# MATHEMATICS, B.A. FOR ASSOCIATE DEGREE FOR TRANSFER (ADT) STUDENTS

Note that all lower-division Mathematics courses will be transferred in from the community college. Students will bring in 18 units of Mathematics (4 units are FE).

## Program Learning Outcomes

***Graduates of the program will be able to:***

- demonstrate facility with analytical and algebraic concepts.
- write proofs.
- apply their mathematical knowledge and critical thinking to solve problems.
- use technology to solve problems.
- speak about their work with precision, clarity, and organization.
- write about their work with precision, clarity, and organization.
- identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand.
- collaborate effectively in teams.
- understand and create arguments supported by quantitative evidence.
- understand the professional, ethical, and social issues and responsibilities with the implementation and use of mathematical models and technology.

| Code | Title | Units |
|---|---|---|
| **Lower-Division Requirements** | | |
| Eighteen (18) units of transferred Mathematics [1] | | 18 |
| **Upper-Division Requirements** | | |
| MTH 3012 | Number Theory with Proofs | 2 |
| MTH 3052 | History of Mathematics | 2 |
| MTH 3083 | Mathematical Probability and Statistics | 3 |
| MTH 4024 | Real Analysis | 4 |
| or MTH 4044 | Abstract Algebra | |
| MTH 4081 | Senior Seminar in Computer Science | 1 |
| Choose one (1) course from the following: | | 3 |
| MTH 3033 | Differential Equations | |
| MTH 3043 | Discrete Mathematics | |
| MTH 3073 | Mathematical Modeling | |
| MTH 4013 | Complex Analysis | |
| Choose one (1) sequence from the following: | | 3 |
| HON 4098 and HON 4099 | Honors Project I and Honors Project II | |
| MTH 4102 and MTH 4121 | Independent Research in Mathematics I and Independent Research in Mathematics II | |
| MTH 4133 | Service Learning in Mathematics | |
| **Elective Courses** | | |
| Choose twelve (12) additional units from the following: | | 12 |
| CSC 1043 and CSC 1043L | Introduction to Computer Programming and Introduction to Computer Programming Lab | |
| CSC 1054 and CSC 1054L | Objects and Elementary Data Structures and Objects and Elementary Data Structures Lab | |
| CSC 3003 | Python and UNIX | |
| CSC 3011 | Machine Learning and Multivariate Modeling in R | |
| CSC 3021 | Computational Tools | |
| CSC 3031 | Data Visualization and Communication with R | |
| HON 4098 | Honors Project I | |
| HON 4099 | Honors Project II | |
| MTH 3033 | Differential Equations | |
| MTH 3043 | Discrete Mathematics | |
| MTH 3073 | Mathematical Modeling | |
| MTH 4002 | Topics in Geometry | |
| MTH 4013 | Complex Analysis | |
| MTH 4024 | Real Analysis | |
| MTH 4044 | Abstract Algebra | |
| MTH 4071 | History of Mathematics Study Tour | |
| MTH 4091 | Independent Study in Mathematics | |
| MTH 4092 | Special Topics in Mathematics | |
| MTH 4102 | Independent Research in Mathematics I | |
| MTH 4121 | Independent Research in Mathematics II | |
| MTH 4133 | Service Learning in Mathematics | |
| MTH 4162 | Project for Data Analytics Minors I | |
| MTH 4171 | Project for Data Analytics Minors II | |
| **Total Units** | | **48** |

[1] Transferred in from the community college; 4 units are FE.

**Total Units for Degree: 48 (44 non-FE units)**

**Note(s):** Associate Degree for Transfer (ADT) (https://pointloma-public.courseleaf.com/tug-catalog/colleges-schools-departments/adt/) students only.