

Economics

This section presents the requirements for programs in:

- **M.A. Economics**
- **M.A. Economics with Concentration in Financial Economics**
- **M.A. Economics with Collaborative Specialization in African Studies**
- **M.A. Economics with Collaborative Specialization in Climate Change**
- **M.A. Economics with Collaborative Specialization in Data Science**
- **Master of Arts Economics with Concentration in Financial Economics - Master of Business Administration with Concentration in Finance and Economics**
- **Ph.D. Economics**

Program Requirements

M.A. Economics (4.0 credits)

Requirements - Coursework pathway (4.0 credits)

1. 1.5 credits in:	1.5
ECON 5020 [0.5]	Microeconomic Theory
ECON 5021 [0.5]	Macroeconomic Theory
ECON 5027 [0.5]	Econometrics I
2. 0.5 credit in:	0.5
ECON 5029 [0.5]	Methods of Economic Research
3. 0.5 credit from:	0.5
ECON 5055 [0.5]	Financial Econometrics
ECON 5712 [0.5]	Micro-Econometrics
ECON 5713 [0.5]	Time-Series Econometrics
4. 1.5 credits in approved electives	1.5
Total Credits	4.0

Requirements - Thesis pathway (4.0 credits)

1. 1.5 credits in:	1.5
ECON 5020 [0.5]	Microeconomic Theory
ECON 5021 [0.5]	Macroeconomic Theory
ECON 5027 [0.5]	Econometrics I
2. 0.5 credit from:	0.5
ECON 5055 [0.5]	Financial Econometrics
ECON 5712 [0.5]	Micro-Econometrics
ECON 5713 [0.5]	Time-Series Econometrics
3. 0.5 credit in approved electives	0.5
4. 1.5 credits in:	1.5
ECON 5909 [1.5]	M.A. Thesis
Total Credits	4.0

M.A. Economics with Concentration in Financial Economics (4.0 credits)

Requirements - Coursework pathway (4.0 credits)

1. 1.5 credits in:	1.5
ECON 5020 [0.5]	Microeconomic Theory
ECON 5021 [0.5]	Macroeconomic Theory
ECON 5027 [0.5]	Econometrics I

2. 1.0 credit in:	1.0
ECON 5051 [0.5]	Asset Pricing
ECON 5052 [0.5]	Financial Markets and Instruments
3. 0.5 credit in:	0.5
ECON 5029 [0.5]	Methods of Economic Research
4. 0.5 credit in elective concentration from:	0.5
ECON 5055 [0.5]	Financial Econometrics
ECON 5058 [0.5]	Advanced Topics in Financial Economics
ECON 5602 [0.5]	International Monetary Theory and Policy
ECON 5608 [0.5]	Monetary Economics and Financial Intermediation
ECON 5713 [0.5]	Time-Series Econometrics
5. 0.5 credit in approved course (which may be an additional course from the elective concentration list)	0.5
Total Credits	4.0

Requirements - Thesis pathway (4.0 credits)

1. 1.5 credits in:	1.5
ECON 5020 [0.5]	Microeconomic Theory
ECON 5021 [0.5]	Macroeconomic Theory
ECON 5027 [0.5]	Econometrics I
2. 1.0 credit in:	1.0
ECON 5051 [0.5]	Asset Pricing
ECON 5052 [0.5]	Financial Markets and Instruments
3. 1.5 credit in:	1.5
ECON 5909 [1.5]	M.A. Thesis
Total Credits	4.0

M.A. Economics with Collaborative Specialization in African Studies (4.0 credits)

Requirements - Coursework pathway (4.0 credits)

1. 1.5 credits in:	1.5
ECON 5020 [0.5]	Microeconomic Theory
ECON 5021 [0.5]	Macroeconomic Theory
ECON 5027 [0.5]	Econometrics I
2. 0.5 credit in:	0.5
AFRI 5000 [0.5]	African Studies as a Discipline: Historical and Current Perspectives
3. 0.0 credit in:	0.0
AFRI 5800 [0.0]	Scholarly Preparation in African Studies
4. 0.5 credit in:	0.5
ECON 5029 [0.5]	Methods of Economic Research
including a research paper on an African Studies topic approved by the Graduate Committee of the Institute of African Studies	
5. 0.5 credit in African Studies elective approved by the M.A. Supervisor of the Department of Economics	0.5
6. 1.0 credit in ECON approved by the M.A. Supervisor of the Department of Economics, including at least 0.5 credit from ECON 5500, ECON 5504, ECON 5505	1.0
Total Credits	4.0

Requirements - Thesis pathway (4.0 credits)

1. 1.5 credits in:	1.5
ECON 5020 [0.5]	Microeconomic Theory

ECON 5021 [0.5]	Macroeconomic Theory	
ECON 5027 [0.5]	Econometrics I	
2. 0.5 credit in:		0.5
AFRI 5000 [0.5]	African Studies as a Discipline: Historical and Current Perspectives	
3. 0.0 credit in:		0.0
AFRI 5800 [0.0]	Scholarly Preparation in African Studies	
4. 1.5 credit in:		1.5
ECON 5909 [1.5]	M.A. Thesis	
on an African Studies topic approved by the Graduate Committee of the Institute of African Studies		
5. 0.5 credit from:		0.5
ECON 5500 [0.5]	Development Economics I	
ECON 5504 [0.5]	Development Economics II	
ECON 5505 [0.5]	Selected Topics in Development Economics	
Total Credits		4.0

M.A. Economics with Collaborative Specialization in Climate Change (4.0 credits)

Requirements - Coursework pathway (4.0 credits)

1. 1.0 credit in:		1.0
CLIM 5000 [1.0]	Climate Collaboration	
2. 0.0 credit in:		
CLIM 5800 [0.0]	Climate Seminar Series	
3. 1.5 credit in:		1.5
ECON 5020 [0.5]	Microeconomic Theory	
ECON 5021 [0.5]	Macroeconomic Theory	
ECON 5027 [0.5]	Econometrics I	
4. 0.5 credit in:		0.5
ECON 5029 [0.5]	Methods of Economic Research (including a research paper on a Climate Change-related topic)	
5. 0.5 credit in:		0.5
ECON 5507 [0.5]	Environmental Aspects of Economic Development	
ECON 5803 [0.5]	Economics of Natural Resources	
ECON 5804 [0.5]	Economics of the Environment	
ECON 5805 [0.5]	Topics in Environmental and Resource Economics	
or approved Special Topic in the area of Climate Change		
6. 0.5 credit in	ECON at the 5000 level with sufficient Climate Change content (may be an additional course from Item 5 above), chosen in consultation with Department of Economics	0.5
Total Credits		4.0

Requirements - Thesis pathway (4.0 credits)

1. 1.0 credit in:		1.0
CLIM 5000 [1.0]	Climate Collaboration	
2. 0.0 credit in:		
CLIM 5800 [0.0]	Climate Seminar Series	
3. 1.5 credits in:		1.5
ECON 5020 [0.5]	Microeconomic Theory	
ECON 5021 [0.5]	Macroeconomic Theory	
ECON 5027 [0.5]	Econometrics I	

4. 1.5 credits in:		1.5
ECON 5909 [1.5]	M.A. Thesis (in the specialization)	
Total Credits		4.0

M.A. Economics with Collaborative Specialization in Data Science (4.0 credits)

Requirements - Coursework pathway (4.0 credits)

1. 1.5 credits in:		1.5
ECON 5020 [0.5]	Microeconomic Theory	
ECON 5021 [0.5]	Macroeconomic Theory	
ECON 5027 [0.5]	Econometrics I	
2. 0.5 credit in:		0.5
DATA 5000 [0.5]	Introduction to Data Science	
3. 0.5 credit in:		0.5
ECON 5029 [0.5]	Methods of Economic Research including a research paper on a data science related topic	
4. 0.5 credit from:		0.5
ECON 5055 [0.5]	Financial Econometrics	
ECON 5361 [0.5]	Labour Economics I	
ECON 5362 [0.5]	Labour Economics II	
ECON 5712 [0.5]	Micro-Econometrics	
ECON 5713 [0.5]	Time-Series Econometrics	
or approved Special Topics course (ECON 5880) in the area of Data Science		
5. 0.5 credit in	ECON approved by the M.A. Supervisor of the Department of Economics	0.5
6. 0.5 credit in	Data Science elective (which may be an additional course from the preceding list) approved by the M.A. Supervisor of the Department of Economics	0.5
Total Credits		4.0

Requirements - Thesis pathway (4.0 credits)

1. 1.5 credits in:		1.5
ECON 5020 [0.5]	Microeconomic Theory	
ECON 5021 [0.5]	Macroeconomic Theory	
ECON 5027 [0.5]	Econometrics I	
2. 0.5 credit in:		0.5
DATA 5000 [0.5]	Introduction to Data Science	
3. 1.5 credit in:		1.5
ECON 5909 [1.5]	M.A. Thesis	
on a data science topic approved by the Data Science governance committee		
4. 0.5 credit from:		0.5
ECON 5055 [0.5]	Financial Econometrics	
ECON 5361 [0.5]	Labour Economics I	
ECON 5362 [0.5]	Labour Economics II	
ECON 5712 [0.5]	Micro-Econometrics	
ECON 5713 [0.5]	Time-Series Econometrics	
or approved Special Topics course (ECON 5880) in the area of Data Science		
Total Credits		4.0

Master of Arts Economics with Concentration in Financial Economics - Master of Business Administration with Concentration in Finance and Economics (10.0 credits)

Students completing the dual degree pathway will graduate with: M.A. Economics with Concentration in Financial Economics, and M.B.A. with Concentration in Financial Economics.

Requirements:

1. 6.0 credits in compulsory courses:	6.0
ACCT 5001 [0.25]	Financial Accounting
ACCT 5002 [0.25]	Managerial Accounting
BUSI 5802 [0.25]	Business Ethics
BUSI 5998 [0.0]	MBA Skills Workshop
ECON 5020 [0.5]	Microeconomic Theory
ECON 5021 [0.5]	Macroeconomic Theory
ECON 5027 [0.5]	Econometrics I
ECON 5029 [0.5]	Methods of Economic Research
FINA 5501 [0.25]	Financial Management
FINA 5502 [0.25]	Corporate Finance
IBUS 5701 [0.25]	International Business
ITIS 5401 [0.25]	Managing Information Systems in Organizations
MGMT 5100 [0.5]	Managing People and Organizations
MKTG 5200 [0.5]	Marketing Strategy
TOMS 5302 [0.25]	Operations Management
STGY 5900 [0.5]	Corporate and Business Strategy
STGY 5903 [0.5]	Strategic Concepts
2. 1.75 credits in required concentration courses:	1.75
ECON 5051 [0.5]	Asset Pricing
ECON 5052 [0.5]	Financial Markets and Instruments
FINA 5512 [0.25]	Valuation
FINA 5513 [0.25]	Mergers and Acquisitions
FINA 5521 [0.25]	Financial Management Concentration Integration
3. 0.5 credit in elective concentration from:	0.5
ECON 5055 [0.5]	Financial Econometrics
ECON 5058 [0.5]	Advanced Topics in Financial Economics
ECON 5602 [0.5]	International Monetary Theory and Policy
ECON 5608 [0.5]	Monetary Economics and Financial Intermediation
ECON 5713 [0.5]	Time-Series Econometrics
4. 0.75 credit in M.B.A. elective courses	0.75
5. 1.0 credit in:	1.0
BUSI 5999 [1.0]	Internship (Students with less than two (2) years of relevant professional employment experience must successfully complete the Internship in order to graduate. Students with two or more years relevant work experience may apply for an exemption.)
Total Credits	10.0

Internship Placement

An Internship option is available to full-time students in the M.A. program who are eligible to work in Canada. Registration in the Internship option requires departmental permission and is limited by availability of placements. Application for an internship placement will normally be considered after the student has successfully completed 2.0 credits, including ECON 5020 and ECON 5027.

Internship placements will locate students for at least one term in the public service, the private sector, or non-governmental organizations. Students will integrate theoretical and applied economic analysis in their work experience. During their work term, students are required to register in ECON 5902 (Internship Placement), which is additional to the program requirements described above. While taking ECON 5902, students are considered to be part-time, and may register for at most 1.0 credit in total.

If the student is in receipt of a teaching assistantship, a research assistantship, or some other type of scholarship, the value of the award will be deferred to a later term. External awards will be issued or deferred in accordance with the relevant criteria of the associated agency.

Ph.D. Economics (6.0 credits)

Notwithstanding additional course work that may be required by the admissions committee as a condition of entry, students admitted to the Ph.D. program are required to complete:

Requirements:

1. 4.0 credits in:	4.0
ECON 6019 [0.5]	Mathematical Foundations for Economic Theory
ECON 6027 [0.5]	Econometrics II
ECON 6501 [0.5]	PhD Microeconomic Theory I
ECON 6502 [0.5]	PhD Microeconomic Theory II
ECON 6503 [0.5]	PhD Macroeconomic Theory I
ECON 6504 [0.5]	PhD Macroeconomics Theory II
ECON 6513 [0.5]	Second Year Research Paper
ECON 6514 [0.25]	Thesis Workshop I
ECON 6515 [0.25]	Thesis Workshop II
2. 2.0 credits in ECON electives	2.0
3. 0.0 credits in:	0.0
ECON 6909 [0.0]	Ph.D. Thesis
Total Credits	6.0

Students must pass the six first year core courses ECON 6019, ECON 6027, ECON 6501, ECON 6502, ECON 6503 and ECON 6504 within twelve months of beginning full time study. Should a student fail any of these courses they will be offered a supplemental exam in August of their first year in each course that they failed. Students who do not pass all of the six core first year courses or their supplemental exams within twelve months of beginning full time study will normally be withdrawn from the Ph.D. program.

Students must take 2.0 credits in ECON electives. Students will choose one primary field of specialization as listed below and must take at least 1.0 credit of their ECON electives in this primary field. Students wishing to take courses from outside those listed below as part

of their 2.0 credits in ECON electives must first obtain permission from the department.

Econometrics

ECON 5712 [0.5]	Micro-Econometrics
ECON 5713 [0.5]	Time-Series Econometrics
ECON 6714 [0.5]	Advanced Topics in Econometrics

Economic Development

ECON 5500 [0.5]	Development Economics I
ECON 5504 [0.5]	Development Economics II
ECON 5505 [0.5]	Selected Topics in Development Economics

Economics of the Environment

ECON 5803 [0.5]	Economics of Natural Resources
ECON 5804 [0.5]	Economics of the Environment
ECON 5805 [0.5]	Topics in Environmental and Resource Economics

Industrial Organization

ECON 5301 [0.5]	Industrial Organization I
ECON 5303 [0.5]	Industrial Organization II
ECON 5304 [0.5]	Topics in Industrial Organization

International Economics

ECON 5601 [0.5]	International Trade: Theory and Policy
ECON 5602 [0.5]	International Monetary Theory and Policy
ECON 5603 [0.5]	Topics in International Economics

Labour Economics

ECON 5361 [0.5]	Labour Economics I
ECON 5362 [0.5]	Labour Economics II
ECON 5363 [0.5]	Advanced Topics in Labour Economics

Monetary Economics

ECON 5606 [0.5]	Foundations of Monetary Economics
ECON 5607 [0.5]	Topics in Monetary Economics
ECON 5609 [0.5]	Explorations in Monetary Economics

Public Economics

ECON 5401 [0.5]	Public Economics: Expenditures
ECON 5402 [0.5]	Public Economics: Taxation
ECON 5403 [0.5]	Topics in the Theory of Public Economics

Second Year Paper

In the summer of their first year, students register in ECON 6513 Second Year Research Paper. Students who do not successfully complete ECON 6513 and 2.0 credits of Economics electives within 28 months of beginning full-time study will normally be withdrawn from the Ph.D. program.

Thesis Requirements

Doctoral students will write and defend a Ph.D. thesis. In preparing the thesis, the student is required to give two thesis workshops. In the first (ECON 6514), a research proposal for the thesis will be presented for evaluation by at least three faculty members. In the

second (ECON 6515), a substantial portion of the research for the thesis will have been completed and will be presented. The student's progress will be evaluated by at least three faculty members.

Guidelines for Completion of Ph.D. Degree

Consult the Graduate Regulations regarding time limits for completion of a PhD.

Regulations

See the General Regulations section of this Calendar.

A grade of B- or higher must be received in each required core course in the M.A. program: ECON 5020, ECON 5021, ECON 5027, and ECON 5029. With respect to all other courses, a student may, with the recommendation of the Department and the approval of the Vice Provost (Graduate Studies), be allowed a grade of C+ in up to a maximum of 1.0 credit.

Students following the M.A.-M.B.A. dual pathway are governed by the academic regulations for the M.A. (above) and the M.B.A. For academic regulations concerning the M.B.A. [visit the Business programs section of this Calendar.](#)

Regularly Scheduled Break

For immigration purposes, the summer term (May to August) for the M.A. Economics, including all concentrations and specializations, is considered a regularly scheduled break approved by the University. Students should resume full-time studies in September.

Note: a Regularly Scheduled Break as described for immigration purposes does not supersede the requirement for continuous registration in Thesis, Research Essay, or Independent Research Project as described in Section 8.2 of the Graduate General Regulations.

Guidelines for Completion of Master's Degree

All approved elective courses will normally be taken at the 5000 level.

Full-time master's students are expected to complete their 4.0-credit requirements within two terms. Part-time students will take a minimum of five terms but must complete within an elapsed period of six calendar years, as set out in Section 13 of the General Regulations of this Calendar.

Regulations

See the General Regulations section of this Calendar.

Doctoral students must normally obtain a grade of B- or higher in each credit counted towards the degree.

Admission

The normal requirement for admission to the master's program is a B.A. (Honours) (or the equivalent) in Economics, with an average grade of B+ or higher.

Applicants to the M.A.-M.B.A. dual degree pathway must qualify for admission for both the M.A. Economics and the M.B.A. program. For admission information concerning the M.B.A., visit the Business section of this Calendar.

Applicants are expected to have had adequate preparation in microeconomic and macroeconomic theory, econometrics, and mathematics. This could be satisfied, for example, by having completed undergraduate courses in advanced microeconomic theory, advanced macroeconomic theory, econometric theory and methods, mathematical analysis in economics, and statistical analysis in economics. Students with deficiencies in their preparation may have their program requirements extended accordingly.

Post-Baccalaureate Diploma: Applicants who lack the required undergraduate preparation may be admitted to the Post-Baccalaureate Diploma program in Economics designed to raise their standing to honours status. Refer to the Undergraduate Calendar for details about this program as well as the regulations governing it.

The Department may require certain applicants to write the Graduate Record Examination Aptitude Test and the Advanced Test in Economics offered by the Educational Testing Service.

Applicants whose first language is not English must certify adequate proficiency in English in one of the following ways:

- by presenting a CAEL overall band score of 70 or higher; or
- by presenting a TOEFL iBT total score of 100 or higher with a score of 24 or higher on each of the four (Listening, Reading, Writing, and Speaking) sections; or
- by presenting an IELTS overall band score of 7.0 or higher with a score of 6.5 or higher on each of the four (Listening, Reading, Writing, and Speaking) parts; or
- by having completed ESLA 1900 [1.0] at Carleton University with a final grade of B- or higher.

Admission

The normal requirement for admission into the Ph.D. program is a master's degree (or the equivalent) from a recognized university with high honours standing. The Department may require certain applicants to write the Graduate Record Examination Aptitude Test and the Advanced Test in Economics offered by the Educational Testing Service.

In cases of exceptional merit, Ph.D. candidates may be accepted on a part-time basis.

Transfer from Master's to Ph.D. Program

A student who achieves outstanding academic performance and demonstrates high promise for advanced research during the master's program may, with the permission of the Department, transfer into the Ph.D. program without completing the M.A. program if they have completed ECON 5020 (ECO 6120), ECON 5021 (ECO 6122), and ECON 5027 (ECO 5185) with an average grade of A or higher. Such students must take a total of at least eleven regular courses (M.A. and Ph.D. levels combined) and do not receive an M.A. degree. However, students who make the transfer and do not complete the

Ph.D. can receive an M.A. by fulfilling all the requirements of the M.A. program.

Economics (ECON) Courses

ECON 5020 [0.5 credit] (ECO 6122, ECO 6522)

Microeconomic Theory

An introduction to graduate-level microeconomic theory, including topics such as utility maximization and individual choice, decision-making under uncertainty, producer theory (technology, costs, and profit maximization), alternative market structures (competition, monopoly, and oligopoly), general equilibrium, and the economics of information.

Precludes additional credit for ECON 5000 (no longer offered) and ECON 5001 (no longer offered).

ECON 5021 [0.5 credit] (ECO 6120, ECO 6520)

Macroeconomic Theory

An introduction to graduate-level macroeconomic theory, including topics such as economic growth, consumption, investment, real and nominal frictions in the goods, labour, and credit markets, models of short-run economic fluctuations, and monetary and fiscal policy design.

Precludes additional credit for ECON 5002 (no longer offered).

ECON 5022 [0.5 credit]

Economic Theory for Financial Analysis

Microeconomic theory and macroeconomic theory for financial analysis. Optimizing consumer and firm behaviour, consumption-based asset pricing, market structure, frictions in goods, labour and financial markets, business cycles and growth, monetary and fiscal policy.

Not open to students in the MA Economics program.

Prerequisite(s): enrolment in Master of Finance program.

ECON 5027 [0.5 credit] (ECO 5185, ECO 5585)

Econometrics I

An introduction to econometrics at the graduate level. Topics include the analysis and treatment of univariate and multivariate regression models, GLS, IV, and maximum likelihood estimation, hypothesis testing, seemingly unrelated regression models, and simultaneous equations models, together with relevant economic applications. Precludes additional credit for ECON 5005 (no longer offered).

ECON 5029 [0.5 credit]**Methods of Economic Research**

Formulation, specification, and analysis of economic and econometric models; derivation of policy implications; communication of results and economic methodology.

Includes: Experiential Learning Activity

Precludes additional credit for ECON 5006 (no longer offered).

Prerequisite(s): ECON 5020 (ECON 5000 if taken before 2012-2013, ECON 5001 if taken before 2007-2008) and ECON 5027 (ECON 5005 if taken before 2012-2013), or permission of the Department.

ECON 5051 [0.5 credit]**Asset Pricing**

Value, the dynamic optimization problems of firms and investors, risk-neutral pricing, and related topics.

ECON 5052 [0.5 credit]**Financial Markets and Instruments**

Capital structure, debt financing, options, financial planning, corporate governance, and related topics.

ECON 5054 [0.5 credit]**Applied Financial Econometrics**

Statistical analysis and econometric techniques applied to financial data. Topics will include learning to use financial data, statistical diagnostics, forecasting, data mining for large data, asset allocation (copulas, GARCH, and DCC), hedging with derivatives, credit risk modeling, basic programming in Finance (Python or R).

Includes: Experiential Learning Activity

Prerequisite(s): enrolment in the M.Finance program. Not open to students in the M.A. Economics program.

ECON 5055 [0.5 credit]**Financial Econometrics**

The econometrics of empirical finance including parametric and nonparametric models of volatility, evaluation of asset-pricing theories, and models for risk management and transactions data.

Prerequisite(s): ECON 5027 (or equivalent).

ECON 5058 [0.5 credit]**Advanced Topics in Financial Economics**

Current research in financial economics. Topics may include theoretical analysis, quantitative methods, policy issues, and applications to the financial industry.

Prerequisite(s): ECON 5051 or ECON 5052, which may be taken concurrently with ECON 5058.

ECON 5060 [0.5 credit]**Economic Analysis of Public Policy**

How economic theory and empirical analysis are used to design and evaluate public policy, with emphasis on how the expectations, uncertainties, and practicalities faced by policymakers affect the design and implementation of economic policies.

ECON 5061 [0.5 credit]**Central Banking: Monetary Policy Framework and Challenges**

The role of central banks in stabilizing the economy and keeping inflation low. Topics include conventional monetary policy, quantitative easing, forward guidance, and central bank communication, inflation targeting frameworks, financial stability risks, central bank digital currencies, and recent challenges in industrialized countries.

ECON 5062 [0.5 credit]**Fiscal Policy in Canada: Practice and Challenges**

Examination of fiscal policy through an economic lens.

Topics include the assessment of inputs (both analytical and political) into decision-making, fiscal multipliers, the importance of public communications, the role of federal-provincial relations, and the roles of the bureaucracy and the Cabinet.

ECON 5063 [0.5 credit]**Innovation Policy and Economic Growth**

How innovation, technological progress and productivity drive the economic growth, prosperity and welfare of nations with particular attention to job creation and destruction, the financing of innovations including venture capital, private-public partnerships, public policies to promote innovation and green technologies.

ECON 5064 [0.5 credit]**Economic Policy Formulation and Evaluation**

Formulation of policy paradigms based in economic theory and their application to various relevant and current policies, including those relating to social assistance, labour, tax expenditures, and the environment. Tools used for the evaluation of public, private, and non-profit projects and policies.

ECON 5065 [0.5 credit]**Selected Topics in Economic Policy**

Overview of selected topics at the forefront of Economic Policy, including financial market regulation, competition policy of digital, healthcare, and labour markets, economics of pandemics and climate change, environmental justice, green finance and climate risk, artificial intelligence, data analytics, and machine learning, among others.

ECON 5066 [0.5 credit]**Economic Policy and Indigenous Peoples**

The role of economic policy in affecting the welfare of Indigenous Peoples. Topics may include assessments of the economic well-being of Indigenous populations, the importance of the resolution of resource and land claims, and economic policies adopted by Indigenous governments.

ECON 5209 [0.5 credit] (ECO 6106, ECO 6506)**Selected Topics in the History of Economic Thought**

The development of economic thought through time in relation to selected economic problems.
Precludes additional credit for ECON 5201 (no longer offered) and ECON 5202 (no longer offered).
Also offered at the undergraduate level, with different requirements, as ECON 4209, for which additional credit is precluded.

ECON 5230 [0.5 credit]**Economic History**

The application of economic theory and quantitative techniques to selected topics in economic history, which may include historical patterns of growth and welfare, nineteenth-century globalization, technological change, the development of agriculture, industrialization, the Great Depression, and the origins of central banks.
Also offered at the undergraduate level, with different requirements, as ECON 4230, for which additional credit is precluded.

ECON 5301 [0.5 credit] (ECO 6140, ECO 6540)**Industrial Organization I**

An examination of theories pertaining to industrial organization and their application by way of empirical studies. Topics include oligopoly theory, product differentiation, and strategic behaviour.

ECON 5303 [0.5 credit] (ECO 6142, ECO 6542)**Industrial Organization II**

Regulation and competition policy as alternative approaches for influencing industry conduct and performance and correcting market failures. Topics may include incentive regulation under asymmetric information, cost-based pricing, second-best pricing, peak-load pricing, rate-of-return regulation, price-cap regulation, access pricing, and regulatory capture.

ECON 5304 [0.5 credit] (ECO 6135, ECO 6535)**Topics in Industrial Organization**

Topics may include vertical restraints and vertical integration, innovation and research and development, network economics, contract theory, search theory and advertising, and industry studies.

ECON 5361 [0.5 credit] (ECO 6191, ECO 6591)**Labour Economics I**

The application of microeconomic and macroeconomic theory to the labour market. Topics include labour supply and labour demand, wage determination, human capital, and the economics of education, and unemployment.
Precludes additional credit for ECON 5360 (no longer offered) and ECON 5307 (no longer offered).

ECON 5362 [0.5 credit] (ECO 6192, ECO 6592)**Labour Economics II**

Personnel economics and contract theory. Topics include the economics of unions, discrimination, the economics of the household, gender and fertility, and labour mobility.

ECON 5363 [0.5 credit] (ECO 6193, ECO 6593)**Advanced Topics in Labour Economics**

Topics may include program evaluation, inequality, labour markets and health, labour markets and crime, and the structural estimation of labour market models.
Precludes additional credit for ECON 5360 (no longer offered) and ECON 5307 (no longer offered).

ECON 5401 [0.5 credit] (ECO 6130, ECO 6530)**Public Economics: Expenditures**

The theory of public expenditures. Topics may include public goods and externalities, social insurance and redistribution, public provision of health care and education, public pension systems, and unemployment insurance.

ECON 5402 [0.5 credit] (ECO 6131, ECO 6531)**Public Economics: Taxation**

The study of tax systems. Concepts of equity and efficiency in taxation. The optimal design of tax structures using commodity, income, and capital taxes. Additional topics may include political economy of taxation, low-income support, environmental taxes, and tax evasion.

ECON 5403 [0.5 credit] (ECO 6133, ECO 6533)**Topics in the Theory of Public Economics**

Topics may include political economy, tax incidence in general equilibrium, the theory and practice of tax reform, normative approaches to income redistribution, the theory of non-market decision-making, the non-profit sector, and social choice theory.

ECON 5460 [0.5 credit] (ECO 6174, ECO 6574)**Health Economics**

Review of both classic and frontier work in the field of health and health care economics. Empirical work with an emphasis on theory and methodology. This course is also relevant to students interested in broader empirical microeconomic research.

ECON 5462 [0.5 credit] (ECO 6174)**Selected Topics in Health Economics**

Selected topics in the economics of health and health care focusing on applications of theoretical and empirical tools to current issues in health economics.

Prerequisite(s): enrolment in M.A. Economics.

ECON 5500 [0.5 credit] (ECO 6170, ECO 6570)**Development Economics I**

Topics at the forefront of development economics, combining theoretical and empirical analysis. Topics may include economic growth, firm behaviour, institutions, and political economy.

ECON 5504 [0.5 credit] (ECO 6171, ECO 6571)**Development Economics II**

A selection of topics currently at the forefront of research in development economics. Topics may include poverty and income distribution, labour markets, financial markets, and education.

ECON 5505 [0.5 credit] (ECO 6172, ECO 6572)**Selected Topics in Development Economics**

Overview of selected topics of current interest in the field of development economics from both a theoretical and empirical perspective.

ECON 5507 [0.5 credit] (ECO 6173, ECO 6573)**Environmental Aspects of Economic Development**

Policy aspects of sustainable economic development and environmental quality in developing countries. Topics may include energy use, deforestation, drought and desertification, depletion of natural resources, debt, environment and poverty, sustainable industrial and agricultural development, conservation policies, pollution control, and global environmental issues.

ECON 5601 [0.5 credit] (ECO 6160, ECO 6560)**International Trade: Theory and Policy**

International trade theory and its implications for economic policy, with emphasis on topics such as determinants of trade and specialization, gains from trade and commercial policy, international factor mobility, growth, and development.

ECON 5602 [0.5 credit] (ECO 6161, ECO 6561)**International Monetary Theory and Policy**

International monetary theory and its implications for economic policy, with emphasis on topics such as sources of equilibrium and disequilibrium in the balance of payments, balance-of-payments adjustment under fixed versus flexible exchange rates, international capital movements, and recent issues in the international monetary system.

ECON 5603 [0.5 credit] (ECO 6162, ECO 6562)**Topics in International Economics**

Selected topics in international economics, including theoretical analysis, quantitative methods, and policy formulation, implementation, and evaluation.

ECON 5606 [0.5 credit] (ECO 6180, ECO 6580)**Foundations of Monetary Economics**

Microeconomic foundations of monetary theory. Alternative theories of the existence of money and the micro-foundations for how money is integrated into aggregate macroeconomic models.

ECON 5607 [0.5 credit] (ECO 6181, ECO 6581)**Topics in Monetary Economics**

Coverage of one or more areas of current research on the frontiers of monetary economics.

ECON 5608 [0.5 credit] (ECO 6182, ECO 6582)**Monetary Economics and Financial Intermediation**

The evolution of the financial system and its interrelationship with the money supply process. Monetary and finance theory and empirical research applied to institutional problems in both historical and contemporary settings. Topics may include credit markets, financial instability, bubbles, and links to central bank policy.

ECON 5609 [0.5 credit] (ECO 6183, ECO 6583)**Explorations in Monetary Economics**

Explorations in the theory, policy and empirics of monetary economics.

ECON 5708 [0.5 credit]**Economic Data Science - Analytics**

An introduction to methods of statistical and machine learning analytics for economic analysis. Tools relevant for both small and large data sets will be covered. Topics may include approaches to classification, dimension reduction strategies, and prediction models and tools.

Includes: Experiential Learning Activity

Also offered at the undergraduate level, with different requirements, as ECON 4708, for which additional credit is precluded.

ECON 5709 [0.5 credit]**Economic Data Science - Applications**

Application of data science and machine learning methods to real-world economic problems. Students will apply their data science knowledge in hands-on projects to answer topical research questions. This course has a strong practical focus.

Includes: Experiential Learning Activity

Prerequisite(s): ECON 5708 with a grade of C+ or higher. Also offered at the undergraduate level, with different requirements, as ECON 4709, for which additional credit is precluded.

ECON 5712 [0.5 credit] (ECO 6175, ECO 6575)**Micro-Econometrics**

Analysis of the concepts and tools used in micro-econometrics with particular focus on empirical applicability. Topics may include discrete choice models, limited dependent variables, panel data, duration models, and program evaluation, together with relevant economic applications.

Precludes additional credit for ECON 5702 (no longer offered).

Prerequisite(s): ECON 5027 (or equivalent), or permission of the Department.

ECON 5713 [0.5 credit] (ECO 6176, ECO 6576)**Time-Series Econometrics**

Analysis of the concepts and tools used in time-series econometrics with particular focus on empirical applicability. Topics may include cointegration analysis, error-correction models, VAR models, volatility analysis, and non-linear time-series models, together with relevant economic applications.

Precludes additional credit for ECON 5703 (no longer offered).

Prerequisite(s): ECON 5027 (or equivalent), or permission of the Department.

ECON 5803 [0.5 credit] (ECO 6143, ECO 6543)**Economics of Natural Resources**

The concept of scarcity rents in static and dynamic settings. Basic property regimes: open access, exclusive access and common property. Policy instruments. The importance of transaction costs. General-equilibrium and political-economic aspects of property regimes. Conflict. Elements of dynamic optimization. Renewable and non-renewable resources.

Precludes additional credit for ECON 5305 (no longer offered).

ECON 5804 [0.5 credit] (ECO 6151, ECO 6551)**Economics of the Environment**

Theory of environmental regulation, including command and control, incentive based mechanisms, effects of market structure, and interactions with pre-existing taxes. Valuation of non-marketed goods, including existence value, contingent valuation, hedonic price methods, health impacts, irreversibility, and recreational benefits.

Precludes additional credit for ECON 5306 (no longer offered).

ECON 5805 [0.5 credit] (ECO 6134, ECO 6534)**Topics in Environmental and Resource Economics**

Topics may include: international dimensions of environmental regulation, including treaties, competitiveness, and the effects of trade liberalization; development issues, including fiscal sustainability, Dutch disease, the resource curse, and population growth; resource topics, including optimal taxation, green national accounts, sustainability theory, and scarcity of extractive resources.

ECON 5880 [0.5 credit]**Special Topics**

Topics may vary from year to year and are announced in advance of the registration period.

Prerequisite(s): permission of the Department.

ECON 5902 [0.5 credit]**Internship Placement**

Internship students are required to register in this course during their work term.

Includes: Experiential Learning Activity

Prerequisite(s): permission of the Department.

ECON 5906 [0.5 credit]**Directed Research**

A substantial research paper is required of any student enrolled in this course, which is designed to facilitate the pursuit of research on a topic chosen in consultation with a faculty member and the relevant Graduate Supervisor.

Includes: Experiential Learning Activity

Prerequisite(s): permission of the Department.

ECON 5909 [1.5 credit]**M.A. Thesis**

Includes: Experiential Learning Activity

Prerequisite(s): At least A- in each of ECON 5020, ECON 5021, and ECON 5027, and approval of the Department.

ECON 6019 [0.5 credit] (ECO 7119)**Mathematical Foundations for Economic Theory**

Mathematical techniques needed to understand micro- and macro-economic theory at the Ph.D. level, and to carry out research. Real analysis. Review of static optimization. Continuous- and discrete-time dynamic optimization in deterministic and stochastic environments. Applications to economic theory are presented.

Includes: Experiential Learning Activity

Prerequisite(s): ECON 5020 (or equivalent) and ECON 5021 (or equivalent), or permission of the Department.

ECON 6027 [0.5 credit] (ECO 7126, ECO 7526)**Econometrics II**

Statistical foundations of econometrics: estimation, inference, and decision theory. Topics may include likelihood and moment-based inference, asymptotic theory, semi-parametric and non-parametric models, Bayesian approaches, and structural models, together with relevant economic applications.

Includes: Experiential Learning Activity

Precludes additional credit for ECON 5701 (no longer offered) and ECON 6005 (no longer offered).

Prerequisite(s): ECON 5027 (or equivalent).

ECON 6501 [0.5 credit]**PhD Microeconomic Theory I**

Topics include demand, production, general equilibrium, and welfare economics.

Precludes additional credit for ECON 6020 (no longer offered).

ECON 6502 [0.5 credit]**PhD Microeconomic Theory II**

Topics may include game theory, information economics, externalities and public goods.

Precludes additional credit for ECON 6020 (no longer offered).

ECON 6503 [0.5 credit]**PhD Macroeconomic Theory I**

Analysis of dynamic macroeconomic systems, with applications to economic growth. Micro-foundations of modern macroeconomics, with a focus on solving dynamic optimization problems and applied to consumption, portfolio, and investment decisions, and to micro-founded growth models.

Precludes additional credit for ECON 6021 (no longer offered).

ECON 6504 [0.5 credit]**PhD Macroeconomics Theory II**

Modern dynamic stochastic general equilibrium models, such as real-business-cycle models, models of labour-market and financial frictions, and heterogeneous-agent models. Students also learn computational techniques to solve and estimate these models.

Precludes additional credit for ECON 6021 (no longer offered).

ECON 6513 [0.5 credit]**Second Year Research Paper**

This course aids the transition to the research phase of the program. Students complete a research paper and formally present this paper in a departmental workshop.

Includes: Experiential Learning Activity

ECON 6514 [0.25 credit]**Thesis Workshop I**

Students present a research proposal that includes an advanced draft of a substantive chapter of their thesis for evaluation by at least three faculty members.

Includes: Experiential Learning Activity

Prerequisite(s): ECON 6013.

ECON 6515 [0.25 credit]**Thesis Workshop II**

Students present a substantial portion of their thesis for evaluation by at least three faculty members. This must include a revised draft of their first substantive chapter of their thesis, and an advanced draft of their second substantive chapter.

Includes: Experiential Learning Activity

Prerequisite(s): ECON 6014.

ECON 6714 [0.5 credit] (ECO 7177, ECO 7577)**Advanced Topics in Econometrics**

Coverage of one or more areas of current econometric research.

Prerequisite(s): ECON 6027 (ECON 6005 if taken before 2012-2013).

ECON 6904 [0.5 credit] (ECO 7980)**Directed Readings**

This course is designed to permit students to pursue research on topics chosen in consultation with faculty members and the Ph.D. Supervisor.

Prerequisite(s): permission of the Department.

ECON 6907 [0.5 credit] (ECO 7002)**Thesis Workshop I**

Includes: Experiential Learning Activity

ECON 6908 [0.5 credit] (ECO 7004)

Thesis Workshop II

Includes: Experiential Learning Activity

ECON 6909 [0.0 credit] (ECO 9999)

Ph.D. Thesis

Includes: Experiential Learning Activity