGIC PLAN.

GOAL 1 (EXCELLENCE): BUILD A CONNECTION WITH OUR STUDENTS AS WELL AS PROVIDE ADDITIONAL INSTRUCTION, BY IMPLEMENTING OUR OWN VIDEO LECTURES IN OUR ONLINE CLASSES. IN ADDITION, SUPPLYING OUR STUDENTS WITH LECTURE GUIDES TO HELP THEM TAKE BETTER NOTES.

George has completed and provided videos for MTH 95 and MTH 111. Joni Hansen is in the process of making videos for MTH 112 and MTH 243 and has completed videos for 111 DE. Wogan, Hansen, and Harpham gave individual video feedback on homework for Math 70, 95, 111, 112, and 243.

#### GOAL 2 (ACCESS): PILOT LOWER COST OPTIONS TO OUR ONLINE HOMEWORK SOFTWARE.

The software we were looking into was in Beta testing and did not go into production. Harpham has contacted Cengage Publishing regarding a demonstration of their online homework platform. Wogan has ordered books to go with this platform and we will be evaluating their quality to adopt them next year as a no or low cost option for our students. This term Lois Taysom and Mary Lou Wogan piloted XYZHomework online homework platform which is inexpensive, but not as robust as MyLab Math. Fall Term 2020, Mary Lou Wogan and Dan Solstys will pilot Webassign from Cengage in Math 95 and Math 211. Again, this is to find a quality online homework platform that will be less expensive for our students. MaryLou found that the Cengage platform does not currently integrate with Canvas. This is a feature we feel is important, so we do not want to transition to Cengage at this time. We will continue to look at options to provide lower cost or no cost resources for our students.

#### GOAL 3 (ACCESS): PLACE STUDENTS IN MATH CLASSES THAT BEST MATCH THEIR ACADEMIC PREPAREDNESS.

The mathematics department uses a multiple measure approach to placing students into its classes. When students register for classes they are interviewed by Enrollment Services. The information gathered by Enrollment Services is then put into the Math Placement Tool. If the student has successfully taken a math class less than two years ago Enrollment Services places the student accordingly. If it has been longer than two years since the student successfully completed a course in mathematics, then the student is given an access code for MyMath Test, our placement tool. Our MyMath Test placement tool was developed by the KCC mathematics department using a testing product from Pearson Publishing.

MyMath Test is a series of four tests that tests students out of each of our four levels of developmental mathematics. Students are allowed to take the tests at home. The tests are not timed and students can retake a test as many times as they are willing to. It also includes practice tests for each of the four tests and a Study Plan to help remediate the student's knowledge of mathematics. All work on MyMath Test placement tests feeds into a Study Plan that helps students to review by providing step by step instructions, video examples, and additional practice.

In addition, students who need remediation in mathematics have an option to take an emporium model math class, MTH 52, to raise their placement level.

Correct placement students requires continued maintance. This includes reviewing the tests, working with academic advisors, and exploring other options.

# GOAL 4 (EXCELLENCE): REDUCE THE NUMBER OF PREPARATIONS COURSE PEPARATIONS OF OUR FULL TIME FACULTY TO NO MORE THAN THREE PER TERM.

Presently our full time faculty often have 4 course prepartions per term. This spreads us thin. This could be remedied by reviewing our course offerings with the potential of limiting them. In addition, working with the administration on the schedule.

This would allow our faculty to invest more time in the improvement of the classes they teach.

### 7. APPENDICES

#### APPENDIX 7.A. COURSE DESCRIPTIONS FOR MATH CLASSES CURRENTLY OFFERED

#### MTH 105 - MATH IN SOCIETY (4 CREDITS)

Math in Society is a rigorous mathematics course designed for liberal arts and humanities majors. The course provides a solid foundation in quantitative reasoning, symbolic reasoning, and problem-solving techniques needed to be a productive, contributing citizen in the 21st century. Prerequisites: MTH 065 or MTH 070 or MTH 095 or MTH 098 or placement into MTH 105 and WRI 095 or WRI 121 or placement into.

#### MTH 111 - COLLEGE ALGEBRA (5 CREDITS)

The algebraic operations dealing with linear, quadratic, and polynomial equations and functions. Introduces graphs of functions, linear, quadratic, polynomial, rational, exponential, and logarithmic, and develops the concepts of exponential and logarithmic functions. Develops skills in systems of equations. Concepts will be introduced numerically, graphically, and symbolically. Results will be communicated in oral and written form. Prerequisite: MTH 095 with a grade of "C" or better or placement into MTH 111.

#### MTH 112 - ELEMENTARY FUNCTIONS (4 CREDITS)

The trigonometric ratios and their applications with special emphasis on identities, trigonometric equations, vectors, and complex numbers. Prerequisite: MTH 111 with a grade of "C" or better.

#### MTH 211 - FOUNDATIONS OF ELEMENTARY MATH 1 (4 CREDITS)

This course is for prospective K-8 teachers. Emphasizes Polya's problem solving process, patterns and sequences, set theory, numeration systems, number bases, number theory, and modular arithmetic. Will also introduce teaching pedagogy and development of teaching materials. Prerequisite: MTH 095 with a grade of "C" or better or MTH 111 with a grade of "C" or better or placement into MTH 111.

#### MTH 212 - FOUNDATIONS OF ELEMENTARY MATH 2 (4 CREDITS)

This course is for prospective K-8 teachers. Emphasizes proportions and algorithms of rational numbers (fractions, decimals, percent), integers, the sets of irrational and real numbers, and simple probability and statistics. Prerequisite: MTH 095 with a grade of "C" or better or MTH 111 with a grade of "C" or better or placement into MTH 111.

#### MTH 213 - FOUNDATIONS OF ELEMENTARY MATH 3 (4 CREDITS)

This course is for prospective K-8 teachers. Emphasizes informal geometry, transformational geometry, and measurement systems. Prerequisite: MTH 095 with a grade of "C" or better or MTH 111 with a grade of "C" or better or placement into MTH 111.

#### MTH 243 – STATISTICS 1 (4 CREDITS)

Covers concepts of elementary probability, frequency distributions and their graphs, probability distributions, descriptive statistics, confidence interval estimation, and interpretation of statistical results. Prerequisite: MTH 095 with a grade of "C" or better or MTH 105 with a grade of "C" or better or MTH 111 with a grade of "C" or better or placement into MTH 111.

#### MTH 244 - STATISTICS 2 (4 CREDITS)

Covers inferential statistics with an emphasis on applications. Topics include estimation of proportions and means for a population, inferences from chi-square distributions, one way and two way analysis of variance (ANOVA), the F distribution, time series analysis, regression and correlation, and hypothesis testing. Working knowledge of Excel required. Prerequisite: MTH 243 with a grade of "C" or better.

### MTH 251 – CALCULUS 1 (4 CREDITS)

Computation techniques for calculating the limit of a function. Computational techniques for calculating and applications of the derivative of a function. Prerequisite: MTH 112 with a grade of "C" or better.

#### MTH 252 - CALCULUS 2 (4 CREDITS)

Computational techniques for and applications of definite and indefinite integrals. Prerequisite: MTH 251 with a grade of "C" or better.

## APPENDIX 7.B. PERCENTAGE OF CLASSES TAUGHT BY FULL TIME FACULTY AND ADJUNCT FACULTY

	Summe	er 2019	Fall	2019	Winte	r 2020	Spring	g 2020		Total DevEd	Total GenEd
Full Time Instructors	DevEd	GenEd	DevEd	GenEd	DevEd	GenEd	DevEd	GenEd			
George Harpham	2	2	2	2	3	1		3		7	8
Mary Lou Wogan			3		4		4			11	0
Ahmed Adala			2	2	1	4	2	1		5	7
Joni Hansen				4		5		3		0	12
Total	2	2	7	8	8	10	6	7		23	27
	-										
Adjunct Instructors									l.		
Lois Taysom	3		3		2		3			11	0
Joni Hansen		1								0	1
Dan Solyst				1		1		1		0	3
Ivan Murphy			1		1		1			3	0
Justin Rodriguez			1		1		1			3	0
Morgan Chase		1		1		1		1		0	4
Jayme Cronquist			1		1		1			3	0
Total	3	2	6	2	5	2	6	2		20	8
										_	
	% DevEd	d by FT =	53.4	49%		% GenEo	d by FT =	77.14	1%		
										_	
						<mark>% total</mark>	by FT =	64.10	)%		
										_	
	% DevEc	by AD =	46.5	51%		% GenEc	l by AD =	22.86	5%		
										_	
						% tatal	by AD =	35.90	)%		

Course	Outcomes
MTH 10	Upon successful completion of this course, students will be able to:
	<ol> <li>Demonstrate the use of mathematical operations on whole numbers, integers, fractions, and decimals.</li> <li>Perform accurate arithmetic computations in a variety of situations without a calculator.</li> <li>Apply mathematical problem-solving strategies.</li> <li>Describe mathematical procedures both orally and in writing.</li> <li>Examine the connection between whole numbers, fractions, decimals, and integers.</li> </ol>
MTH 20	Upon successful completion of this course, students will be able to:
	<ol> <li>Apply concepts of integers, fractions, and decimals to ratio, rate, proportion and percent problems.</li> <li>Manipulate mathematical expressions using order of operations, unit analysis and formulas.</li> <li>Perform accurate arithmetic computations in a variety of situations with and without a calculator.</li> <li>Apply mathematical problem-solving strategies.</li> <li>Explain results mathematically in writing.</li> </ol>
MTH 60	Upon successful completion of this course, students will be able to:
	<ol> <li>Solve linear equations and inequalities in one and two variables.</li> <li>Construct graphs of linear equations and inequalities.</li> <li>Represent mathematical processes and results both orally and in writing.</li> </ol>
MTH 65	Upon successful completion of this course, students will be able to:
	<ol> <li>Solve systems of equations by graphing, substitution and addition.</li> <li>Demonstrate the use of rules of exponents.</li> <li>Demonstrate polynomial operations.</li> <li>Represent mathematical processes and results both orally and in writing.</li> </ol>
МТН 70	Upon successful completion of this course, students will be able to:
	<ol> <li>Solve linear equations and inequalities in one and two variables.</li> <li>Construct graphs of linear equations and inequalities.</li> <li>Solve systems of equations by graphing, substitution, and addition.</li> <li>Demonstrate the use of rules of exponents.</li> <li>Demonstrate polynomial operations.</li> <li>Represent mathematical processes and results both orally and in writing.</li> </ol>
MTH 85	Upon successful completion of this course, students will be able to:
	<ol> <li>Demonstrate the use of mathematical operations on whole numbers, integers, fractions, and decimals.</li> <li>Apply the concepts of ratios, proportions, and percents to various mechanical situations.</li> <li>Use formulas to preform calculations with applications to automotive and diesel Technology.</li> <li>Apply mathematical problem-solving strategies.</li> <li>Explain results mathematically and in writing.</li> </ol>

## APPENDIX 7.C. COURSE LEARNING OUTCOMES FOR MATHEMATICS

MTH 95	Upon successful completion of this course, students will be able to:
	1. Solve problems in one variable using quadratic, rational and radical equations as models.
	2. Translate between graphical, numerical, verbal, and symbolic representations of functions.
	3. Use variables to represent unknown quantities.
	<ol> <li>Interpret properties of functions and relations.</li> <li>Represent mathematical processes and results both orally and in writing</li> </ol>
	5. Represent mathematical processes and results both orany and in writing.
MTH 98	Upon successful completion of this course, students will be able to:
	1. Apply problem solving strategies including solving a simpler problem, looking for a pattern, setting
	up a proportion, using a formula, and solving for a percent.
	<ol> <li>Solve linear equations and inequalities in one and two variables.</li> <li>Demonstrate the rules for exponents.</li> </ol>
	<ol> <li>Manipulate mathematical expression using order of operations and formulas.</li> </ol>
MTH 105	Upon successful completion of this course, students will be able to:
	1. Use set concepts and set operations.
	3 Solve probability problems
	4. Calculate the elements of the normal curve.
	5. Represent mathematical processes and results both orally and in writing.
MTH 111	Upon successful completion of this course, students will be able to:
	1. Solve quadratic, exponential, logarithmic, polynomial, and rational equations.
	2. Interpret properties of quadratic, exponential, logarithmic, polynomial, and rational functions.
	3. Analyze algebraic equations and functions in order to graph them with and without a graphing calculator
	4. Use variables to represent unknown quantities.
	5. Represent mathematical processes and results both orally and in writing.
MTH 112	Upon successful completion of this course, students will be able to:
	1. Solve problems involving triangles using the six trigonometric functions and other methods.
	2. Translate between the unit circle, trig graphs, and the trigonometric values
	<ol> <li>Use variables to represent unknown quantities.</li> <li>Interpret properties of tripper properties identifies</li> </ol>
	4. Interpret properties of trigonometric identities.
	<ol> <li>Represent mathematical processes and results both orally and in writing.</li> </ol>
MTH 211	Upon successful completion of this course, students will be able to:
	1. Apply Polya's problem solving process and other strategies to solve word problems.
	2. Interpret Venn diagrams and identify the intersection, union, and complements of sets.
	3. Use concepts of number theory to find greatest common divisors and least common multiples.
	4. Illustrate whole numbers using various numbering systems such as Roman, Egyptian, and Mayan
	numerals. 5 Use various manipulatives to perform operations with whole numbers and integers
	<ol> <li>Apply mathematics teaching pedagogy to develop teaching materials.</li> </ol>

MTH 212	Upon successful completion of this course, students will be able to:
	<ol> <li>Use various manipulatives to order and perform operations with fractions and decimals.</li> <li>Identify and classify real numbers.</li> </ol>
	3. Solve proportions and applications involving ratios and percentages, including percentage increase
	4. Interpret statistical data.
	5. Compute the probability of an event or multiple events.
MTH 213	Upon successful completion of this course, students will be able to:
	<ol> <li>Create expressions and equations with variables and constants.</li> <li>Identify functions as well as the domain and range of a function.</li> </ol>
	3. Construct graphs of linear equations.
	4. Compute slope, distance, and midpoint given two points.
	5. Apply geometric concepts involving triangles, quadrilaterals, circles, polygons, prisms, and pyramids.
	6. Apply mathematics teaching pedagogy to develop teaching materials.
MTH 243	Upon successful completion of this course, students will be able to:
	1. Explain the usefulness of the statistical method in a variety of professional fields and life situations.
	2. Solve application problems with probability theory including mutually exclusive events and independent (dependent support)
	3. Identify assumptions and logic of statistical tools presented in the course.
	4. Perform computations with selected statistical techniques including parametric and nonparametric
	tests.
	<ol> <li>Generative common flaws and fallacies in the use of probability and statistics.</li> <li>Perform statistical computations with pencil and paper, calculator, and/or software.</li> </ol>
	7. Represent mathematical processes and results both orally and in writing.
MTH 244	Upon successful completion of this course, students will be able to:
	1. Understand and be able to communicate the underlying mathematics involved to help another
	person gain insight into probability and statistics concepts encountered in real world situations.
	appropriate statistical methods and technology, judge if the results are reasonable, and then interpret and clearly communicate the results.
	3. Reason from data and use standard mathematical terminology, notation, and symbolic processes in
	order to engage in work, study, and other applications that require the use of and an understanding
	of the concepts of statistics in a data-based setting
MTH 251	Upon successful completion of this course, students will be able to:
	1. Solve problems that involve differentiation of functions.
	<ol> <li>Find limits and extrema of functions.</li> <li>Apply differentiation to related rate problems.</li> </ol>
	<ol> <li>Apply differentiation to optimization problems.</li> </ol>
	5. Explain mathematical ideas using correct and appropriate notation.
1	

MTH 252	Upon successful completion of this course, students will be able to:							
	1. Implement various integration techniques.							
	2. Find definite integral and evaluate indefinite integrals.							
	3. Use integration on transcendental functions.							
	4. Solve differential equations.							
	5. Use correct and appropriate notation to communicate mathematical ideas.							

## APPENDIX 7.D. COURSE LEARNING OUTCOME (CLO) ASSESSMENT SAMPLES

Term/Year	% met	Changes	Notes
Fall 2017			
Mth 095.03	Average of 86.12% on those questions.	Students who didn't turn in homework or attend classes regularly did not do well in the final exam (or the overall class grade). Adding a class attendance grading component in the syllabus may benefit students who have a hard time attending class.	This was my first time teaching the course, so I had never done an assessment on any of the CLOs before. I do think that moving forward, there will be continued emphasis on the CLOs as a whole, making sure they are properly being tested on to further stud
Mth 243.01	75% of the student received an average or above average grade on the final exam.	Students would benefit from checking their email, overall.	NA
Winter 2018			
Mth 020.01	76% demonstrated some proficiency, while only 35% demonstrated full proficiency	Encourage attendance by assigning participation points.	Not applicable
Mth 095.01	50%	Poor attendance and tardiness were unusually high this term. Dropping all students who miss any class the first week will help. This term I did not drop students who missed days the first week if they had	I have not assessed this course previously.

		contacted me. Several of	
		those had very poor	
		attendance	
Spring 2018			
Mth 095.02	65%	I intend to place more emphasis on application problems in future Math 95 courses. I will move these applied problems to earlier in the course and distribute them throughout the term. As presently configured in the textbook and the standard KCC syllabus	Does not apply.
Fall 2018			
Mth 111.01	77%	Most students did this MyMathLab assignment thoroughly and conscientiously. Unfortunately, there are some students who seem content with C level and only work to obtain a C. They do not review or get help from myself or KCC tutors if they have some parts	After this course, I have reaffirmed my need to revise the online materials offered to students.
Winter 2020			
Mth 212.01	95%	Based on my analysis, I will create more opportunities for them to explore the advantages or disadvantages of the particular concept I was asking them to evaluate.	Since the last assessment, I provided more in class activities and demonstrations for teaching the particular concept. I feel there was an increase in student understanding as to the advantages and disadvantages of

	modeling the concept using
	different a



## CORE TRANSFER MAPS

The Core Transfer Maps are broad descriptions of course requirements for students at any Oregon community college or public university. Students who have not yet declared a major and plan to transfer may take classes that fit these categories at any Oregon community college and expect all classes to transfer and meet at least 30 credits of general education requirements for a bachelor's degree at any Oregon public university.

Note that many majors have specific course requirements for categories within the Core Transfer Maps. The Core Transfer Maps are intended as starting points for students who plan to transfer to a university, but are unsure of their intended major or transfer destination. Students who are certain of their major, but not their transfer destination, should determine if there is a developed Major Transfer Map for their chosen discipline, and follow that as a guide. Students who are certain of both their major and their intended transfer destination should consult an advisor for information on an existing specific articulation agreement, Major Transfer Map, or degree map that will prescribe their course requirements.

#### COURSE DISTRIBUTION REQUIREMENTS See an advisor for recommended courses

Subject	ject General Core Transfer Map STEM Core Transfer M				
Writing	WR121 (3-4 credits)	WR121 (3-4 credits)			
Arts & Letters	2 courses (6-8 credits) See list of AA/OT outcome courses. * See an advisor for recommended courses.	2 courses (6-8 credits) See list of AA/OT outcome courses. * See an advisor for recommended courses.			
Social Sciences	2 courses (6-8 credits) See list of AA/OT outcome courses. * See an advisor for recommended courses.	2 courses (6-8 credits) See list of AA/OT outcome courses. * See an advisor for recommended courses.			
Natural Sciences	2 courses with labs (8-10 credits) See list of AA/OT outcome courses. * See an advisor for recommended courses.	<ul> <li>2 courses with labs (8-10 credits)</li> <li>See list of AA/OT outcome courses.</li> <li>* See an advisor for recommended courses.</li> </ul>			
Math	1 course (4-5 credits) See list of AA/OT outcome courses. * See an advisor for recommended courses.	1 course (4-5 credits) See list of AA/OT outcome courses * See an advisor for recommended courses.			
	ADDITIONAL REQUIR	REMENTS			
Subject	General Core Transfer Map	STEM Core Transfer Map			
Cultural Literacy	At least 1 required course must also meet the Cultural Literacy outcomes.	At least 1 required course must also meet the Cultural Literacy outcomes.			
At Least 30 Total Credits	If the credit total for the required courses is less than 30 credits, select a course of your choice from the AA/OT outcome courses. * See an advisor for recommended courses.	If the credit total for the required courses is less than 30 credits, select a course of your choice from the AA/OT outcome courses. * See an advisor for recommended courses.			
Completion standards	All courses must be passed with a grade of "C-" or better. Students must have a minimum cumulative GPA of 2.0 at the time of award.	All courses must be passed with a grade of "C-" or better. Students must have a minimum cumulative GPA of 2.0 at the time of award.			
	COMPLETED CORE TRAN	NSFER MAPS			
Subject	General Core Transfer Map	STEM Core Transfer Map			
Total	At least 8 courses (at least 30 credits)	At least 8 courses (at least 30 credits)			

### APPENDIX 7.F: COURSE EVALUATION FEEDBACK FROM STUDENTS IN MATHEMATICS COURSES

The course helped me develop my community and global awareness.										
The instructor used classroom technology effectively.										
The instructor used learning resources effectively.		-					100		10	
The instructor treated students and their ideas with respect.										
The instructor evaluated my course work fairly.					-					
The instructor communicated ideas and information clearly and effectively.									din:	10-10
The instructor was supportive and helpful.					_			33		
The instructor inspired interest in the course material.										
The instructor provided clear and useful feedback to improve my learning.									15	
The instructor encouraged me to connect my experience to the course.					-					
The instructor clearly connected the course outcomes to course assignments and assessments.		- 32								
The classroom technology for this class was adequate for the need of the class.		-05							15	
This course helped me develop my ability to participate as a member and a leader of diverse teams.									- 10	
The course helped me develop my professional competence and my confidence/ability to meet goals.										
This course helped me develop my cultural competence.										
The course helped me develop my communication skills.		- 22	- 27						- 10	
The course helped me develop my critical thinking and problem solving.								36		
The course increased my interest in the subject matter.										
The evaluation process (quizzes exams papers labs projects etc.) was fair and appropriate and measured my mastery of the course content.		- 20	- 22						- 48	100-18
The content of the course supported the learning outcomes.										-
The course had clear learning outcomes.		- 33								
The course was well-planned and organized.										
I had access to adequate technology to complete the required work for this class.									-	
I completed the homework for this class.										
I completed the class reading assignments.										
l attended class.				-						
I participated actively and contributed thoroughly in class.										
I invested enough effort to fulfill course requirements.										
I asked the instructor for help / guidance when I needed it.							an a		50-	
I was well-prepared for each class.	_									
I was self-motivated to learn the course material.						10	100			
	0	0.5	1	15	2	2.5	3	3.5	4	4.5
	Ĭ	2.2	ै	2.2	-	5.1	5	0.0	1	1.2

Overall Math Department Scores Winter 2016 to Winter 2020

### APPENDIX 7.G.: COST MARGIN DATA AND ANALYSIS FOR COLLEGIATE-LEVEL MATHEMATICS COURSES 2017-2020

BUDGET YEAR	17-18	18-19	19-20	AVERAGE
Tuition	306,714.00	509,429.00	255,561.00	
Cost	262,437.40	376,417.87	250,321.07	
Margin	44,276.60	133,011.13	5,239.93	
Margin as a Percentage of Revenue:	14%	26%	2%	14%

INSTRUCTIONAL PROGRAM	INSTRUCTIONAL PROGRAM REVIEW RUBRIC							
	Highly Developed	Developed	Emerging	Initial				
1—Accomplishments in Achieving Goals	Exhibits ongoing and systematic evidence of goal achievement.	Exhibits evidence of goal achievement.	Exhibits some evidence that some goals have been achieved.	Minimal evidence that progress has been made toward achieving goals				
2—Labor Market Projection	Thoroughly explains projected market demand and potential effects on program; presents highly developed plan to address projection.	Explains projected market demand and discusses several possible actions to address projection.	Minimally explains projected market demand and lists one or two actions to address projection.	Presents labor market demand without analysis/explanation and fails to list possible actions to address projection.				
3—Resources								
Professional Development	Exhibits ongoing and systematic support of professional development opportunities.	Exhibits support of regular professional development opportunities.	Evidence of intermittent professional development opportunities.	Minimal evidence of professional development opportunities.				
Faculty Meeting Instructional Needs	Employs a sufficient number of highly qualified faculty to meet instructional needs.	Employs an adequate number of qualified faculty to meet instructional needs.	Has a plan to employ an adequate number of qualified faculty to meet instructional needs.	Faculty numbers and/or qualifications are insufficient to meet instructional needs.				
Facilities and Equipment	Facilities and resources meet current and future needs.	Facilities and resources meet current needs.	Evidence of a plan to have facilities and resources meet current and future needs.	Minimal evidence that facilities and resources meet current and future needs.				

4—Effectiveness

Student Learning Outcomes Assessment	Exhibits ongoing and systematic SLO assessment to adjust instruction.	Exhibits student learning outcomes assessment and uses results to change instruction.	Has a plan to engage in ongoing and systematic SLO assessment, including using results to change instruction.	Minimal evidence of SLO assessment.
Student Success	Thoroughly analyzes trends in enrollment, degrees awarded, time-to- completion rates, and formulates comprehensive plans to address them.	Describes trends in enrollment, degrees awarded, time-to- completion rates, and formulates plans to address them.	Describes trends in enrollment, degrees awarded, time-to- completion rates, and makes an attempt to plan to address them.	Minimal description of trends and/or fails to formulate plan to address them.
5—Budget	Financial resources meet current needs and are projected to meet future needs.	Financial resources meet current needs.	Evidence of a plan to acquire financial resources to meet current needs.	Minimal evidence that financial resources meet current needs.
6—Strengths and Weaknesses	Strengths and weaknesses are described accurately and thoroughly.	Most strengths and weaknesses are described accurately and thoroughly.	Some strengths and weaknesses are described accurately and thoroughly.	Minimal evidence that strengths and weaknesses are described accurately and thoroughly.
7—New Goals and Plan	Multiyear planning process with evidence of use of assessment data in planning.	Multiyear planning process with some assessment data.	Short-term planning process recently implemented.	Minimal evidence of planning process.
8—Overall Evaluation	Evidence of ongoing systematic use of planning in selection of programs and services.	Exhibits evidence that planning guides program and services selection that supports the college.	There is evidence that planning intermittently informs some selection of services to support the college.	Minimal evidence that plans inform selection the of services to support the college.

Highly Developed	Developed	Emerging	Initial