

**Recommended Academic Plan for Bachelor of Science Mathematics, General Mathematics Option  
(MTHBD at Penn State Erie)**

<b>Semester 1</b>	<b>Credits</b>	<b>Semester 2</b>	<b>Credits</b>
<i><b>MATH 140(GQ) Calculus with Analytic Geometry I</b></i>	4	<i><b>MATH 141(GQ) Calculus with Analytic Geometry II</b></i>	4
ENGL 15 or 30 (GWS)	3	<i><b>MATH 220 (GQ) Matrices</b></i>	2
NATURAL SCIENCE (GN)	4	NATURAL SCIENCE (GN)	4
<i><b>CSE 121 (GQ) Introduction to Programming Techniques</b></i>	3	<i><b>CSE 122 Intermediate Programming Techniques</b></i>	3
First-Year Seminar	1	ARTS (GA), HUMANITIES (GH) or SOCIAL SCIENCE (GS)	3
Total Credits:	15	Total Credits:	16
<b>Semester 3</b>	<b>Credits</b>	<b>Semester 4</b>	<b>Credits</b>
CAS 100 A, B, or C (GWS) Effective Speech	3	MATH 311W Concepts of Discrete Mathematics	4
<i><b>MATH 230 Calculus and Vector Analysis</b></i>	4	<i><b>MATH 251 Ordinary and Partial Differential Equations</b></i>	4
STAT 301-Statistical Analysis I	3	STAT 401-Experimental Methods	3
Health and Physical Activity (GHA)	1.5	ARTS (GA), HUMANITIES (GH) or SOCIAL SCIENCE (GS)	3
ARTS (GA), HUMANITIES (GH) or SOCIAL SCIENCE (GS)	3	Health and Physical Activity (GHA)	1.5
Total Credits:	14.5	Total Credits:	15.5
<b>Semester 5</b>	<b>Credits</b>	<b>Semester 6</b>	<b>Credits</b>
MATH 312 Concepts of Real Analysis	3	MATH or STAT course from group (1)	3
MATH or STAT course from group (1)	3	MATH or STAT course from group (1)	3
MATH or STAT course from group (1)	3	MATH Course from group (2)	3
NATURAL SCIENCE (GN)	3	ENGL 202C (GWS) Effective Writing: Technical	3
Select 3 credits of supporting courses from the School approved list.	3	ARTS (GA), HUMANITIES (GH) or SOCIAL SCIENCE (GS)	3
Total Credits:	15	Total Credits:	15
<b>Semester 7</b>	<b>Credits</b>	<b>Semester 8</b>	<b>Credits</b>
MATH or STAT course from group (1)	3	MATH or STAT course from group (1)	3
MATH Course from group (2)	3	Select 3 credits of supporting courses from the School approved list.	3
ARTS (GA), HUMANITIES (GH) or SOCIAL SCIENCE (GS)	3	ARTS (GA), HUMANITIES (GH) or SOCIAL SCIENCE (GS)	3

Select 3 credits of supporting courses from the School approved list.	3	Select 3 credits of supporting courses from the School approved list.	3
Elective course	3	Elective course	3
Total Credits:		Total Credits:	
15		15	

- **Bold type** indicates courses requiring a quality grade of C or better.
- *Italics* indicate courses that satisfy both major and General Education requirements.
- ***Bold Italics*** indicate courses requiring a quality grade of C or better and that satisfy both major and General Education requirements.
- GWS, GHA, GQ, GN, GA, GH, and GS are codes used to identify General Education requirements.
- US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirements.
- W is the code used to designate courses that satisfy University Writing Across the Curriculum requirement.

### Scheduling patterns:

- Some courses are offered only in the fall or in the spring semester, and some upper-level courses are offered in alternate year pattern. Consult the advisor for suggestions on scheduling them.

### Notes:

- Students graduating from this major must achieve a minimum grade-point average of 2.00 and earn a grade of C or better in all 300- and 400-level courses within the Prescribed, Additional, and Supporting courses as specified in Senate Policy 82-44. If a student receives a grade below C, s/he must repeat that course or a School approved alternative, and earn a grade of C or better.
- Students should learn if they can apply their area of application courses towards a minor in that area.
- Courses with a US/IL designation may also be used to satisfy a GA/GH/GS/GN requirement. A course with a US and IL designation may not be used to satisfy both US and IL courses.
- A student needs at least one course with the US designation and one course with the IL designation.
- A student must earn at least a total of 120 credits for graduation.

Group (1): MATH 411, 412, 421, 427, 429, 435, 455, 456, 465, STAT 414, 415, 461, 462.

Group (2): MATH 421, 429, 435.