Recommended Academic Plan – Mathematics (MTHBD at Penn State Erie, The Behrend College) Applied Mathematics Option
Effective Spring 2009

Semester 1	Credits	Semester 2	Credits
MATH 140 (GQ) Calculus with Analytic Geometry I*	4	**MATH 141 (GQ) Calculus with Analytic Geometry II***	4
ENGL 15 or 30 (GWS) Rhetoric and Composition or Honors Composition	3	**MATH 220 (GQ) Matrices**	2
Science Sequence Course (GN)	4	*Science Sequence Course* (GN)	4
CMPSC 121 (GQ) Introduction to Programming Techniques	3	**CMPSC 122 Intermediate Programming Techniques**	3
PSU 007 First Year Seminar	1	GA/GH/GS General Education Selection	3
Total Credits:	15	Total Credits:	16
Semester 3	**Credits**	**Semester 4**	**Credits**
CAS 100 (GWS) Effective Speech	3	**MATH 311W Concepts of Discrete Mathematics**	4
MATH 230 Calculus and Vector Analysis	4	**MATH 251 Ordinary and Partial Differential Equations**	4
STAT 301 Statistical Analysis I	3	**STAT 401 Experimental Methods**	3
Health and Physical Activity (GHA)	1.5	Science (GN) General Education Selection	3
GA/GH/GS General Education Selection	3	Health and Physical Activity (GHA)	1.5
Total Credits:	14.5	Total Credits:	15.5
Semester 5	**Credits**	**Semester 6**	**Credits**
MATH 312 Concepts of Real Analysis	3	**Additional Course Selection from Group A**	3
Additional Course Selection from Group A	3	**Additional Course Selection from Group A**	3
Additional Course Selection from Group A	3	**Additional Course Selection from Group C**	3
Additional Course Selection from Group B	3	*ENGL 202C (GWS) Effective Writing: Technical Writing*	3
GA/GH/GS General Education Selection	3	GA/GH/GS General Education Selection	3
Total Credits:	15	Total Credits:	15
Semester 7	**Credits**	**Semester 8**	**Credits**
Additional Course Selection from Group A	3	**Program List Course**	3
Additional Course Selection from Group B	3	**Program List Course**	3
Additional Course Selection from Group C	3	GA/GH/GS General Education Selection	3
GA/GH/GS General Education Selection	3	Elective course	3
Program List Course	3	Elective course	3
Total Credits:	15	Total Credits:	15

- An asterisk (*) indicates an entrance to major requirement.
- **Bold type** indicates courses requiring a quality grade of C or better.
- *Italics* indicates courses that satisfy both major and General Education requirements.
- ***Bold Italics*** indicates 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. Students must complete 3 credits in US and 3 credits in IL. If a student takes a 3 credit course that is both US and IL, to complete the requirement, he/she must take another 3-credit course that is US, IL, or both US and IL. Education abroad courses and other credit-bearing experiences such as internships that meet this requirement, will be designated US, IL or both US and IL.
- W is the code used to designate courses that satisfy University Writing Across the Curriculum requirements.
- Students who have not met the admission requirement of two units of a high school foreign language must complete a college level-one foreign language within their first 60 credits. This is a pre-admission requirement – credits will not count toward degree requirements.

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. **This scheduling pattern is tentative and subject to change.**

- *Every Fall* – MATH 312, MATH 455
- *Every Spring* – STAT 401
- *Fall of Even Years* – MATH 427, MATH 428, MATH 455, MATH 465, STAT 462
- *Spring of Odd Years* - MATH 421, MATH 426, MATH 436, MATH 449, STAT 461, one of either MATH 426 or MATH 497
- *Fall of Odd Years* - MATH 412, MATH 435, MATH 455, STAT 414
- *Spring of Even Years* – MATH 310, MATH 429, MATH 456, MATH 482, one of either STAT 464 or STAT 466

Program Notes:

- In order to be eligible for entrance to the mathematics major, a student must have attained at least a 2.00 cumulative GPA and completed MATH 140 and 141 earning a grade of C or better in both courses.
- 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.

Academic Advising Notes:

Science Sequence Course

Students must complete one of the following two semester science course sequences which will also count toward their general education Science (GN) requirement:

- BIOL 110S and BIOL 220W
- CHEM 110, CHEM 111, CHEM 112, and CHEM 113
- PHYS 211 and PHYS 212
- PHYS 250 and PHYS 251

Additional Course Selections

Group A: MATH 310, 412, 449, 455, 456, 482, STAT 414, 461, 464, 462, 466
Group B: MATH 421, 426, 427, 429, 435, 436, 465
Group C: CMPSC 221 or higher, with the exception of CMPSC 360

Program List Courses

All 300-and 400-level courses in BIOL, CHEM, MATH, PHYS, and STAT. No more than three credits of any 495 can be used as supporting courses.
All 300-and 400-level computer courses, CMPSC 102 and CMPSC 109.
ACCTG 211.
All 300-and 400-level courses in ECON courses.
All 300-and 400-level courses in FIN.
All 200- and above level courses in MIS.
All SCM courses, with the exception of SCM 200.
BA 241 and BA 242.
All MGMT courses.
All MRKTG courses.