

## Mathematics, AS

### School of Math, Science and Engineering

The Mathematics AS 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.

#### 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.
- Explore leadership, volunteerism, and community-building
- Gain admission to a four-year institution or employment in entry-level positions in stem-related fields.

Sugg. Term	Seq #	Course ID	Course Title	Cr.	Term Offered	Prereq(s)	Options Available
1st Fall	1	PDV 171	Career Pathway Exploration	3	F		
	2	MTH 172	Analytical Geometry and Calculus I	4	F, Sp, Su	MTH 109 or 158 or Placement	
	3	PHY 255	Engineering Physics I	5	F	PHY 110 or HS Physics Corequisite MTH 172	
	4	CPT 160	Introduction to Programming	3	F, Sp, Su		
1st Spring	5	Elective	Lab Science elective	4-5	F, Sp, Su		BIO 155, BIO 171, BIO 210, CHM 107, CHM 155, PHY 256, EPS 150
	6	CPT 180	C++ Programming	3	Sp, Su	CPT 160	
	7	ENG 161	College Writing	3	F, Sp, Su	ENG 085 or Placement	
	8	MTH 173	Analytical Geometry and Calculus II	4	F, Sp, Su	MTH 172	
2nd Fall	11	Elective	Social Science Elective	3	F, Sp, Su		Page 30 Column III See <b>Recommendations**</b>
	12	SPC 155	Effective Speech	3	F, Sp, Su		
	13	MTH 271	Analytical Geometry and Calculus III	4	F, Su	MTH 173	
	14	Elective	General Elective	3	F, Sp, Su		Page 30
	15	Elective	Humanities Elective	3	F, Sp, Su		Page 30 Column II Recommendation: PHL 155 or FRN 155
2nd Spring	16	MTH 277	Discrete Mathematics	3	Sp	MTH 172	
	17	MTH 272 or MTH 275	Differential Equations or Linear Algebra	3	Sp, Su	MTH 271 MTH 172	
	18	Elective	Humanities Elective	3	F, Sp, Su		Page 30 Column II Recommendation: PHL 155 or FRN 155
	19	STM 296	STEM Seminar	1	Sp	9 credits of Natural Science and/or Math with at least one of these courses at the 200-level	
	20	Elective	Social Science Elective	3	F, Sp, Su		Page 30 Column III See <b>Recommendations**</b>
	21	Elective	General Elective	3	F, Sp, Su		Page 30

Total Program Credits

61-62

\*\*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