MATHEMATICS

Associate of Applied Science Degree

2017/2018

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Program Goals
The degree in Mathematics prepares students for bachelor programs in mathematics or related field.

2015/18 Curriculum Profile
https://luna.edu/mathematics/

General Education Core   (36 hours)

AREA I.   (COMMUNICATIONS   (9 HOURS)

ENG111	Freshman Composition I	3 credits
ENG115	Freshman Composition II	3 credits
SPCH111	Public Speaking	3 credits

AREA II. MATHEMATICS   (4 HOURS)

MATH180	College Algebra	4 credits

AREA III.   LABORATORY SCIENCE   (8 HOURS)

AREA IV.   HUMANITIES AND FINE ARTS   (6 HOURS)

AREA V.   SOCIAL AND BEHAVIORAL SCIENCES   (9 HOURS)

Program Requirements   (20 hours)

MATH130	Statistics	3 credits
MATH190	Trigonometry	4 credits
MATH195	Calculus I	4 credits
MATH212	Calculus II	4 credits
MATH213	Calculus III	4 credits
STEM250	STEM Capstone	1 credit

Program Electives   (4 hours)

MATH116	Intermediate Algebra	4 credits
MATH215	Linear Algebra	4 credits
MATH220	Differential Equations	4 credits

***Students may select other elective courses from STEM Department with faculty approval.

Program Map (link also to website)

The program map marks courses that are scheduled by semester in order to complete this degree within two years (or one year if applicable). Refer to Appendix A for the program map.

No link to website

Mathematics: Associate of Applied Science Degree

Program Map

The degree in Mathematics prepares students for bachelor programs in mathematics or a related field. The program can be applied to almost any career such as statistical analysis, research, computer science, engineering, economics and education. Students should be familiar with the admission requirements of the university they plan to attend.

Degree Requirements Credit Hours: 60 - (General Education Core -36 credit hours)

Term 1/Fall Semester	Credits	Term 2/ Spring Semester	Credits
ENG111 Freshman Composition I	3	**ENG115 Freshman Composition II**	3
MATH190 Trigonometry	4	**Humanities and Fine Arts**	3
MATH130 Statistics	4	**Laboratory Science**	3
Social and Behavioral Science	3	**Social & Behavioral Science**	3
		MATH195 Calculus I	4
Semester Total	**14**		
			16
Milestones		**Milestones**	
Complete all Term 2 courses with a letter "C" grade or better		Complete all Term 3 courses with a letter "C" grade or better	
Meet with Advisor		Meet with Advisor	
Accumulate 45 or more credits		Apply for graduation	
Maintain a 2.0 GPA or Higher		Accumulate 60 or more Credits	
Enroll in Term 4		Maintain an overall 2.0 GPA or higher	

		Graduate with an Associates, consider transfer to 4 year college or university	

First Academic Year 30 total credit hours

Mathematics: Associate of Applied Science Degree

Program Map

Term 3/ Fall Semester	Credits	Term 4 / Spring Semester	Credits
Laboratory Science	4	STEM250 STEM Capstone	1
SPCH111 Public Speaking or Interpersonal Communication	3	MATH213 Calculus III	4
Social and Behavioral Science	3	Elective	4
MATH212 Calculus II	4	Humanities and Fine Arts	3
Semester Total	14	Semester Total	12
Milestones		Milestones	
Complete all Term 2 courses with a letter "C" grade or better		Complete all Term 3 courses with a letter "C" grade or better	
Meet with Advisor		Meet with Advisor	
Accumulate 45 or more credits		Apply for graduation	
Maintain a 2.0 GPA or Higher		Accumulate 60 or more Credits	
Enroll in Term 4		Maintain an overall 2.0 GPA or higher	
		Graduate with an Associates, consider transfer to 4 year college or university	

Second Academic Year 26 total credit hours

* It is highly recommended that students needing remedial courses utilize the summer semester to continue on a program map. This would allow students to complete their program of study within the traditional two academic years.

Professional Development

List PD if it pertains specifically to meeting needs in this program; otherwise use PD at department level to identify all PD.

Courses Offered by Semester

Fall 2017

Fall By Course

Course	# of Sections	Credit	# Students Enrolled	Student Credit Hours
MATH 180	3	4	37	148
MATH 130	1	3	18	54
MATH 190	1	4	8	32
MATH 195	1	4	10	40
MATH 213	1	4	8	32
STEM 250	1	1	3	3
MATH 116	5	4	77	308

Spring 2018

Spring by course

Course	# of Sections	Credit	# Students Enrolled	Student Credit Hours
MATH 130	1	3	17	51
MATH 180	4	4	47	188
MATH 190	1	4	4	16
MATH 195	1	4	14	56
MATH 212	1	4	5	20

Summer 2018

Summer by course

Course	# of Sections	Credit	# Students Enrolled	Student Credit Hours
MATH 180	2	4	20	80
MATH 190	1	4	4	16

Retention Rates Fall to Spring

*Spring census date; if you don't have it, put end of Spring semester enrollment but caveat with ** asterisk and explain.

Student Enrollment (Three-Year Annual Trend)

2015/2016	2016/2017	2017/18

Student Graduation (Three-Year Annual Trend)

2015/2016	2016/2017	2017/18
3	0	5

Synopsis of Significant Findings

Program Improvement Plans Implemented or In-Progress

Advisory Committee Work

If a committee is established just for accounting for example, then you would include the yearly results.

Student Advisement by Semester

Get Advisement report from advisors and gather essential and relevant (program) info. for this section.

Yearly Return on Investment

Costs for instruction are listed by course.

Revenue

Course Name	#of Credits	#of Students	SCH	Tier $	Tier Funding Tot	Tuition $40	Total Revenue
MATH 075	4	39	156	$133			$23095
MATH 095/01	4	18	72	$133			$8,647
MATH 095/02	4	29	116	$133			$11,529
MATH 102	5	37					$27,291
MATH 116	4	77	308	$133			$44,553
MATH 180	4	37		$133			$17,032
MATH 190	4	8		$133			$1761
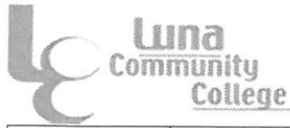
MATH 195	4	10		$133			($1543)
MATH 213	4	4		$133			($5671)

Costs

Course Name	Instructor Salary	Fringe	Operational Costs (63 and 64 codes)	Total Costs

<Include Class Cost Per Student (e.g., Revenue-Costs/students enrolled)>

<Include Cost per Graduate (e.g., Revenue-Costs/students graduated this year)>

Alumni Surveys
<List any surveys you sent out this year.>

Program Learning Assessment Plan (Weave)
Appendix B provides the program assessment of learning plan created by the faculty.

Student Alumni
< You will need to keep in contact with graduating students. Where do they go? If they Transfer or go straight into a job; if a job, list job, if a transfer, list college.>

Curriculum Committee Work (Link)
<The following courses were submitted to the curriculum committee to align them with NM articulation agreements. Explain what, when, how it changed the program>

Final Program Approvals (Board of trustees) approvals to move program forward
<Final approvals from VP/ President and board of trustees meeting.>

Accreditation
<List any accreditation required for this program>

Evaluation of the Program
Summary

The Mathematics program is doing well at LCC, with the number of students taking both developmental and General Core required classes, bolsters revenues and provides a solid foundation for the upper level classes which tend to attract lower numbers. Recruitment into the Mathematics, although steady is low, with aggressive recruitment the numbers of graduates could potentially re raised.

Appendix A: Program and Student Assessment of Learning

<Academic Program Plan and SLO assessment goes here. Pull from WEAVE.>

LCC Academic Mathematics AS PLO Assessment Plan

2017-2018

In Progress

Program Mission Statement

Preparing students for careers or further academic study in science, technology, engineering, mathematics (STEM) and STEM education and imparting core knowledge in science and mathematics to all students serving the citizens of New Mexico with educational programs that facilitate enhanced opportunities for STEM-related innovation and economic development.

Program Goal

1 Mathematics

Program Overview The degree in Mathematics prepares students for bachelor programs in mathematics or a related field. The program can be applied to almost any career such as statistical analysis, research, computer science, engineering, economics and education. Students should be familiar with the admission requirements of the university they plan to attend. The three-year plan (2017/18, 2018/19, 2019/20) will evaluate the following three PLO's and three general education PLO's: 1. Demonstrate an understanding of basic manipulative skills in algebra, geometry and trigonometry. 3. Demonstrate and understanding of differential and integral calculus. 4. Demonstrate an overall ability for analytical thinking and logical problem-solving. The following course STEM250-STEM Capstone will be used to assess the program. Gen Ed: Communication Critical Thinking Digital Literacy

Program Learning Outcomes

1.1 *Demonstrate an understanding of basic underlying manipulative skills in algebra, geometry and trigonometry.

Description

PLO Assessment Method

1.1.1 STEM250-STEM Capstone

Source of Evidence

Rubric Graded Exam - Academic Direct

Description

The capstone course is a self-directed, integrated, learning opportunity. The student will work during the course dates to prepare for a comprehensive capstone exam with the course instructor as a mentor. At the end of the course, the student will take a comprehensive exam based on the program learning outcomes. It is the intent of this course that the student will bring to bear all the learning and knowledge from the course work to show competence in the selected field of business. The student will take the capstone course in his or her last semester at LCC.

Describe the assessment method and Course used to assess this PLO.

Capstone exam is comprised of questions/problems from M116 Intermediate Algebra, M180 College Algebra, M190 Trigonometry, M195 Calculus 1, M212 Calculus 2, M213 Calculus 3,

Benchmark/Target

1.1.1.1   Not Reported this Period

Benchmark/Target

Benchmark--students must pass the capstone with a 70% or better. Target--students will pass capstone with an 80% or better.

Finding

Two people passed in the SP 2018 and two people passed in the FA 2018 with an 80% or better.

Analysis of Finding

Four out of the five people who took the class passed with an 80% or better. No action needed.

Improvement Type   Improvement Description

Improvement

1.1.2

Source of Evidence

Description

Describe the assessment method and Course used to assess this PLO.

Benchmark/Target

1.2 Demonstrate an understanding of basic underlying mathematical structures (i.e. graphs, functions, equations) and how they apply to real life situations.

Description

PLO Assessment Method

1.2.1 STEM250-STEM Capstone

Source of Evidence

Capstone assignment - Academic Direct

Description

The capstone course is a self-directed, integrated, learning opportunity. The student will work during the course dates to prepare for a comprehensive capstone exam with the course instructor as a mentor. At the end of the course, the student will take a comprehensive exam based on the program learning outcomes. It is the intent of this course that the student will bring to bear all the learning and knowledge from the course work to show competence in the selected field of business. The student will take the capstone course in his or her last semester at LCC.

Describe the assessment method and Course used to assess this PLO.
Capstone exam is comprised of questions/problems from M116 Intermediate Algebra, M180 College , Algebra, M190 Trigonometry, M195 Calculus 1, M212 Calculus 2, M213 Calculus 3, M215 Linear Algebra, M220 Differential Equations

Benchmark/Target

1.2.2

Source of Evidence

Rubric Graded Exam - Academic Direct

Description

Describe the assessment method and Course used to assess this PLO.

Benchmark/Target

1.3 *Demonstrate an understanding of differential and integral calculus.

Description

PLO Assessment Method

1.3.1 STEM250-STEM Capstone

Source of Evidence

Capstone assignment - Academic Direct

Description

The capstone course is a self-directed, integrated, learning opportunity. The student will work during the course dates to prepare for a comprehensive capstone exam with the course instructor as a mentor. At the end of the course, the student will take a comprehensive exam based on the program learning outcomes. It is the intent of this course that the student will bring to bear all the learning and knowledge from the course work to show competence in the selected field of business. The student will take the capstone course in his or her last semester at LCC.

Describe the assessment method and Course used to assess this PLO.

Capstone exam is comprised of questions/problems from M116 Intermediate Algebra, M180 College , Algebra, M190 Trigonometry, M195 Calculus 1, M212 Calculus 2, M213 Calculus 3, M215 Linear Algebra, M220 Differential Equations

Benchmark/Target

1.3.2

Source of Evidence

Rubric Graded Exam - Academic Direct

Description

The capstone course is a self-directed, integrated, learning opportunity. The student will work during the course dates to prepare for a comprehensive capstone exam with the course instructor as a mentor. At the end of the course, the student will take a comprehensive exam based on the program learning outcomes. It is the intent of this course that the student will bring to bear all the learning and knowledge from the course work to show competence in the selected field of business. The student will take the capstone course in his or her last semester at LCC.

Describe the assessment method and Course used to assess this PLO.

The capstone is an exam that covers the student's overall knowledge of Calculus 1, 2 and 3. All of these problems involve applications of differential and integral calculus.

Benchmark/Target

1.3.2.1 Not Reported this Period

Benchmark/Target

Benchmark--students must pass the capstone with a 70% or better. Target--students will pass capstone with an 80% or better.

Finding

Two people passed in the SP 2018 and two people passed in the FA 2018 with an 80% or better.

Analysis of Finding

Four out of the five people who took the class passed with an 80% or better. No action needed.

Improvement Type   Improvement Description

Improvement

| 1.4 | *Demonstrate an overall ability for analytical thinking and logical problem-solving. |

Description

PLO Assessment Method

1.4.1

Source of Evidence

Description

Describe the assessment method and Course used to assess this PLO.

M116 Intermediate Algebra

M180 College Algebra

M190 Trigonometry

M195 Calculus 1

M212 Calculus 2

M213 Calculus 3

M215 Linear Algebra

M220 Differential Equations

Benchmark/Target

1.4.2

Source of Evidence

Rubric Graded Exam - Academic Direct

Description

The capstone course is a self-directed, integrated, learning opportunity. The student will work during the course dates to prepare for a comprehensive capstone exam with the course instructor as a mentor. At the end of the course, the student will take a comprehensive exam based on the program learning outcomes. It is the intent of this course that the student will bring to bear all the learning and knowledge from the course work to show competence in the selected field of business. The student will take the capstone course in his or her last semester at LCC.

Describe the assessment method and Course used to assess this PLO.

The capstone in mathematics consists of 25 questions that tests the students problem solving techniques. All problems reflect an overall ability for analytical thinking and logical deductions.

Benchmark/Target

1.4.2.1 Not Reported this Period

Benchmark/Target

Benchmark--students must pass the capstone with a 70% or better. Target--students will pass capstone with an 80% or better.

Finding

Analysis of Finding

Improvement Type   Improvement Description

Improvement

1.5 Demonstrate an ability to transmit mathematical ideas both orally and in writing.

Description

PLO Assessment Method

1.5.1

Source of Evidence

Description

Describe the assessment method and Course used to assess this PLO.

M116 Intermediate Algebra

M180 College Algebra

M190 Trigonometry

M195 Calculus 1

M212 Calculus 2

M213 Calculus 3

M215 Linear Algebra

M220 Differential Equations

Benchmark/Target

Project Attachments

Attachments (2)	File Size	Last Modified
Grade Dist - Reten Form STEM250 17-18.pdf	24KB	MAY 23, 2018
math AS mapping.pdf	345KB	MAY 16, 2018