

Lets start by discussing a Majors program. The standard Mathematics courses in second year are:

[MATH 200](#) Multivariable Calculus

[MATH 221](#) Matrix Algebra

[MATH 215](#) Differential Equations

[MATH 220](#) Introduction to proofs

[CPSC 110 and 210](#) are our computer Science requirement (was 111 and 211)

You can substitute [MATH 210](#) for [CPSC 210](#).

Majors Programs in 3rd and 4th year

The Majors program is designed to be very flexible, essentially 30 credits MATH in 3rd and 4th year and even then you may substitute up to 6 credits with STAT or CPSC. Why so much flexibility? We are giving you the opportunity to design your own *liberal arts* degree with a Mathematics focus. Now if the degree is a B.Sc. there a variety of Science degree requirements (including Arts electives, laboratory requirements and breadth requirements). If it is a B.A. there are a variety of Arts degree requirements (there are writing requirements e.g. arts one, coordinated arts, ENGL 100 or ASTU 150 and a research requirement that in Mathematics can be met by [MATH 441,445,462](#) or two new courses [MATH 444](#) or [MATH 448](#)) and a new requirement only allowing 6 credits of Science courses (including Mathematics) beyond the listed program requirements.

The Honours program has a different character. To begin with there are Honours versions of courses. The standard second year contains:

[MATH 226](#) Multivariable Calculus similar to [MATH 200](#)

(with a certain grade, MATH 226 eliminates need for MATH 220)

[MATH 223](#) Linear Algebra similar to [MATH 221](#)

[MATH 227](#) Vector Calculus similar to [MATH 317](#)

[MATH 215](#) Differential Equations

[CPSC 110 and 210](#) Computer Science requirement

Honours Programs in 3rd and 4th year

In third and fourth year Honours there is less choice and the choices are typically from the Honours courses which are more difficult. A hallmark course of the program is [MATH 320](#) in Real Analysis and it is a challenging course with a great deal of proof. There are BSc and BA Honours degree requirements as well. For example, in the BSc, an Honours is 132 credits (while the Majors totals 120). In Arts, both programs are 120 credits.

Major and Honours Courses

The distinction between Majors courses and Honours courses can be substantial. The Honours courses tend to be more difficult with more challenging content. There would typically be a requirement for proofs. To pursue research level Mathematics, the Honours level courses are useful, nearly essential.

If you are in a Majors program 3rd year but have done very well and meet the prerequisites, then you could try the Honours course [MATH 320](#) directly in 3rd year. If you have done well and would like to try the Honours courses then you could try some (e.g. [MATH 322](#)) in 3rd year and some more in 4th year. Otherwise I'd be wary of these courses, they weren't designed for you as a majors.

Admission to Programs

How do you enter these programs? A number of programs e.g. ECON and MATH or the Dual Degree program in MATH and EDUCATION require care in applying. For others some permission will be required but it is close to automatic. We admit students to MATH Majors and MATH Honours in most cases if the minimum standards are achieved. There are promotion requirements and minimum grade requirements etc. which can trip you up. You may have to seek a new major if you don't meet our requirements. Now in the unfortunate situation that you receive such news what should you do? I'd recommend seeing an advisor.

Honours programs have special Faculty requirements e.g. minimum average 68%, at least 30 credits in each winter session, no flunked courses.

At least in one instance I know a student failed to register in enough courses one session, dropped down to Majors but kept taking honours courses and eventually made it to graduate school.

Multiplicity of Degree Options

Double Honours have been quite popular including [PHYS/MATH](#) and [CPSC/MATH](#) as the top choices but there are others ([MATH/STAT](#), [CHEM/MATH](#)). We have a listing for a Combined Honours with another subject assuming the other subject area will approve.

Similarly Double Majors and Combined Majors are now quite common. [MATH/CPSC](#) and [MATH/ECON](#) are two of the many programs taken. There is a subtle distinction between combined and double majors, typically the combined programs have less requirements than double majors options but check your calendar for the details!

And you can always consider a Minor in Mathematics (18 credits 300 or above [MATH](#)).

For Applied Science students, you already take quite a few Mathematics courses during your programs. For those eager to get some additional higher level Math courses and some reward for doing so there is the

[Minor in Honours Mathematics.](#)

Feel free to come for advice. The Calendar will be very useful but you can contact the appropriate advisor about your course selection. My advice when seeking advice: Include lots of info that can be easily read by an advisor such as your current 'transcript' (can be unofficial of course) so that they know more about you than your initial question. This makes it easier for them to give advice suited to you. If you only want to know the rules then probably the calendar will suffice.