

**DEGREE/PROGRAM CHANGE
FORM C
Form Number: C1632**

Fields marked with * are required

Name of Initiator: Julie Depree **Email:** jdepree@unm.edu **Phone Number:** 505 925-8607 **Date:** 04-14-2015

Associated Forms exist? Yes Initiator's Title Professor: Valencia County Branch
Faculty Contact Julie DePree Administrative Contact Laura Musselwhite
Department Mathematics Admin Email lmusselwhite@unm.edu
Branch Valencia Admin Phone 925-8601

Proposed effective term

Semester Spring Year 2016

Course Information

Select Appropriate Program Undergraduate Degree Program
Name of New or Existing Program (NEW) AS Mathematics (VA)
Select Category Degree Degree Type Associate
Select Action New

Exact Title and Requirements as they should appear in the catalog. If there is a change, upload current and proposed requirements.

See current catalog for format within the respective college (upload a doc/pdf file)

[Form C Associate of Science Mathematicsrevised.docx](#)

Does this change affect other departmental program/branch campuses? If yes, indicate below.

Reason(s) for Request (enter text below or upload a doc/pdf file)

We have had a STEM grant for the past three years and as a result our calculus program is growing. Many students are interested in mathematics, but we do not have a specific degree for them to pursue this interest. We hope that students who complete this degree pursue a Bachelor of Science in Mathematics at UNM main campus.

Upload a document that includes justification for the program, impact on long-range planning, detailed budget analysis and faculty workload implications.(upload a doc/pdf file)

[Form C Justification.docx](#)

Are you proposing a new undergraduate degree or new undergraduate certificate? If yes, upload the following documents.

Upload a two-page Executive Summary authorized by Associate Provost. (upload a doc/pdf file)

[Form C AS Math Preliminary Form.docx](#)

Upload memo from Associate Provost authorizing go-ahead to full proposal. (upload a doc/pdf file)

[Form C AS Math approval letter.pdf](#)

Mathematics

Associate of Science in Mathematics description

The associate of science in mathematics provides the first two years of study for a student who plans to transfer to a four-year institution and pursue a bachelor's degree in mathematics.

Career and educational advancement opportunities

The associate of science in mathematics degree program provides students with quality instruction in mathematics, statistics and other core courses to facilitate the mastery of knowledge and the attainment of the skills necessary to complete a bachelor's degree in mathematics or a related field. A student who completes this degree would also be prepared to enter jobs that require one or two years of college.

Program requirements

Total credit hours required: 60 (see checklist for specific requirements). Please refer to The University of New Mexico Core Curriculum for a list of allowable core curriculum elective courses.

Program learning goals

The associate of science in mathematics degree program provides students with quality instruction in mathematics, statistics and other core courses to facilitate the mastery of knowledge and the attainment of the skills necessary to complete a bachelor's degree in mathematics or a related field. Course syllabi describe the student learning outcomes that contribute to the program learning goals and explain how students' learning is evaluated.

Upon successful completion of the required courses for the associate of science in mathematics degree, our students will demonstrate that they have developed the ability to:

- 1) Demonstrate and apply a broad-based knowledge of concepts in algebra, statistics and calculus.
- 2) Determine an area of concentration in mathematics and take the courses that are needed to continue with a mathematics or related degree at a four-year institution.

Contact and Advising Information

Information about the associate of science in mathematics degree program is available from Advisement Center at 505-925-8560 or vcadvise@unm.edu, or the Mathematics Department Chair, Dr. Julie DePree at 505-925-8607 or jdepree@unm.edu.

Course prerequisites

Students must meet the prerequisites by achievement of minimum placement scores on the COMPASS or ACT or through completion of course work.

Course: ENGL 100 & UNIV 101 or equivalent – or place into ENGL 111/112, 113 or 110

Credit hours: variable (3-6) depending on course track; **COMPASS/ACT Minimum Scores:** 78/59

Course: MATH 120 or MATH 101/102/103 – or place into MATH 121

Credit hours: 3; **COMPASS/ACT Minimum Scores:** 55/22

Associate of Science in Mathematics Degree Requirements

The following are the course requirements for completion of an Associate of Science in Mathematics degree. Students should see an advisor to customize their educational plans.

Writing and Speaking: (9 credits)

ENGL 110 or ENGL 112 or ENGL 113 (3 credits)*

*Completion of both ENGL 111 and ENGL 112 (6 credits) is an option to completing the first level of Writing and Speaking core. ENGL 111 counts as an elective, ENGL 112 is applied to the core requirement. ENGL 113 is a 4-credit course; three credits are Writing and Speaking core and one is an elective towards graduation.

ENGL 120: Composition III (3 credits)

CJ 130 or PHIL 156 or ENGL 219 or ENGL 220 (3 credits)

Mathematics and Statistics: (17 - 26 credits)

Math 121: College Algebra (3 credits)

Math 123: Trigonometry (3 credits)

Math 150: Pre-Calculus (3 credits)

Math 130: Exploring Topics and Careers in Mathematics (2 credits)

Math 162: Calculus I (4 credits)

Math 163: Calculus II (4 credits)

Math 264: Calculus III (4 credits)

Stat 145: An Introduction to Statistics (3 credits)

Physical and Natural Sciences: (7 credits)

Select two courses from the UNM Core Curriculum, one of which must include a lab.

Social and Behavioral Sciences: (6 credits)

Select two courses from the UNM Core Curriculum in Social and Behavioral Sciences

Humanities: (6 credits)

Select two courses from the UNM Core Curriculum in Humanities.

Foreign Language: (3 credits)

Select one course from the UNM Core Curriculum in Foreign Languages

Fine Arts: (3 credits)

Select one course from the UNM Core Curriculum in Fine Arts

General Electives: (0 - 9 credits)

Total Required: (60 credits) Students transferring to UNM-Main and other four-year institutions should be aware that core curriculum requirements are not necessarily met upon completion of this degree.

Form C

Associate of Science in Mathematics

Justification

This program will have little, to no impact, on the budget or faculty workload. All of the courses with the exception of the new two-credit course (Exploring Topics and Careers in Mathematics) are currently being taught with the existing faculty members and the existing budget.



THE UNIVERSITY *of* NEW MEXICO

New Mexico's Flagship University

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**NEW ASSOCIATE DEGREE/UNDERGRADUATE CERTIFICATE PROGRAM
PRELIMINARY REVIEW AND PROPOSAL OUTLINE
UNM-Valencia, Associate Degree in Mathematics**

Executive Summary

Please see below for a brief summary of the first seven elements listed for the full proposal, namely: program description, evidence of need, program content, evaluation and assessment, required resources, projected enrollment and costs, and additional information (as appropriate).

1. Program Description

The Associate of Science in Mathematics degree will provide the first two years of study for a student who plans to transfer to a four-year institution and pursue a bachelor's degree in mathematics. An Associate of Science in Mathematics degree would benefit the students at UNM-Valencia because they could seamlessly transfer to UNM-Main Campus or to another four-year university with the potential of completing a bachelor of science in mathematics or a bachelor of science in a related field in reduced time.

The major program learning goals are to provide students with quality instruction that includes high expectations to facilitate the mastery of broad-based knowledge in mathematics, as well as mastery in core courses in the other disciplines to promote success with their continued studies in the pursuit of a bachelor's degree in mathematics.

This program fits into the mission of UNM-Valencia which is: "*A quality education – a lifetime of success.*" This program will provide students with a high quality education offered in a supportive environment in which active learning is an integral component. The UNM-Valencia strategic plan includes goals to increase pass rates in algebra courses, increase participation in STEM related courses, and increase transfer rates. In addition, UNM-Valencia, through the support of Title III STEM Grant, has established a STEM Center that provides students with tutoring and additional support. These services help provide what is needed to be successful in mathematics courses. As a result, we have seen our calculus program grow and have seen more

students with an interest in pursuing a degree in mathematics. Therefore, this program aligns with the mission of UNM-Valencia.

This degree will articulate to UNM-Main Campus's Bachelor of Science in Mathematics. In the development of the associate degree course requirements, Dr. Julie DePree, the department chair at UNM-Valencia, has collaborated with the department chair at UNM main, Dr. Terry Loring. In addition, she has worked with the advisors at both institutions. This program has the support of the Mathematics Department at UNM-Main campus. In addition, Dr. DePree serves on the New Mexico Mathematics Articulation Task Force. This task force meets on a yearly basis to ensure and decide how courses articulate to the various colleges in the state of New Mexico. The Task Force then creates a math articulation matrix which is recognized by the State. All of the mathematics courses in this degree plan should articulate not only to UNM, but to all the four-year colleges in New Mexico with the exception of the "Exploring Topics and Careers in Mathematics" course. It is expected that this course will transfer as an elective.

We would like to offer this program by fall 2015.

2. Evidence of Need

More students declare the Associate of Science in General Science as their degree than any other degree program at UNM-Valencia. Many of these students have an interest in mathematics, and advisors have noted that several students have wanted to declare mathematics as their major, but it is not currently an option at UNM-Valencia. We will recruit students by advertising in the STEM Center and at new student orientations. In addition, we will use our dual credit contacts in the high schools to recruit new students. We will also have a scholarship that is specifically designated for mathematics majors.

According to the Mathematical Association of America (MAA) (www.maa.org/careers), "One of the benefits of studying mathematics is the variety of career paths it provides. Mathematics provides careers as diverse as teaching, actuarial work, and finance. *CareerCast* ranked mathematician as best job for 2014 based on four factors: environment, income, outlook, and stress. Statistician was ranked third and actuary was ranked fourth. A study by *PayScale* shows that the top fifteen highest-earning college degrees have one common element: mathematics."

3. Program Content and Quality

The curriculum will require the full thirty-five credit-hour general education common core and an additional seventeen to twenty-six credit hours in mathematics and statistics. One new course will be created. The title of the course is "Exploring Topics and Careers in Mathematics." This course will help students determine an area of interest so that when they transfer to main campus or another four-year college they will have established their area of concentration, i.e. pure mathematics, applied mathematics, statistics, mathematics education, etc.

The student learning outcomes for this program are listed below. Upon successful completion of the required courses for the Associate of Science in Mathematics degree, students will demonstrate that they have developed the ability to:

- 1) demonstrate and apply a broad-based knowledge of concepts in algebra, statistics and calculus.
- 2) determine an area of concentration in mathematics and then take the courses that are needed to continue with a mathematics or related degree at a four-year institution.

The faculty members of the mathematics department have high expectations for their students. They also have access to the highest levels of technology, and this is integrated in all courses. Most courses include supplemental computer assignments and class capture. In addition, student engagement and active learning are highly valued and implemented in all courses.

4. Evaluation and Assessment

Currently, the student learning outcomes for the majority of the mathematics courses offered at UNM-Valencia are assessed and reported annually. This new program's learning outcomes will also be measured and reported annually. Data from final examinations and projects in the statistics, algebra and calculus courses will be collected and analyzed to determine if students have developed a broad-based knowledge of statistics, algebra and calculus and if they are applying critical thinking skills. In addition, students will have a capstone project that will be submitted in the "Exploring Topics and Careers in Mathematics" course which will address their future goals and plans for success at a four-year institution. Additionally, the program itself will go through a periodic program review process, as do all programs at UNM-Valencia.

5. Required Resources

We are currently offering all of the required courses at UNM-Valencia other than the new two-credit "Exploring Topics and Careers in Mathematics" course with existing, qualified faculty. We expect little to no impact on the workload of current faculty and staff. No additional faculty or staff will be required. Since all of these courses are currently being offered, with one exception, no additional resources will be needed and no additional costs will be incurred.

6. Projected Enrollment and Costs

We project approximately ten students to declare the Associate of Science in Mathematics as a major and hope to increase this each year. No additional costs will be incurred as a result.

March 26, 2015

Dr. Laura Musselwhite, Dean of Instruction and Chief Academic Officer
University of New Mexico–Valencia Campus

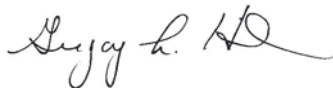
Dr. Musselwhite,

Thank you for providing a well-thought-out proposal for the creation of the Associate Degree in Mathematics at the UNM-Valencia campus, and for collaborating with the Department of Mathematics and Statistics on main campus to ensure program graduates will have a clear articulation pathway to the bachelor's degree.

The proposed degree addresses state workforce needs related to the production of STEM graduates, and the development of a STEM Center that will provide support services is commendable and should improve student success.

In summary, you have the full support of the Academic Affairs Office on main campus in pursuing the creation of this degree program. Please let me know if you need any assistance in this regard.

Thanks,



Greg Heileman
Associate Provost for Curriculum