

The **Pure Mathematics Program** is designed to provide broad training in basic modern mathematics including an introduction to the methods of rigorous mathematical proof and exposure to the major branches of mathematics: Algebra, Analysis, and Geometry/Topology.

The major program must include at least nine courses: four basic courses (II.), four elective courses (III.), and one cognate course (IV.) as described below.

I. *Prerequisites** (5-7 courses)* *{must be completed with C- or better}*

Instructions	Course(s)	Student Elections (enter your course selections here)
Select one of the following pairs of introductory mathematics courses :	Math 215 & 217 Math 285 & 217 Math 295 & 296	1. _____ 2. _____
EECS 183 or working knowledge of a high level computer language (Fortran, C, or C++)	EECS 183 or working knowledge	3. _____
All of these sequences are strongly recommended :	Physics 140 & Physics 141 Physics 240 & Physics 241	(strongly recommended) 4. _____ 5. _____ 6. _____ 7. _____

****Following Math 215 all students intending to concentrate in Pure Mathematics should elect Math 217 (Linear Algebra) rather than Math 216 (Introduction to Differential Equations).** Math 216 is not intended for Pure Mathematics concentrators, who generally take Math 316 (Differential Equations) after completing Math 217.

II. *Basic Courses** (4 courses)* *{must be completed with C- or better}*

Instructions	Course(s)	Student Elections (enter your course selections here)
Select one of the following Modern Algebra courses:	Math 312 Math 412 Math 493	1. _____
Select one of the following Differential Equations courses:	Math 286 Math 316	2. _____
Select one of the following Analysis courses:	Math 351 Math 451	3. _____
Select one of the following Geometry/Topology courses:	Math 431 Math 433 Math 490 Math 590	4. _____

****More advanced students, such as those who have completed Math 396, may substitute higher level courses with the approval of a departmental advisor.**

III. *Elective Courses** (4 courses)* {must be completed with C- or better}

The four elective courses must be chosen in consultation with an advisor to provide a cohesive program that explores an area of mathematics in some depth. There is a good deal of freedom here, but a random selection of courses will not satisfy this requirement. The courses should be chosen from the following list or have a course number of 600 or above. Math 289 is a repeatable 1-credit course and can be used to satisfy the elective requirement only if taken for a total of 3 credits.

Instructions	Course(s)			Student Elections (enter your course selections here)
Select four of the following Elective courses:	Math 289	Math 464	Math 561	1. _____ 2. _____ 3. _____ 4. _____
	Math 310	Math 465	Math 562	
	Math 354	Math 471	Math 563	
	Math 389	Math 472	Math 565	
	Math 404	Math 475	Math 567	
	Math 416	Math 481	Math 571	
	Math 420	Math 490	Math 572	
	Math 423	Math 498	Math 575	
	Math 425	Math 525	Math 582	
	Math 431	Math 526	Math 590	
	Math 433	Math 537	Math 591	
	Math 440	Math 550	Math 592	
	Math 450	Math 555	Math 593	
	Math 452	Math 556	Math 594	
	Math 454	Math 557	Math 596	
	Math 462	Math 558	Math 597	
	Math 463	Math 559		

****These courses MUST be chosen in consultation with an advisor to provide a cohesive program.**

IV. *Cognate Course** (1 course)* {must be completed with a C- or better}

One cognate course should be chosen from some field other than mathematics. Almost any field is acceptable, but the course must be at the 300+ level and should have significant mathematical content, at least at the level of Math 215.

Instructions	Course(s)	Student Elections (enter your course selections here)
Select one of the following Cognate courses:	A list of suggested courses is available online at https://lsa.umich.edu/math/undergraduates/advising/cognate-courses.html	1. _____

****In all cases approval of an advisor is required.**