

B.A. in Mathematics to PSM in Applied Math

Program Description

The Bachelor of Arts in Mathematics degree hones students' analytical and problem-solving skills while building their understanding of mathematical theories and applications. Qualified undergraduate students in the math program may be eligible to participate in the accelerated B.A.-to-PSM program, which enables them to take graduate courses that apply to both their bachelor's degree in math and (thereafter) a master's degree in applied math.

The Professional Science Master's (PSM) in Applied Mathematics is designed to help develop skills in big data analysis and mathematics for a variety of STEM-related occupations for business, government and commercial applications.

Program Coordinators

Dr. Bismark Oduro and Dr. Olaniyi Iyiola

Curriculum

The following curriculum shows the requirements for completing the bachelor's degree under the accelerated B.A.-to-PSM program. Additional graduate-level courses are required to complete the master's degree; refer to the graduate academic catalog for these requirements.

Course	Credits
General Education Courses	41
<i>Building a Sense of Community</i> UNI 100 First-Year Seminar	1
<i>Composition</i> ENG 101 English Composition I	3
<i>Public Speaking</i> Any Public Speaking Course	3
<i>Mathematics and Quantitative Literacy</i> MAT 215 Statistics OR MAT 225 Business Statistics (recommended)	3
<i>Health and Wellness</i> Any Health and Wellness Course	3
<i>Technological Literacy</i> Any Technological Literacy	3
<i>Humanities</i> PHI 311 Formal Logic	3
<i>Fine Arts</i> Any Fine Arts Course	3
<i>Natural Sciences</i> CHE 101 General Chemistry I OR PHY 101 College Physics I	4

Accelerated Bachelor's-to-Master's Degree Programs

Course	Credits
<i>Social Sciences</i> Any Social Sciences Course	3
<i>General Education Options</i> <ul style="list-style-type: none"> • Any Ethics and Multicultural Awareness Emphasis Course • Any General Education Course • MAT 303 Geometry • MAT 290 Technology for Math (recommended) 	12
Required Major Courses	30
MAT 272 Discrete Mathematics* OR MAT 331 Intro to Mathematical Proofs I	3
MAT 281 Calculus I	3
MAT 282 Calculus II	3
MAT 341 Linear Algebra I	3
MAT 351 Abstract Algebra I	3
MAT 381 Calculus III	3
MAT 382 Calculus IV	3
MAT 400 Mathematical Modeling	3
MAT 406 Differential Equations	3
MAT 461 Statistical Analysis I	3
Related Electives	12
<i>MAT Category I</i> (select one): <ul style="list-style-type: none"> • MAT 451 Abstract Algebra II • MAT 481 Real Analysis I • MAT 474 Complex Analysis 	3
<i>MAT Category II</i> (select two): <ul style="list-style-type: none"> • MAT 345 Cryptography I • MAT 441 Linear Algebra II • MAT 462 Statistical Analysis II • CSC 424 Numerical Analysis 	6
<i>MAT Category III</i> (select one): <ul style="list-style-type: none"> • MAT 419 Math Internship • PHY 341 Math Methods of Physics • MAT 304 History of Math • MAT 468 Field Experience in Math • CSC 475 Theory of Languages** 	3

Accelerated Bachelor's-to-Master's Degree Programs

Course	Credits
• MAT 496 Senior Research Project	
Approved Minor	21
Free Electives	18
Undergraduate Electives	6
Graduate Credits from the PSM in Applied Math Program***	12
Total	120

Additional requirements, not counted toward the General Education requirements, include:

- **Special Experience Course (1 course required):** Any MAT Special Experience Course
- **Writing-Intensive Component Courses (2 courses required):** MAT 400 Mathematical Modeling AND MAT 461 Statistical Analysis I
- **Laboratory Course (1 course required):** CHE 101 General Chemistry I OR PHY 101 College Physics I

* MAT 195 may be substituted for MAT 272 if the student is completing a Computer Science minor.

** This course requires a pre-requisite of CSC 216 and is suggested if the student is completing a Computer Science minor.

*** Students who enter the B.A. in Math to PSM in Applied Math accelerated program must have completed at least 9 credits of Calculus, Linear Algebra I and Statistics prior to beginning PSM courses. The following PSM programs will be applied toward undergraduate credits:

- **PSA 611** Optimization and Operations Research I
- **PSM 645** Applied Cryptography OR PSM Elective
- **PSM 760** Leadership and Professional Development
- PSM Elective

Additional Requirements

Undergraduate students in the accelerated program may register for no more than 6 graduate credits in any one term, and in terms when a graduate course is registered, the student may not register for more than 18 total credits.

It is the student's responsibility to apply and meet the qualifications of the graduate program portion of the accelerated program. Failure to follow through with enrollment in the accelerated graduate program will result in additional undergraduate credits to complete the bachelor's degree, as outlined in the Undergraduate Credit for Graduate Courses policy.

Additional accelerated program requirements may be found at: https://www.calu.edu/inside/forms/_files/academic-affairs/accelerated-program-application.pdf

Program Webpages

- **Undergraduate:** <https://www.calu.edu/academics/undergraduate/bachelors/mathematics/index.aspx>
- **Graduate:** <https://www.calu.edu/academics/graduate/masters/applied-mathematics/index.aspx>