

Math Courses Needed for Math/Physics Double Major

The following two tables list the math courses required for a math/physics double major. The first table list the courses needed for existing students, i.e., those under the old physics requirements; the second table lists the courses needed under the new physics requirements.

Table 1: Old Requirements

M171	M172	M220	M221	M323/M311	M308	M409	
M410/446	M415	M416/423	M407	M412	M439/460	M417/P401	M411/Stat414

Table 2: New Requirements

M171	M172	M220	M221	M323	M308	M409	
M410/446	M415	M416/423	M439/460	M411/Stat414	M417/P401	P331	P332

In both tables an entry of the form X/Y means at least one of the two courses must be taken.

A minor in mathematics requires math 171 and 172 or their equivalents plus 9 hours of upper level mathematics courses, three of these hours must be at the 400 level. Some courses are excluded; see our undergraduate web page for a complete listing. Note: the upper level courses must be taken at A&M, and be taught by the mathematics department. One more comment: math 220 counts as an upper level math course, and it is the only 200 level course that does.

The B.S. in mathematics requires 6 elementary courses and 9 advanced courses. Of the 6 elementary courses, 4 are automatically taken by all physics majors (3 semesters of calculus plus ordinary differential equations).

Of the 9 advanced courses, 3 are free 400-level math electives; the math department will accept the physics courses with significant math content (P331, P332, P401) as satisfying this requirement.

Of the 6 remaining courses, 5 are tightly constrained:

2 semesters of rigorous analysis,

2 semesters of abstract algebra,

1 semester of probability or statistics.

For "ordinary" math majors the remaining advanced course is to be chosen from a list of 4 (curves-and-surfaces, topology, combinatorics, number theory). For the "mathematical physics track" we propose to replace this requirement by [one to be chosen from] a list of 2: M 439 (differential geometry of curves and surfaces), M 460 (tensors and general relativity). Note that there is no obstacle to a student taking both 439 and 460, or also taking other courses such as 407 (complex variables) or 482 (research seminar). Indeed, we hope that many will, but those hours will be beyond those required by the degree plan if we accept the 3 physics courses as math courses.