MATHEMATICS - ECONOMICS JOINT, B.SC. HONOURS

Mathematics - Economics Joint Honours Entrance, Continuation, and Graduation Requirements

The Department of Mathematics along with the Department of Economics (Faculty of Arts) offer a joint Honours program for students wishing in depth study in Mathematics and Economics. Refer to the Faculty of Arts for Economics course listings (https://catalog.umanitoba.ca/undergraduate-studies/arts/economics/#coursestext).

To enter the Joint Honours Mathematics - Economics program, the student must have a minimum grade of "B" in: ECON 1010 and ECON 1020 (or ECON 1210 and ECON 1220), MATH 1232 (or a minimum grade of "A" in MATH 1700) and have satisfied the Faculty of Science requirements for entry to the honours program.

To continue in the Joint Honours Mathematics - Economics program, students must maintain a minimum DGPA of 3.00, and complete a minimum of 9 credit hours during each Fall and Winter Term.

To graduate with the B.Sc. Honours degree, a student must achieve a minimum 3.00 DGPA and achieve a minimum grade of "C" on all courses that make up the 120 credit hours of the degree.

Degree Requirements

Joint Honours

Course	Title	Hours
Year 1		
One of A or B:		6
A:		
ECON 1010	Introduction to Microeconomic Principles (B)	
ECON 1020	Introduction to Macroeconomic Principles (B)	
B:		
ECON 1210	Introduction to Canadian Economic Issues and Policies (B)	
ECON 1220	Introduction to Global and Environmental Economic Issues and Policies (B)	
MATH 1220	Linear Algebra 1 [1]	3
MATH 1230	Differential Calculus [1]	3
MATH 1232	Integral Calculus (B) [1]	3
MATH 1240	Elementary Discrete Mathematics	3
STAT 1150	Introduction to Statistics and Computing [1, 2]	3
COMP 1010	Introductory Computer Science 1 [2]	3
6 credit hours of electives, including the required "W" course [3]		6
	Hours	**30**
Year 2		
ECON 2010	Microeconomic Theory 1	3
ECON 2020	Macroeconomic Theory 1	3
MATH 2020	Algebra 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2150	Multivariable Calculus	3
MATH 2180	Real Analysis 1	3
9 credit hours of electives [3]		9
	Hours	**30**
Years 3-4		
ECON 3010	Microeconomic Theory 2	3
ECON 3020	Macroeconomic Theory 2	3
ECON 3040	Introduction to Econometrics [2]	3
MATH 2030	Combinatorics 1	3
MATH 2160	Numerical Analysis 1	3
MATH 3320	Algebra 2	3
MATH 3340	Complex Analysis 1	3
MATH 3440	Ordinary Differential Equations	3
MATH 3474	Real Analysis 2	3
MATH 3476	Real Analysis 3	3
24 credit hours of Economics courses [4]		24
3 credit hours from:		3
MATH 3420	Numerical Analysis 2	
MATH 3460	Partial Differential Equations	
MATH 3610	Introduction to Mathematical Modelling	
MATH 4370	Linear Algebra and Matrix Analysis	
Any Mathematics course at the 4000 level		
3 credit hours of Mathematics courses at the 3000 or 4000 level		3
	Hours	**60**
	Total Hours	**120**

1. Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.
   The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:
   - MATH 1210 (A) or MATH 1300 (A) in place of MATH 1220,
   - MATH 1500 (A) or MATH 1510 (A) in place of MATH 1230,
   - MATH 1700 (A) or MATH 1710 (A) in place of MATH 1232.

2. With permission from the department, students may be able to substitute STAT 1000 and STAT 2000 in place of STAT 1150. Some courses may be taken in a different year than indicated; STAT 1150, COMP 1010, ECON 3040 may be taken in Year 2. The normal prerequisite for ECON 3040 is ECON 2040 (or the former ECON 3170), which will be waived for students in this program who have completed Year 1.
3. These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.
4. Of the 24 credit hours in electives in Economics in Years 3 and 4, no more than 6 credit hours may be at the 2000 level or below and at least 6 credit hours must be at the 4000 level. Students are encouraged to take ECON 4010, ECON 4020 and ECON 4040.

(Letters in brackets indicate minimum prerequisite standing for further study.)