

MATHEMATICS (BS) CHECKLIST

This checklist is provided for student use only. It does not represent an official documentation of a student's progress towards completion of their degree program. If you have questions about this sheet please contact the Engineering Advisor at (719) 262-3427.

The Applied Math program requires a minimum of 120 credit hours to complete. At least 45 of these hours must be upper division (300+). Students must have a minimum grade of C in all Math course work taken, and a minimum 2.0 GPA in all course work taken in order to graduate. Students must also complete an Exit Interview to graduate.

MATHEMATICS CORE COURSES – All courses in this section must be completed.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	MATH 135 Calculus I	4	MATH105 or score 10 on Calc. Readiness Exam
	MATH 136 Calculus II	4	MATH135
	MATH 215 Discrete Mathematics	3	MATH135
	MATH 235 Calculus III	4	MATH136
	MATH 310 Statistics for the Sciences OR MATH 381 Intro. to Probability & Statistics	3	MATH135 MATH235
	MATH 313 Intro. to Linear Algebra	3	MATH135
	MATH 340 Intro. to Differential Equations	3	MATH235
	MATH 431 Modern Analysis (fall only)	3	MATH235, MATH215; MATH341 recommended
	MATH 448 Mathematical Modeling (spring only)	3	MATH313, MATH340, MATH310 or 381
	TOTAL	30	

MATH ELECTIVES – Complete one of the Restricted Math Elective sequences listed below (6 credit hours total) and an additional 6 credit hours of MATH courses numbered 310 and above.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	RESTRICTED MATH ELECTIVES		
	Analysis		
	MATH 445 Complex Variables	3	MATH235
	MATH 443 Ordinary Differential Equations OR MATH 447 Partial Differential Equations	3	MATH313, MATH340 for either course
	Optimization & Numerical Analysis		
	MATH 442 Optimization	3	MATH313, MATH340
	MATH 465 Numerical Analysis	3	MATH313, MATH340, CS115
	Statistics (select 2 of the 4 courses)		
	MATH 481 Mathematical Stats I	3	MATH310 or 381
	MATH 482 Mathematical Stats II	3	MATH310 or 381
	MATH 483 Linear Statistical Models	3	MATH310 or 381, MATH313
	MATH 485 Stochastic Modeling	3	MATH381
	GENERAL MATH ELECTIVES (6 hours total)		
	TOTAL	12	

SECONDARY AREA – Students need to complete 18 hours (of which 9 must be 300+ level) in a Secondary Area. The Secondary Area can be chosen from one of the following departments: Biology, Chemistry, Computer Science, Economics, Electrical & Computer Engineering, Mechanical Engineering, Physics, Psychology **OR** Areas of Concentration: Actuarial Science or Systems Science. Please note that if you choose Actuarial Science or System Science you need to check the Course Catalog for required courses or see the Engineering Advisor. Required Physics or Computer Science courses will count as part of the secondary area if Physics or Computer Science is the secondary area, leaving more free electives.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	TOTAL	18	

COMPUTING REQUIREMENTS - If MATH 465 is completed, it will also count in the major requirements.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	C S 115 Principles of Computer Science	3	HS Algebra, knowledge of computer concepts
	C S 145 Data Structures & Algorithms	3	CS115
	C S 460 Numerical Computing OR MATH 465 Numerical Analysis (may also count in math electives)	3	CS145, MATH235, MATH313 for CS460 MATH313, MATH340, CS115 for MATH465
	TOTAL	9	

COMMUNICATION SKILLS – All courses in this section must be completed. If you do not place in to ENGL 131 you need to take ENGL 099 as a prerequisite.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	ENGL 131 Rhetoric & Writing I	3	Score of 19+ on ACT Engl or 450+ on SAT Verb
	ENGL 141 Rhetoric & Writing II	3	Score of 29+ on ACT Engl or 650+ on SAT Verb
	ENGL 309 Technical Writing and Presentation	3	ENGL131
	TOTAL	9	

NATURAL SCIENCE ELECTIVES – Complete PES111, 112, 115 & one course from the LAS approved list in the LAS section of the bulletin.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	PES 111 General Physics I	4	Coreq. MATH135
	PES 112 General Physics II	4	PES111, Coreq. MATH136
	PES 115 General Physics Lab I	1	None
	TOTAL	12	

HUMANITIES ELECTIVES – Complete 12 credit hours of Humanities courses. An HUM course numbered 3XX, and either PHIL 344 or 443 must be completed. The other 6 credit hours should be completed from the Humanities list from the LAS section of the Course Bulletin.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	HUM 3XX	3	See Bulletin for specific course prerequisites
	TOTAL	12	

SOCIAL SCIENCE ELECTIVES – Complete 12 credit hours of Social Science courses from the Social Science list from the LAS section of the Course Bulletin.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	TOTAL	12	

****Students are required as part of their general education requirements to complete courses in Oral Communication, Cultural Diversity, and Global Awareness. These courses are identified in the LAS section of the schedule of courses and the bulletin.**

FREE ELECTIVES – Students need to complete 6 hours of Free Electives. The chosen course(s) can be selected from any discipline but may not include MATH104, MATH105, MATH111, and MATH112.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	TOTAL	6	

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