

Mathematics, AS

School of Math, Science and Engineering

Program Description

The Mathematics AS degree is designed to prepare students for a rigorous four-year Mathematics Bachelor program. This program focuses on the study of the mathematics, physics, and computer science principles necessary for a firm foundation that will allow students who complete the program to transfer to a Pennsylvania Transfer and Articulation Oversight Committee (TAOC) four-year institution. It is designed to be the first two years of a bachelor's degree in Mathematics, but may also serve as preparation for other programs and some entry-level positions in STEM-related fields.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate strong analytical, problem solving, organizational, and communication skills in various mathematical disciplines.
- Show competence in the skills and problem solving involved in the discipline of calculus.
- Apply concepts of mathematics in physics and computer programming.
- Utilize logical reasoning and foundational properties of mathematics to read proofs of mathematical theorems and create proofs of mathematical theorems.
- Apply standards of ethics concerning intellectual property in mathematical papers and proofs.

| Sugg. Term | Seq # | Course ID | Course Title | Cr | Prereq/Coreq(Co) | Options Available |
|------------|-------|--------------------|---|-----|--|---|
| 1st Fall | 1 | PDV 171 | Career Pathway Exploration | 3 | | |
| | 2 | MTH 172 | Analytical Geometry and Calculus I | 4 | MTH 109, MTH 167 or MTH 170 (C or better) or Placement | |
| | 3 | ENG 161 | College Writing | 3 | ENG 085 with Permission of Instructor, ENG 095 or Placement | |
| | 4 | CPT 160 | Introduction to Programming | 3 | | |
| | 5 | Elective | Humanities Elective | 3 | Varies | Page 21 Column II Recommendation: PHL 155 or FRN 155 |
| 1st Spring | 6 | CPT 180 or CPT 156 | C++ Programming or Programming with Python | 3 | CPT 160 or None | |
| | 7 | PHY 255 | Engineering Physics I | 5 | PHY 110 or HS Physics (C or better) & Co: MTH 172 | |
| | 8 | MTH 173 | Analytical Geometry and Calculus II | 4 | MTH 172 (C or better) | |
| | 9 | Elective | Social Science Elective | 3 | Varies | Page 21 Column III See Recommendations** |
| 2nd Fall | 10 | SPC 155 | Effective Speech | 3 | | |
| | 11 | MTH 271 | Analytical Geometry and Calculus III | 4 | MTH 173 (C or better) | |
| | 12 | Elective | General Elective | 3 | | Page 21 |
| | 13 | Elective | Natural Science with Lab Elective | 4-5 | Varies | BIO 155, BIO 171, BIO 210, CHM 107, CHM 150/151, PHY 256, EPS 150 |
| 2nd Spring | 14 | MTH 277 | Discrete Mathematics | 3 | MTH 172 (C or better) | |
| | 15 | MTH 275 or MTH 276 | Linear Algebra or Ordinary and Partial Differential Equations | 3-4 | MTH 172 (C or better), MTH 173 (C or better) Co: MTH 271 | |
| | 16 | Elective | Humanities Elective | 3 | Varies | Page 21 Column II Recommendation: PHL 202 or FRN 155 |
| | 17 | STM 296 | STEM Seminar | 1 | 9 credits of Natural Science and/or Math with at least one of these courses at the 200-level | |
| | 18 | Elective | Social Science Elective | 3 | Varies | Page 21 Column III See Recommendations** |
| | 19 | Elective | General Elective | 3 | Varies | Page 21 |

Minimum Program Credits

61-63

MTH

**Recommendations for Social Science

For Mathematics Secondary Education:
PSY 160 General Psychology, PSY 165 Educational Psychology

For Actuarial Mathematics or Mathematics with Economics:
ECN 255 Macroeconomics, ECN 256 Microeconomics