The following proposals, received on DAP between the dates listed below, have been approved.

**DAP Submission Period:** May 16-31, 2021  
**DAP Approval Date:** June 16, 2021

For more information on the DAP process, see the Secretariat’s website.

**Approval Route:** DAP

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**Faculty of Arts and Humanities**

**STUDIO ART**

*Effective March 1, 2021, the following change(s) be made: Course Antirequisite Revision.*

**Studio Art 2610A/B INTRODUCTION TO DRAWING**

Antirequisite(s): Studio Art 2510A/B, Studio Art 2621, the former VAS 2104A/B, the former VAS 2200, the former VAS 2204A/B, the former VAS 2210, the former VAS 2214A/B.

Prerequisite(s): Studio Art 1601 or Studio Art 1605, or the former VAS 1020 or the former VAS 1025, or permission of the Department.

*Effective March 1, 2021, the following change(s) be made: Course Antirequisite Revision.*

**Studio Art 2621 INTRODUCTION TO PAINTING**

Antirequisite(s): Studio Art 2610A/B, Studio Art 2620A/B, the former VAS 2210, the former VAS 2200, the former VAS 2204A/B, the former VAS 2216A/B.

Prerequisite(s): Studio Art 1601 or Studio Art 1605, or the former VAS 1020 or the former VAS 1025, or permission of the Department.

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**Faculty of Engineering**

**ENGINEERING SCIENCE**

*Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.*

**Engineering Science 1150 ENGINEERING SUMMER CO-OP**

Prerequisite(s): Completion of first year of the Engineering program; 65% average and a solid academic record; good academic standing in the Faculty of Engineering; participation in Co-op Preparation and Training Workshops; full-time course load directly before and after placement period work term.

Extra Information: Non-credit. **Eligibility to participate may be impacted by prior scholastic/academic offences.**

*Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.*

**Engineering Science 2250 ENGINEERING SUMMER CO-OP**

Prerequisite(s): Completion of second year of the Engineering program; 65% average and a solid academic record; good academic standing in the Faculty of Engineering; participation in Co-op Preparation and Training Workshops; full-time course load directly before and after placement period work term.

Extra Information: Non-credit. **Eligibility to participate may be impacted by prior scholastic/academic offences.**

*Effective September 1, 2021, the following change(s) be made: Course Withdrawal.*

**Engineering Science 3350 ENGINEERING SUMMER CO-OP**

*Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.*
Engineering Science 3351 ENGINEERING INTERNSHIP CO-OP
Provides Engineering undergraduates with a 12 to 16 month co-operative education placement providing practical professional learning experience. Students are supervised by a practicing engineer and are required to submit performance evaluations and to write a final report on the work performed.
Prerequisite(s): Completion of second last penultimate year of Engineering program; 65% average; good academic standing in the Faculty of Engineering; participation in Co-op Preparation and Training Workshops; and a solid academic record, full-time course load directly before and after placement period work term.
Extra Information: (May to August first summer) Eligibility to participate may be impacted by prior scholastic/academic offences.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Engineering Science 3352 ENGINEERING INTERNSHIP CO-OP
Provides Engineering undergraduates with a 12 to 16 month co-operative education placement providing practical professional learning experience. Students are supervised by a practicing engineer and are required to submit performance evaluations and to write a final report on the work performed.
Prerequisite(s): Completion of second last penultimate year of Engineering program; 65% average; good academic standing in the Faculty of Engineering; participation in Co-op Preparation and Training Workshops; and a solid academic record, full-time course load directly before and after placement period work term.
Extra Information: (September to December) Eligibility to participate may be impacted by prior scholastic/academic offences.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Engineering Science 3353 ENGINEERING INTERNSHIP CO-OP
Provides Engineering undergraduates with a 12 to 16 month co-operative education placement providing practical professional learning experience. Students are supervised by a practicing engineer and are required to submit performance evaluations and to write a final report on the work performed.
Prerequisite(s): Completion of second last penultimate year of Engineering program; in good academic standing in the Faculty of Engineering; participation in Co-op Preparation and Training Workshops; 65% average and a solid academic record, full-time course load directly before and after work term placement period.
Extra Information: (January to April) Eligibility to participate may be impacted by prior scholastic/academic offences.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Engineering Science 3354 ENGINEERING INTERNSHIP CO-OP
Provides Engineering undergraduates with a 12 to 16 month co-operative education placement providing practical professional learning experience. Students are supervised by a practicing engineer and are required to submit performance evaluations and to write a final report on the work performed.
Prerequisite(s): Completion of second last penultimate year of Engineering program; 65% average; good academic standing in the Faculty of Engineering; participation in Co-op Preparation and Training Workshops; and a solid academic record, full-time course load directly before and after placement period work term.
Extra Information: (May to August second summer) Eligibility to participate may be impacted by prior scholastic/academic offences.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Engineering Science 4450 ENGINEERING SUMMER CO-OP
Prerequisite(s): Completion of fourth year of the Engineering program; 65% average and a solid academic record; good academic standing in the Faculty of Engineering; participation in Co-op Preparation and Training Workshops; full-time course load directly before and after placement.
Faculty of Health Sciences

KINESIOLOGY

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Kinesiology 2222A/B FUNCTIONAL HUMAN GROSS ANATOMY
Antirequisite(s): Anatomy and Cell Biology 2200A/B, Health Sciences 2300A/B, Health Sciences 2330A/B, the former Anatomy and Cell Biology 2221, the former Anatomy and Cell Biology 3319. Prerequisite(s): Completion of the first year Kinesiology program and registration in the School of Kinesiology. Restricted to BA Kinesiology students. Grade 12U Biology or equivalent is strongly recommended.

Faculty of Science

ACTUARIAL SCIENCE

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Actuarial Science 2553A/B MATHEMATICS OF FINANCE
Antirequisite(s): Actuarial Science 2053. Prerequisite(s): A minimum mark of 60% in one of Calculus 1501A/B, Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, or the former Applied Mathematics 1413, or Calculus 1301A/B with a minimum mark of 85% in Calculus 1301A/B. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

APPLIED MATHEMATICS

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Applied Mathematics 1999F/G INTRODUCTION TO EXPERIMENTAL MATHEMATICS
Corequisite(s): Calculus 1000A/B or Calculus 1500A/B or Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B. The former Applied Mathematics 1413 can be used in place of Numerical and Mathematical Methods Applied Mathematics 1412A/B.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision, Course Suffix Revision.

Applied Mathematics 2402A/B ORDINARY DIFFERENTIAL EQUATIONS
Prerequisite(s): A minimum mark of 60% in Calculus 1301A/B, or a minimum mark of 55% in Calculus 1501A/B or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B or the former Applied Mathematics 1413. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B. Pre-or Corequisite(s): Mathematics 1600A/B.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision, Course Suffix Revision.
Applied Mathematics 2811A/B LINEAR ALGEBRA II
Prerequisite(s): (Numerical and Mathematical Methods 1411A/B or the former Applied Mathematics 1411A/B, or a minimum mark of 60% in Mathematics 1600A/B) and (Numerical and Mathematical Methods 1414A/B Applied Mathematics 1414A/B or Calculus 1301A/B or Calculus 1501A/B, or the former Applied Mathematics 1413 or the former Applied Mathematics 1414A/B). Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Applied Mathematics 2814F/G: NUMERICAL ANALYSIS
Antirequisite(s): [The former Applied Mathematics 2413.
Prerequisite(s): A minimum mark of 55% in Mathematics 1600A/B.
Pre-or Corequisite(s): Calculus 2302A/B, Calculus 2402A/B or Calculus 2502A/B.

Effective September 1, 2021, the following change(s) be made: Course Withdrawal.

Applied Mathematics 3151A/B CLASSICAL MECHANICS I

Effective September 1, 2021, the following change(s) be made: Course Withdrawal.

Applied Mathematics 3413A/B ADVANCED APPLIED MATHEMATICS FOR MECHANICAL ENGINEERING

Effective September 1, 2021, the following change(s) be made: Course Withdrawal.

Applied Mathematics 3611F/G INTRODUCTION TO OBJECT ORIENTED SCIENTIFIC PROGRAMMING

Effective September 1, 2021, the following change(s) be made: Course Withdrawal.

Applied Mathematics 3911F/G MODELLING AND SIMULATION

Effective September 1, 2021, the following change(s) be made: Course Withdrawal.

Applied Mathematics 4251A QUANTUM MECHANICS II

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Applied Mathematics 4264A/B INTRODUCTION TO NEURAL NETWORKS
Prerequisite(s): Applied Mathematics 3813A/B, Applied Mathematics 3815A/B and the former Applied Mathematics 3911F/G, or with the permission of the Applied Mathematics Department.

Effective September 1, 2021, the following change(s) be made: Course Withdrawal.

Applied Mathematics 4351A ELECTROMAGNETIC THEORY II

Effective September 1, 2021, the following change(s) be made: Course Withdrawal.

Applied Mathematics 4551A/B INTRODUCTION TO ELEMENTARY PARTICLES

Effective September 1, 2021, the following change(s) be made: Revision to Extra Information Field.

Applied Mathematics 4613A/B: FINITE ELEMENT METHODS
Prerequisite(s): Applied Mathematics 2814F/G.
Corequisite(s): Applied Mathematics 3815A/B or equivalent.
Extra Information: 3 lecture hours. Offered in alternate years with Numerical and Mathematical Methods Applied Mathematics 4617A/B.

ASTRONOMY

**Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.**

**Astronomy 2201A/B PLANETARY SYSTEMS**
Prerequisite(s): (Physics 1201A/B or Physics 1401A/B or Physics 1501A/B, or the former Physics 1028A/B or the former Physics 1301A/B) and (Physics 1202A/B or Physics 1402A/B or Physics 1502A/B, or the former Physics 1029A/B or the former Physics 1302A/B); (Calculus 1000A/B or Calculus 1500A/B or Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B) and (Calculus 1501A/B or Calculus 1301A/B with a minimum mark of 85% or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B), or the former Applied Mathematics 1413. Integrated Science 1001X with a minimum mark of 60% can be used in place of Physics 1202A/B and Calculus 1301A/B.

**Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.**

**Astronomy 2801A/B OBSERVING THE STARS**
Prerequisite(s): (Physics 1201A/B or Physics 1401A/B or Physics 1501A/B, or the former Physics 1028A/B or the former Physics 1301A/B) and (Physics 1202A/B or Physics 1402A/B or Physics 1502A/B, or the former Physics 1029A/B or the former Physics 1302A/B); (Calculus 1000A/B or Calculus 1500A/B or Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B) and (Calculus 1501A/B or Calculus 1301A/B with a minimum mark of 85% or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B), or the former Applied Mathematics 1413. Integrated Science 1001X with a minimum mark of 60% can be used in place of Physics 1202A/B and Calculus 1301A/B.

BIOLOGY

**Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Course Pre or Corequisite Revision.**

**Biology 2244A/B STATISTICS FOR SCIENCE**
Prerequisite(s): 1.0 Mathematics course or equivalent numbered 1000 or above. Data Science 1000A/B or the former Statistical Sciences 1024A/B or Integrated Science 1001X can be used to meet 0.5 of the 1.0 mathematics course requirement.

CALCULUS

**Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.**

**Calculus 1000A/B: CALCULUS I**
Antirequisite(s): Calculus 1500A/B, Numerical and Mathematical Methods 1412A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413.
Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Course Pre or Corequisite Revision.

Calculus 1301A/B: CALCULUS II
Antirequisite(s): Calculus 1501A/B, Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413.
Antirequisite(s) at Brescia, King's campus: Calculus 1501A/B, the former Applied Mathematics 1413.
Prerequisite(s): A minimum mark of 55% in one of Calculus 1000A/B, Calculus 1500A/B, Numerical and Mathematical Methods 1412A/B, the former Applied Mathematics 1412A/B.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Calculus 1500A/B: CALCULUS I FOR THE MATHEMATICAL SCIENCES
Antirequisite(s): Calculus 1000A/B, Numerical and Mathematical Methods 1412A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413.
Prerequisite(s): Ontario Secondary School MCV4U or Mathematics 0110A/B.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Course Pre or Corequisite Revision.

Calculus 1501A/B: CALCULUS II FOR MATHEMATICAL AND PHYSICAL SCIENCES
Antirequisite(s): Calculus 1301A/B, Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413.
Antirequisite(s) at Brescia, King's campus: Calculus 1301A/B, the former Applied Mathematics 1413.
Prerequisite(s): A minimum mark of 60% in one of Calculus 1000A/B, Calculus 1500A/B, Numerical and Mathematical Methods 1412A/B, the former Applied Mathematics 1412A/B.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Course Pre or Corequisite Revision.

Calculus 2302A/B: INTERMEDIATE CALCULUS I
Antirequisite(s): Calculus 2502A/B.
Prerequisite(s): A minimum mark of 55% in one of Calculus 1501A/B, or Calculus 1301A/B, or Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, or the former Applied Mathematics 1413. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Calculus 2402A/B: CALCULUS WITH ANALYSIS FOR STATISTICS
Antirequisite(s): Calculus 2302A/B, Calculus 2502A/B.
Prerequisite(s): Calculus 1301A/B or Calculus 1501A/B or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B, or the former Applied Mathematics 1413, in each case with a minimum mark of 55%. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Calculus 2502A/B: ADVANCED CALCULUS I
Antirequisite(s): Calculus 2302A/B.
Prerequisite(s): A minimum mark of 60% in one of Calculus 1501A/B, or Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, or the former Applied Mathematics 1413, or a minimum mark of 85% in Calculus 1301A/B, with a mark of at least 85%. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.
Pre-or Corequisite(s): Mathematics 1600A/B or Numerical and Mathematical Methods 1411A/B or the former Applied Mathematics 1411A/B.

COMPUTER SCIENCE

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Computer Science 2124A/B INTRODUCTION TO MEDICAL COMPUTING
Antirequisite(s): Computer Science 2125F/G.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Computer Science 2209A/B APPLIED LOGIC FOR COMPUTER SCIENCE
Prerequisite(s): Either 1) Computer Science 1027A/B, Computer Science 1037A/B, Computer Science 2101A/B, Computer Science 2121A/B or Digital Humanities 2221A/B in each case with at least 65%, and 1.0 course with at least 60% in each from: Applied Mathematics 1201A/B, Numerical and Mathematical Methods 1412A/B, Numerical and Mathematical Methods 1414A/B, Applied Mathematics 1412A/B, Applied Mathematics 1414A/B, the former Applied Mathematics 1413, Calculus 1000A/B, Calculus 1301A/B, Calculus 1500A/B, Calculus 1501A/B, Mathematics 1600A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413; or 2) Integrated Science 1001X with at least 60%.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Computer Science 2210A/B DATA STRUCTURES AND ALGORITHMS
Prerequisite(s): Either 1) Computer Science 1027A/B, Computer Science 1037A/B, Computer Science 2101A/B, Computer Science 2121A/B or Digital Humanities 2221A/B in each case with at least 65%, and 1.0 course with at least 60% in each from: Applied Mathematics 1201A/B, Numerical and Mathematical Methods 1412A/B, Numerical and Mathematical Methods 1414A/B, Applied Mathematics 1412A/B, Applied Mathematics 1414A/B, the former Applied Mathematics 1413, Calculus 1000A/B, Calculus 1301A/B, Calculus 1500A/B, Calculus 1501A/B, Mathematics 1600A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413; or 2) Integrated Science 1001X with at least 60%.

EARTH SCIENCES
Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Earth Sciences 2222A/B ANALYTICS FOR EARTH SCIENCE
Antirequisite(s): Computer Science 2034A/B, Computer Science 2035A/B.
Prerequisite(s): 0.5 course from Calculus 1000A/B, Calculus 1500A/B, Mathematics 1225A/B, Numerical and Mathematical Methods 1412A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413.

FINANCIAL MODELLING

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Financial Modelling 2557A/B FINANCIAL MARKETS AND INVESTMENTS
Antirequisite(s): Business Administration 4413A/B.
Prerequisite(s): A minimum mark of 60% in one of Calculus 1501A/B, Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, or the former Applied Mathematics 1413, or Calculus 1301A/B with a minimum mark of 85% in Calculus 1301A/B. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

MATHEMATICS

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Mathematics 0110A/B: INTRODUCTORY CALCULUS
Antirequisite(s) at Main campus: Mathematics 1225A/B, Mathematics 1230A/B, Calculus 1000A/B, Calculus 1500A/B, Numerical and Mathematical Methods 1412A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413.
Antirequisite(s) at Brescia, Huron and Kings: Mathematics 1225A/B, Mathematics 1230A/B, Calculus 1000A/B, Calculus 1500A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413.
Prerequisite(s): One or more of Ontario Secondary School MCF3M, MCR3U, or equivalent.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Mathematics 1225A/B: METHODS OF CALCULUS
Antirequisite(s) at Main campus: Applied Mathematics 1201A/B, Applied Mathematics 1412A/B, Applied Mathematics 1414A/B, the former Applied Mathematics 1413, Calculus 1301A/B, Calculus 1501A/B, Mathematics 1230A/B, Numerical and Mathematical Methods 1412A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413. If Calculus 1000A/B or Calculus 1500A/B was completed after September 1, 2016 it is an antirequisite, but not if it was completed before that time.
Antirequisite(s) at Brescia, Huron, King's campus: Applied Mathematics 1201A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413, Applied Mathematics 1412A/B, the former Applied Mathematics 1413, Calculus 1301A/B, Calculus 1501A/B, Mathematics 1230A/B, Calculus 1000A/B or Calculus 1500A/B taken after September 1, 2016.
Prerequisite(s): Ontario Secondary School MCV4U or Mathematics 0110A/B.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Mathematics 2122A/B: REAL ANALYSIS I
Prerequisite(s): A minimum mark of 60% in one of Calculus 1501A/B, or Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, or the former
Applied Mathematics 1413, each with a minimum mark of 60%, or Calculus 1301A/B with a minimum mark of 85% in Calculus 1301A/B. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

**Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.**

**Mathematics 2124A/B: INTRODUCTION TO MATHEMATICAL PROBLEMS**
Prerequisite(s): A minimum mark of 60% in one of Calculus 1501A/B, or Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, or the former Applied Mathematics 1413, each with a minimum mark of 60%, or Calculus 1301A/B with a minimum mark of 85% in Calculus 1301A/B. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

**Effective September 1, 2021, the following change(s) be made:**

**Mathematics 2155F/G: MATHEMATICAL STRUCTURES**
Antirequisite(s): Mathematics 2151A/B, the former Mathematics 2155A/B.
Prerequisite(s): 1.0 course from: Mathematics 1120A/B, Mathematics 1600A/B, Numerical and Mathematical Methods 1412A/B, Numerical and Mathematical Methods 1414A/B, Applied Mathematics 1412A/B, Applied Mathematics 1414A/B, the former Applied Mathematics 1413, Calculus 1000A/B, Calculus 1500A/B, Calculus 1301A/B, Calculus 1501A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413, in each case with a minimum mark of 60%; or permission of the department. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

**NUMERICAL AND MATHEMATICAL METHODS**

**Effective September 1, 2021, the following change(s) be made: Course Subject Revision and Associated Course Information Changes.**

**Numerical and Mathematical Methods**

**Applied Mathematics 1411A/B: LINEAR ALGEBRA WITH NUMERICAL ANALYSIS FOR ENGINEERING**
Antirequisite(s): Mathematics 1600A/B, the former Applied Mathematics 1411A/B.
Prerequisite(s): Ontario Secondary School MHF4U or MCV4U, or Mathematics 0110A/B.
Extra Information: 3 lecture hours, 2 computer lab or tutorial hours. Restricted to students in the Faculty of Engineering.

**Effective September 1, 2021, the following change(s) be made:**

**Numerical and Mathematical Methods**

**Applied Mathematics 1412A/B CALCULUS FOR ENGINEERS I**
Antirequisite(s): Calculus 1000A/B, Calculus 1500A/B, Mathematics 1225A/B, Mathematics 1230A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413.
Prerequisite(s): Ontario Secondary School MCV4U or equivalent, or Mathematics 0110A/B.
Extra Information: 3 lecture hours, 1 tutorial hour. Numerical and Mathematical Methods Applied Mathematics 1412A/B is a suitable prerequisite for any course that lists Calculus 1000A/B as prerequisite. Restricted to students in the Faculty of Engineering.

**Effective September 1, 2021, the following change(s) be made:**

**Numerical and Mathematical Methods**

**Applied Mathematics 1414A/B: CALCULUS FOR ENGINEERS II**
Antirequisite(s): Calculus 1301A/B, Calculus 1501A/B, the former Applied Mathematics 1413, the former Applied Mathematics 1414A/B.
Prerequisite(s): Numerical and Mathematical Methods Applied Mathematics 1412A/B, Calculus...
1000A/B, or Calculus1500A/B, or the former Applied Mathematics 1412A/B.

Extra Information: 3 lecture hours, 1 tutorial hour. Numerical and Mathematical Methods Applied Mathematics 1414A/B is a suitable prerequisite for any course that lists Calculus 1501A/B as prerequisite. Restricted to students in the Faculty of Engineering.

**Effective September 1, 2021, the following change(s) be made: Course Subject Revision and Associated Course Information Changes.**

**Numerical and Mathematical Methods** Applied Mathematics 2270A/B: **APPLIED MATHEMATICS FOR ENGINEERING II**

Antirequisite(s): Applied Mathematics 2402A or the former Applied Mathematics 2270A/B.
Prerequisite(s): (Numerical and Mathematical Methods 1411A/B or the former Applied Mathematics 1411A/B) and (Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B, or the former Applied Mathematics 1413).
Extra Information: 3 lecture hours, 1 tutorial hour. Restricted to students in the Faculty of Engineering.

**Effective September 1, 2021, the following change(s) be made: Course Subject Revision and Associated Course Information Changes.**

**Numerical and Mathematical Methods** Applied Mathematics 2276A/B: **APPLIED MATHEMATICS FOR ELECTRICAL AND MECHANICAL ENGINEERING III**

Antirequisite(s): Calculus 2302A/B, Calculus 2303A/B, Calculus 2502A/B, Calculus 2503A/B, Numerical and Mathematical Methods Applied Mathematics 2277A/B, the former Applied Mathematics 2411, the former Applied Mathematics 2413, the former Applied Mathematics 2415, the former Applied Mathematics 2276A/B, the former Applied Mathematics 2277A/B.
Prerequisite(s): Numerical and Mathematical Methods 2270A/B or the former Applied Mathematics 2270A/B.

**Effective September 1, 2021, the following change(s) be made: Course Subject Revision and Associated Course Information Changes.**

**Numerical and Mathematical Methods** Applied Mathematics 2277A/B: **APPLIED MATHEMATICS FOR CHEMICAL AND CIVIL ENGINEERING III**

Antirequisite(s): Calculus 2302A/B, Calculus 2303A/B, Calculus 2502A/B, Calculus 2503A/B, Numerical and Mathematical Methods Applied Mathematics 2276A/B, the former Applied Mathematics 2411, the former Applied Mathematics 2413, the former Applied Mathematics 2415, the former Applied Mathematics 2276A/B, the former Applied Mathematics 2277A/B.
Prerequisite(s): Numerical and Mathematical Methods 2270A/B or the former Applied Mathematics 2270A/B.

**Effective September 1, 2021, the following change(s) be made: Course Subject Revision and Associated Course Information Changes.**

**Numerical and Mathematical Methods** Applied Mathematics 3415A/B: **ADVANCED APPLIED MATHEMATICS FOR ELECTRICAL ENGINEERING**

Antirequisite(s): The former Applied Mathematics 3413A/B.
Prerequisite(s): (Numerical and Mathematical Methods 2270A/B or the former Applied Mathematics 2270A/B) and (Numerical and Mathematics Methods 2276A/B or the former Applied Mathematics 2276A/B or the former Applied Mathematics 2415).

**Effective September 1, 2021, the following change(s) be made: Course Subject Revision and Associated Course Information Changes.**

**Numerical and Mathematical Methods** Applied Mathematics 4617A/B: **NUMERICAL SOLUTIONS OF PARTIAL DIFFERENTIAL EQUATIONS**

Antirequisite(s): The former Applied Mathematics 4617A/B.
Prerequisite(s): Applied Mathematics 2814F/G or the former Applied Mathematics 2413.
Pre-or Corequisite(s): Applied Mathematics 3413A/B, Numerical and Mathematical Methods
**Effective September 1, 2021, the following change(s) be made: Course Subject Revision and Associated Course Information Changes.**

**Numerical and Mathematical Methods Applied Mathematics 4817B: METHODS OF APPLIED MATHEMATICS**
Antirequisite(s): The former Applied Mathematics 4817A/B.
Prerequisite(s): Applied Mathematics 3815A/B.
Pre-or Corequisite(s): Applied Mathematics 3811A/B.

**PHYSICS**

**Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.**

**Physics 1501A/B ENRICHED INTRODUCTORY PHYSICS I**
Antirequisite(s): Physics 1021, Physics 1101A/B, Physics 1201A/B, Physics 1401A/B, the former Physics 1028A/B, the former Physics 1301A/B.
Prerequisite(s): Grade 12U Physics (SPH4U); Grade 12U Calculus and Vectors (MCV4U) or Mathematics 0110A/B.
Corequisite(s): Calculus 1000A/B or Calculus 1500A/B or Numerical and Mathematical Methods Applied Mathematics 1412A/B or the former Applied Mathematics 1413. The former Applied Mathematics 1412A/B can be used in place of Applied Mathematics Numerical and Mathematical Methods 1412A/B.

**Physics 1502A/B ENRICHED INTRODUCTORY PHYSICS II**
Antirequisite(s): Physics 1021, Physics 1102A/B, Physics 1202A/B, Physics 1402A/B, the former Physics 1029A/B, the former Physics 1302A/B.
Prerequisite(s): one of Physics 1501A/B (preferred) or Physics 1201A/B or Physics 1401A/B, or the former Physics 1301A/B, or a minimum mark of 80% in the former Physics 1028A/B; Calculus 1000A/B or Calculus 1500A/B or Applied Mathematics 1412A/B.
Corequisite(s): Calculus 1501A/B (preferred) or Calculus 1301A/B or Numerical and Mathematical Methods Applied Mathematics 1414A/B. The former Applied Mathematics 1414A/B or the former Applied Mathematics 1413 can be used in place of Applied Mathematics Numerical and Mathematical Methods 1414A/B.

**Physics 2101A/B INTERMEDIATE PHYSICS**
Prerequisite(s): Physics 1201A/B or Physics 1401A/B or Physics 1501A/B or the former Physics 1301A/B, each with a minimum mark of 60%, or the former Physics 1029A/B with a minimum mark of 80%; Physics 1202A/B or Physics 1402A/B or Physics 1502A/B or the former Physics 1302A/B, each with a minimum mark of 60%, or the former Physics 1029A/B with a minimum mark of 80%; a minimum mark of 60% in each of (Calculus 1000A/B or Calculus 1500A/B or Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B) and (Calculus 1301A/B or Calculus 1501A/B or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B), or in the former Applied Mathematics 1413. Integrated Science 1001X with a minimum mark of 60% can be used in place of Physics 1202A/B and Calculus 1301A/B.

**Physics 2102A/B INTRODUCTION TO MODERN PHYSICS**
Prerequisite(s): Physics 1201A/B or Physics 1401A/B or Physics 1501A/B or the former Physics 1301A/B, each with a minimum mark of 60%, or the former Physics 1028A/B with a minimum
Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Physics 2110A/B OSCILLATIONS AND WAVES
Prerequisite(s): Physics 1201A/B or Physics 1401A/B or Physics 1501A/B or the former Physics 1028A/B with a minimum mark of 80%; Physics 1202A/B or Physics 1402A/B or Physics 1502A/B or the former Physics 1302A/B, each with a minimum mark of 60%, or the former Physics 1029A/B with a minimum mark of 80%; a minimum mark of 60% in each of (Calculus 1100A/B or Calculus 1500A/B or Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B) and (Calculus 1301A/B or Calculus 1501A/B or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B), or in the former Applied Mathematics 1413. Integrated Science 1001X with a minimum mark of 60% can be used in place of Physics 1202A/B and Calculus 1301A/B.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Physics 2810A/B PHYSICAL PROPERTIES OF MATERIALS
Prerequisite(s): (Calculus 1000A/B or Calculus 1500A/B or Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B) and (Calculus 1301A/B or Calculus 1501A/B or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B), or in the former Applied Mathematics 1413; (Physics 1101A/B or Physics 1401A/B or Physics 1201A/B or Physics 1501A/B or the former Physics 1028A/B or the former Physics 1301A/B) and (Physics 1102A/B or Physics 1202A/B or Physics 1402A/B or Physics 1501A/B or the former Physics 1029A/B or the former Physics 1302A/B).

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Physics 2910F/G INTRODUCTION TO PHYSICAL MEASUREMENT
Prerequisite(s): Physics 1201A/B or Physics 1401A/B or Physics 1501A/B or the former Physics 1028A/B with a minimum mark of 80%; Physics 1202A/B or Physics 1402A/B or Physics 1502A/B or the former Physics 1302A/B, each with a minimum mark of 60%, or the former Physics 1029A/B with a minimum mark of 80%; a minimum mark of 60% in each of (Calculus 1000A/B or Calculus 1500A/B or Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B) and (Calculus 1301A/B or Calculus 1501A/B or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B), or in the former Applied Mathematics 1413. Integrated Science 1001X with a minimum mark of 60% can be used in place of Physics 1202A/B and Calculus 1301A/B.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Physics 3151A/B CLASSICAL MECHANICS I
Antirequisite(s): The former Applied Mathematics 3151A/B.
Prerequisite(s): (Physics 1201A/B or Physics 1401A/B or Physics 1501A/B or the former Physics 1028A/B or the former Physics 1301A/B) and (Physics 1202A/B or Physics 1402A/B or Physics 1502A/B or the former Physics 1029A/B or the former Physics 1302A/B), or Integrated Science 1001X; Calculus 2303A/B or Calculus 2503A/B or Numerical and Mathematical Methods 2276A/B or Numerical and Mathematical Methods 2277A/B or the former Applied Mathematics 2276A/B or the former Applied Mathematics 2277A/B; Applied Mathematics 2402A or Numerical Methods 2264A/B or the former Applied Mathematics 2264A/B.
Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Physics 3200A/B: QUANTUM MECHANICS 1
Antirequisite(s): Chemistry 3374A/B.
Prerequisite(s): Mathematics 1600A/B or Numerical and Mathematical Methods 1411A/B or the former Applied Mathematics 1411A/B; Physics 2101A/B and Physics 2102A/B; Physics 2110A/B.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Physics 3300A/B: ELECTROMAGNETIC THEORY I
Prerequisite(s): Physics 2101A/B and Physics 2102A/B; Calculus 2302A/B or Calculus 2502A/B or Numerical and Mathematical Methods 2276A/B or Numerical and Mathematical Methods 2277A/B or the former Applied Mathematics 2276A/B or the former Applied Mathematics 2277A/B.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Physics 3380A/B: OPTICS AND PHOTONICS
Prerequisite(s): 0.5 course from: Physics 2101A/B, Physics 2129A/B, Physics 2810A/B; Calculus 2302A/B or Calculus 2502A/B or Numerical and Mathematical Methods 2276A/B or Numerical and Mathematical Methods 2277A/B or the former Applied Mathematics 2276A/B or the former Applied Mathematics 2277A/B.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Physics 3926F/G: COMPUTER SIMULATIONS IN PHYSICS
Antirequisite(s): The former Applied Mathematics 3911F/G.
Prerequisite(s): (Physics 1202A/B, Physics 1402A/B, Physics 1502A/B or the former Physics 1302A/B) Physics 2101A/B and Physics 2102A/B, or Physics 2128A/B and Physics 2129A/B; Physics 2110A/B and Physics 2910F/G, or the former Physics 2900E; one of Calculus 2303A/B, or Calculus 2503A/B, Numerical and Mathematical Methods 2276A/B, Numerical and Mathematical Methods 2277A/B, the former Applied Mathematics 2276A/B, the former Applied Mathematics 2277A/B, Integrated Science 1001X with a minimum mark of 60% can be used in place of Physics 1202A/B.
Pre-or Corequisite(s): Applied Mathematics 2402A/B or Numerical and Mathematical Methods 2270A/B or the former Applied Mathematics 2270A/B; and Physics 2110A/B or Applied Mathematics 2814F/G or Statistical Sciences 2864A/B.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Physics 4251A/B QUANTUM PHYSICS II
Antirequisite(s): The former Applied Mathematics 4251A.
Prerequisite(s): Physics 3200A/B.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Physics 4351A/B ELECTROMAGNETIC THEORY II
Antirequisite(s): The former Applied Mathematics 4351A.
Prerequisite(s): Physics 3300A/B.

STATISTICAL SCIENCES

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Statistical Sciences 2035 STATISTICS FOR BUSINESS AND SOCIAL SCIENCES


Prerequisite(s): One full course or equivalent from: Applied Mathematics 1201A/B, Applied Mathematics 1412A/B, Applied Mathematics 1414A/B, the former Applied Mathematics 1413, Data Science 1000A/B, Statistical Sciences 1024A/B, (Calculus 1000A/B or Calculus 1500A/B or Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B), (Calculus 1301A/B or Calculus 1501A/B or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B), Mathematics 1600A/B, Mathematics 1225A/B, Mathematics 1228A/B, Mathematics 1229A/B, Mathematics 1230A/B, or the former Applied Mathematics 1413, the former Statistical Sciences 1024A/B.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Course Pre or Corequisite Revision.

Statistical Sciences 2141A/B APPLIED PROBABILITY AND STATISTICS FOR ENGINEERS
Prerequisite(s): Applied Mathematics 1412A/B and Applied Mathematics 1414A/B, or the former Applied Mathematics 1413, or 0.5 course from Calculus 1000A/B or Calculus 1500A/B plus 0.5 course from Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B, Calculus 1301A/B or Calculus 1501A/B or Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B, Mathematics 1600A/B, Mathematics 1225A/B, Mathematics 1228A/B, Mathematics 1229A/B, Mathematics 1230A/B, or the former Applied Mathematics 1413, the former Statistical Sciences 1024A/B. The former Applied Mathematics 1413 may also be used to meet this 1.0 course prerequisite.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Course Pre or Corequisite Revision.

Statistical Sciences 2143A/B APPLIED STATISTICS AND DATA ANALYSIS FOR ENGINEERS
Prerequisite(s): Applied Mathematics 1412A/B and Applied Mathematics 1414A/B, or the former
Applied Mathematics 1413, or 0.5 course from Calculus 1000A/B or Calculus 1500A/B plus 0.5 course from Calculus 1301A/B or Calculus 1501A/B, 0.5 course from Numerical and Mathematical Methods 1412A/B, Calculus 1000A/B, Calculus 1500A/B, the former Applied Mathematics 1412A/B, plus 0.5 course from Numerical and Mathematical Methods 1414A/B, Calculus 1301A/B, Calculus 1501A/B, the former Applied Mathematics 1414A/B. The former Applied Mathematics 1413 may also be used to meet this 1.0 course prerequisite.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Course Pre or Corequisite Revision.

Statistical Sciences 2244A/B STATISTICS FOR SCIENCE
Prerequisite(s): 1.0 Mathematics course or equivalent numbered 1000 or above. Data Science 1000A/B or the former Statistical Sciences 1024A/B or Integrated Science 1001X can be used to meet 0.5 of the 1.0 mathematics course requirement.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Course Pre or Corequisite Revision.

Statistical Sciences 2857A/B PROBABILITY AND STATISTICS I
Antirequisite(s): The former Statistical Sciences 2657A.
Prerequisite(s): 0.5 course from Calculus 1000A/B, Calculus 1500A/B, Numerical and Mathematical Methods 1412A/B, or the former Applied Mathematics 1412A/B, each with a minimum mark of 60%, plus 0.5 course from Calculus 1301A/B (minimum mark 85%), Calculus 1501A/B (minimum mark 60%), Numerical and Mathematical Methods 1414A/B (minimum mark 60%), or the former Applied Mathematics 1414A/B (minimum mark 60%). The former Applied Mathematics 1413 with a minimum mark of 60% may also be used to meet this 1.0 course prerequisite.

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Statistical Sciences 2858A/B PROBABILITY AND STATISTICS II
Prerequisite(s): A minimum mark of 60% in Statistical Sciences 2857A/B (or the former Statistical Sciences 2657A/B).

Faculty of Science/Schulich School of Medicine & Dentistry; including BMSc and Neuroscience

MEDICAL BIOPHYSICS

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.
Medical Biophysics 3330F/G HUMAN BIOMECHANICS WITH BIOMEDICAL APPLICATIONS
Prerequisite(s): One of Calculus 1000A/B, Calculus 1500A/B, Mathematics 1225A/B, Numerical and Mathematical Methods 1412A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413, Applied Mathematics 1414A/B; one of Physics 1201A/B, Physics 1401A/B, Physics 1501A/B, the former Physics 1028A/B, the former Physics 1301A/B; and one of Physics 1202A/B, Physics 1402A/B, Physics 1502A/B, the former Physics 1029A/B, the former Physics 1302A/B. Integrated Science 1001X can be used as a prerequisite in place of Physics 1202A/B. Typically taken in third year, this course is also open to second-year students with an overall average of at least 70% in first year.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Medical Biophysics 3501A BIOPHYSICS OF TRANSPORT SYSTEMS
One of Calculus 1000A/B, Calculus 1500A/B, Mathematics 1225A/B, Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B, plus one of Calculus 1301A/B, or Calculus 1501A/B, Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B, plus one of Physics 1201A/B, Physics 1401A/B, Physics 1501A/B, the former Physics 1028A/B, the former Physics 1301A/B; and one of Physics 1202A/B, Physics 1402A/B, Physics 1502A/B, the former Physics 1029A/B, the former Physics 1302A/B. Integrated Science 1001X can be used as a prerequisite in place of Calculus 1301A/B and Physics 1202A/B. Typically taken in third year, this course is also open to second-year students with an average of at least 70% in first year.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Medical Biophysics 3503G FUNDAMENTALS OF DIGITAL IMAGING
Prerequisite(s): One of Calculus 1000A/B, or Calculus 1500A/B, Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B, plus one of Calculus 1301A/B, or Calculus 1501A/B, Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B, plus one of Physics 1201A/B, Physics 1401A/B, Physics 1501A/B, the former Physics 1028A/B, the former Physics 1301A/B; and one of Physics 1202A/B, Physics 1402A/B, Physics 1502A/B, the former Physics 1029A/B, the former Physics 1302A/B. Integrated Science 1001X can be used as a prerequisite in place of Calculus 1301A/B and Physics 1202A/B. Typically taken in third year, this course is also open to second-year students with an average of at least 70% in first year.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Medical Biophysics 3505F MATHEMATICAL TRANSFORM APPLICATIONS IN MEDICAL BIOPHYSICS
Prerequisite(s): One of Calculus 1000A/B, or Calculus 1500A/B, Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B, plus one of Calculus 1301A/B, or Calculus 1501A/B, Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B, plus one of Physics 1201A/B, Physics 1401A/B, Physics 1501A/B, the former Physics 1028A/B, the former Physics 1301A/B; and one of Physics 1202A/B, Physics 1402A/B, Physics 1502A/B, the former Physics 1029A/B, the former Physics 1302A/B. Integrated Science 1001X can be used as a prerequisite in place of Calculus 1301A/B and Physics 1202A/B. Although typically taken in third year, this course is available to second-year students with an overall average of at least 70% in first year.

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Medical Biophysics 3507G ANALYSIS OF OXYGEN TRANSPORT IN BIOLOGICAL SYSTEMS
Prerequisite(s): One of Calculus 1000A/B, or Calculus 1500A/B, Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B, plus one of Calculus 1301A/B, or Calculus 1501A/B, Numerical and Mathematical Methods 1414A/B or the former Applied Mathematics 1414A/B, plus one of Physics 1201A/B, Physics 1401A/B, Physics 1501A/B, the former Physics 1028A/B, the former Physics 1301A/B; and one of Physics 1202A/B, Physics 1402A/B, Physics 1502A/B, the former Physics 1029A/B, the former Physics 1302A/B.
the former Physics 1302A/B. Integrated Science 1001X can be used as a prerequisite in place of Calculus 1301A/B and Physics 1202A/B. Although typically taken in third year, this course is available to second-year students with an overall average of at least 70% in first year.

**Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.**

**Medical Biophysics 3518B INTRODUCTION TO MOLECULAR IMAGING**
Antirequisite(s): The former Medical Biophysics 2582B.
Prerequisite(s): Biochemistry 2280A; 1.0 course from Applied Mathematics 1201A/B, Calculus 1000A/B, Calculus 1301A/B, Calculus 1500A/B, Calculus 1501A/B, Mathematics 1225A/B, Mathematics 1228A/B, Mathematics 1229A/B, Mathematics 1600A/B, Statistical Sciences 1024A/B; and 1.0 course from Physics 1201A/B, Physics 1202A/B, Physics 1502A/B, the former Physics 1028A/B, the former Physics 1029A/B, the former Physics 1301A/B, the former Physics 1302A/B. Integrated Science 1001X can be used as a prerequisite in place of Calculus 1301A/B and Physics 1202A/B.

Pre- or Corequisite(s): Biology 2581A/B.

**Medical Biophysics 3645A/B INTRODUCTION TO BIOMEDICAL OPTICS**
Prerequisite(s): One of Calculus 1000A/B, or Calculus 1500A/B, Numerical and Mathematical Methods 1412A/B or the former Applied Mathematics 1412A/B, plus one of Calculus 1301A/B, or Calculus 1501A/B, Numerical and Mathematical Methods 1414A/B and/or the former Applied Mathematics 1414A/B, or the former Applied Mathematics 1413; one of Physics 1201A/B, Physics 1401A/B, Physics 1501A/B, the former Physics 1028A/B, the former Physics 1301A/B; plus one of Physics 1202A/B, Physics 1402A/B, Physics 1502A/B, the former Physics 1029A/B, the former Physics 1302A/B. Integrated Science 1001X can be used as a prerequisite in place of Calculus 1301A/B and Physics 1202A/B.

**PHYSIOLOGY**

**Physiology 3120 HUMAN PHYSIOLOGY**
Prerequisite(s): one of Physics 1201A/B, Physics 1501A/B, the former Physics 1028A/B, the former Physics 1301A/B; and one of Physics 1202A/B, Physics 1502A/B, the former Physics 1029A/B, the former Physics 1302A/B; 1.0 course from: Calculus 1000A/B, or Calculus 1500A/B, Calculus 1301A/B, or Calculus 1501A/B, Mathematics 1600A/B, Mathematics 1225A/B, Mathematics 1228A/B, Mathematics 1229A/B, Statistical Sciences 1024A/B, Applied Mathematics 1201A/B, Numerical and Mathematical Methods 1412A/B, Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413, the former Applied Mathematics 1414A/B; one of Biology 1001A or Biology 1201A and one of Biology 1002B or Biology 1202B; or permission of the department. Integrated Science 1001X can be used as a prerequisite in place of Biology 1002B, Calculus 1301A/B and Physics 1202A/B. It is strongly recommended that Biochemistry 2280A and Biology 2382A/B be taken prior to Physiology 3120. Open only to students who are registered in Years 3 or 4.

**Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.**

**Physiology 3140A CELLULAR PHYSIOLOGY**
Prerequisite(s): one of Physics 1201A/B, Physics 1501A/B, the former Physics 1028A/B, the former Physics 1301A/B; and one of Physics 1202A/B, Physics 1502A/B, the former Physics 1029A/B, the former Physics 1302A/B; 1.0 course from: Calculus 1000A/B or Calculus 1500A/B, Calculus 1301A/B or Calculus 1501A/B, Mathematics 1600A/B, Mathematics 1225A/B, Mathematics 1228A/B, Mathematics 1229A/B, Statistical Sciences 1024A/B, Applied Mathematics 1201A/B, Numerical and Mathematical Methods 1412A/B, Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1413, the former Applied Mathematics 1414A/B; one of Biology 1001A or Biology 1201A and one of Biology 1002B or Biology 1202B; or permission of the department. Integrated
Science 1001X can be used as a prerequisite in place of Biology 1002B, Calculus 1301A/B and Physics 1202A/B. It is strongly recommended that Biochemistry 2280A and Biology 2382A/B be taken prior to Physiology 3140A. Open only to students who are registered in Years 3 or 4.

PHYSIOLOGY AND PHARMACOLOGY

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Physiology and Pharmacology 3000E PHYSIOLOGY AND PHARMACOLOGY LABORATORY
Antirequisite(s): The former Pharmacology 3580Z, the former Physiology 3130Z.
Prerequisite(s): Biochemistry 2280A; either Chemistry 2213A/B or Chemistry 2273A; 1.0 course from: Physics 1201A/B, Physics 1202A/B, Physics 1501A/B, Physics 1502A/B, the former Physics 1028A/B, the former Physics 1029A/B, the former Physics 1301A/B, the former Physics 1302A/B; and 1.0 course from: Applied Mathematics 1201A/B, Calculus 1000A/B, Calculus 1500A/B, Calculus 1501A/B, Mathematics 1600A/B. Integrated Science 1001X can be used as a prerequisite in place of Calculus 1301A/B and Physics 1202A/B. A minimum average of 75% in the Fall/Winter of the most recent academic year is required. Open only to students who are registered in Years 3 or 4.
Pre-or Corequisite(s): Either Physiology 3120 or Pharmacology 3620 (Physiology 3120 is strongly recommended).

Faculty of Social Science

ECONOMICS

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Economics 3389A/B APPLIED ECONOMETRICS II
This course is an introduction to machine learning and big data for use in economic analysis. Machine learning employs techniques for analyzing large data sets with an emphasis on making predictions. The econometric methods covered in Economics 2222A/B and Economics 2223A/B are extended to common machine learning methods such as random forest and artificial neural networks.
Antirequisite(s): Data Science 3000A/B, the former Computer Science 4414A/B, the former Software Engineering 4460A/B, and the former Statistical Sciences 3850F/G.
Prerequisite(s): Economics 2223A/B.
Extra Information: 1 lecture hour, 2 laboratory hours.
Course Weight: 0.5

POLITICAL SCIENCE

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Political Science 4216F/G: WOMEN AND POLITICAL LEADERSHIP
Short title: WOMEN & POLITICAL LEADERSHIP
This course presents a deep treatment of the subject of women’s political leadership. The main case under study is Canada. However, reference to women’s leadership in other states helps frame the Canadian experience. A variety of methodological approaches will be engaged, including institutional, behavioural and comparative analysis.
Antirequisite(s): Political Science 4501F/G if taken in 2019-20 or 2020-21.
Prerequisite(s): Political Science 2230E or Political Science 2530F/G or GSWS 2220E.
Extra Information: 2 hours.
0.5 course
BUSINESS ADMINISTRATION

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Business Administration 4649A/B GLOBAL SUPPLY CHAIN MANAGEMENT
The first part of the course covers the broad perspective of purchasing and supply management; the second part addresses logistics activities in the supply chain. The balance of the course focuses on supply chain strategy and deals with opportunities to develop and implement initiatives to create competitive advantage.
Antirequisite(s): Business Administration 4464A/B.
Extra Information: 3 hours/week.
0.5 credit weight.

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Business Administration 4650A/B PREDICTIVE ANALYSIS
In making decisions, executives rely on predictions and forecasts that are based on the versatile data that companies are increasingly gathering. Making accurate forecasts is a necessity to cope with issues such as seasonality, and swings in the economy and is fundamental for creating a competitive advantage.
Extra Information: 3 hours/week.
0.5 credit weight.

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Business Administration 4651A/B TECHNOLOGY AND SOCIETY
This course explores various models for analyzing issues at the intersection of technology and humanity. Are digital technologies producing a better society? What are the implications for decision making and leadership in the digital age? We will discuss ways in which technology affects the internal and external stakeholders of organizations.
Antirequisite(s): Business Administration 4647A/B.
Extra Information: 3 hours/week.
0.5 credit weight.

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Business Administration 4652A/B INEQUALITY AND BUSINESS
This course explores the implications of economic inequality and diversity for business. How are "opportunities", both within organizations and in society more generally, created and constrained by social stratification? Does inequality and diversity affect innovation and productivity? These issues are explored in a cross-national perspective, with particular emphasis on liberal democracies.
Extra Information: 3 hours/week.
0.5 credit weight.

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Business Administration 4653A/B ACCOUNTING, GOVERNANCE, & RISK
This course offers an integrated understanding of organizational risks, governance, and reporting considerations. Students will be introduced to concepts, frameworks, and underlying theories of topics including financial and nonfinancial disclosure and transparency, global regulatory frameworks, transfer pricing in global supply chains and challenges of digital technologies and assets.
Antirequisite(s): Business Administration 4417.
Extra Information: 3 hours/week.
Business Administration 4654A/B BEHAVIOURAL ECONOMICS
This course studies how systematic errors in judgment impact economic outcomes. It will explore problem spaces that are relevant to management, consumer behaviour, government, philanthropy, the environment, and our personal lives.
Extra Information: 3 hours/week.
0.5 credit weight.

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Brescia University College

HISTORY

Effective September 1, 2021, the following change(s) be made: Course Introduction.

History 3400F/G: QUEENSHIP AND POWER IN EARLY MODERN EUROPE
Short title: QUEENSHIP, POWER EARLY MOD EUR
This course examines conflicts over gender and power, concerning the legitimacy of female rule in Europe 1450-1800. It emphasizes the political role and challenges of female rulers as queens regnant, queen-consorts, queen-mothers, and regents, who collaborated in the transmission of dynastic power through official and unofficial channels.
Prerequisite(s): 1.0 History course at the 2200 level or above.
Extra Information: 3 hours.
0.5 course.

MANAGEMENT AND ORGANIZATIONAL STUDIES

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Management and Organizational Studies 2242A/B

STATISTICS
Prerequisite(s): 1.0 course or equivalent from Calculus 1000A/B, Calculus 1301A/B, Calculus 1501A/B; Mathematics 1225A/B, Mathematics 1228A/B, Mathematics 1229A/B, and enrolment in a MOS Honours Specialization, Specialization or Major module.
Extra Information: 3 lecture hours.
0.5 course.
(Brescia, Huron, King's)

Huron University College

ECONOMICS

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Economics 2154A/B MONEY
Antirequisite(s): Economics 3371A/B.
Prerequisite(s): Economics 2152A/B Economics 1021A/B and Economics 1022A/B.
(Huron, King's)
GOVERNANCE, LEADERSHIP AND ETHICS

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Governance, Leadership and Ethics 2004F/G ENVIRONMENTAL STEWARDSHIP
Environmental Stewardship is a term that has deep historical roots and is now beginning to be
used widely again in natural resources management and conservation, local governance and
sustainability practices. This course explores the various knowledge systems, as well as the
spiritual traditions and ethical principles, that inform environmental stewardship in the 21st
century.
Extra Information: 3 hours.
0.5 course

INTERDISCIPLINARY STUDIES

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Interdisciplinary Studies 3490: FACULTY OF ARTS AND SOCIAL SCIENCE INTERNSHIP
WORK TERM
Short title: ARTS & SOC SCI INTERNSHIP
The activities, reports and other contractual obligations of an 8 month internship work term
recognized and approved by the Interdisciplinary Studies 3494: Faculty of Arts and Social
Science Internship Pre or Corequisites.
Prerequisite(s): Enrolment in Interdisciplinary Studies 3494 / Approval of, and acceptance into,
an Internship Work Term.
Extra Information: Non-credit, Pass/Fail. Note: (1) This credit cannot be included in the number
courses counted toward any degree or program; (2) Successful completion of Interdisciplinary
Studies 3490 and Interdisciplinary Studies 3494 will be recognized on the student's transcript.
Course Weight: 0

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Interdisciplinary Studies 3491: FACULTY OF ARTS AND SOCIAL SCIENCE INTERNSHIP
WORK TERM
Short title: ARTS & SOC SCI INTERNSHIP
The activities, reports and other contractual obligations of a 9-12 month internship work term
recognized and approved by the Interdisciplinary Studies 3494: Faculty of Arts and Social
Science Internship Pre or Corequisites.
Prerequisite(s): Enrolment in Interdisciplinary Studies 3494 / Approval of, and acceptance into,
an Internship Work Term.
Extra Information: Non-credit, Pass/Fail. Note: (1) This credit cannot be included in the number
courses counted toward any degree or program; (2) Successful completion of Interdisciplinary
Studies 3491 and Interdisciplinary Studies 3494 will be recognized on the student's transcript.
Course Weight: 0

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Interdisciplinary Studies 3492: FACULTY OF ARTS AND SOCIAL SCIENCE INTERNSHIP
WORK TERM
Short title: ARTS & SOC SCI INTERNSHIP
The activities, reports and other contractual obligations of a 13-16 month internship work term
recognized and approved by the Interdisciplinary Studies 3494: Faculty of Arts and Social
Science Internship Pre or Corequisites.
Prerequisite(s): Enrolment in Interdisciplinary Studies 3494 / Approval of, and acceptance into,
an Internship Work Term.
Extra Information: Non-credit, Pass/Fail. Note: (1) This credit cannot be included in the number
courses counted toward any degree or program; (2) Successful completion of Interdisciplinary
Studies 3492 and Interdisciplinary Studies 3494 will be recognized on the student's transcript.
Effective September 1, 2021, the following change(s) be made: Course Introduction.

Interdisciplinary Studies 3493: FACULTY OF ARTS AND SOCIAL SCIENCE INTERNSHIP WORK TERM
Short title: ARTS & SOC SCI INTERNSHIP
This 8 month industry placement is only available to students who are in the process or who have completed Interdisciplinary Studies 3494. Following the industry placement, interns must complete a written report and oral presentation on work undertaken during the internship.
Prerequisite(s): Enrolment in Interdisciplinary Studies 3494 / Approval of, and acceptance into, an Internship Work Term. Successful completion of Interdisciplinary Studies 3493 and Interdisciplinary Studies 3494
Extra Information: Non-credit, Pass/Fail. Note: (1) This credit cannot be included in the number of courses counted toward any degree or program; (2) Successful completion of Interdisciplinary Studies 3493 and Interdisciplinary Studies 3494 will be recognized on the student's transcript.
Course Weight: 0

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Interdisciplinary Studies 3494: FACULTY OF ARTS AND SOCIAL SCIENCE INTERNSHIP
Short title: ARTS & SOC SCI INTERNSHIP
This course aims to provide students with 8-16 months of practical experience relating to the student's degree in an employment setting. During the work term, students complete an interim report, and following the work term, interns must complete a written report and oral presentation on work undertaken during the internship.
Prerequisite(s): Completion of 2nd year Program requirements in any program in the Faculty of Arts and Social Science with a minimum cumulative average of 70%, and participation in Preparation and Training Workshops. Approval of, and acceptance into, an internship work term.
Extra Information: Pass/Fail. Note: (1) Credit for this course will not be given unless a minimum 8-month Internship and all other mandatory components have been completed. On successful completion, credit for the course will be given in the year in which initial registration in the course took place which is usually in Year 3. (2) “Students registered in a Management and Organizational Studies major or honors specialization will not be able to register in this course. Please see MOS 3494 requirements. (3) International students who meet the requirements to select the courses that provide co-op/ internship/ WIL opportunities must secure a valid co-op work permit.
1.0 course

JAPANESE

Effective September 1, 2021, the following change(s) be made: Course Pre or Corequisite Revision.

Japanese 2250 JAPANESE 2
Antirequisite(s): Japanese 2260.
Prerequisite(s): Japanese 1050, Japanese 1036, or Japanese 1051A/B and Japanese 1052A/B or permission of the Department.

MANAGEMENT AND ORGANIZATIONAL STUDIES

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Management and Organizational Studies 2227A/B: INTRODUCTION TO FINANCIAL ACCOUNTING
This course is an integrated introduction to accounting principles and practices. It is designed to help students begin to understand accounting information, along with its uses and limitations. This course is to provide students with an integrated framework for preparing, analyzing and
interpreting the financial statements.
Antirequisite(s): Business Administration 2257.
Prerequisite(s): 5.0 courses at University level, and enrollment in second year BMOS program.
Extra Information: 3 lecture hours. Note: Students interested in pursuing an HBA Degree at the Richard Ivey School of Business should not take this course in second year as Ivey does not recognize this course as part of the HBA degree. Instead, students should take Business Administration 2257 as required by Ivey.
(Brescia, Huron, King's)

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Management and Organizational Studies 2228A/B: INTRODUCTION TO MANAGERIAL ACCOUNTING
Students will examine how accounting information is used within organizations to plan, monitor and control. The purpose of this course is to ensure students have a basic understanding of how such management accounting systems and controls operate, the language they use and their limitations.
Antirequisite(s): Business Administration 2257.
Prerequisite(s): 5.0 courses at University level, and enrollment in second year BMOS program.
Extra Information: 3 lecture hours. Note: Students interested in pursuing an HBA Degree at the Richard Ivey School of Business should not take this course in second year as Ivey does not recognize this course as part of the HBA degree. Instead, students should take Business Administration 2257 as required by Ivey.
(Brescia, Huron, King's)

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision.

Management and Organizational Studies 2242A/B
STATISTICS
Prerequisite(s): 1.0 course or equivalent from Calculus 1000A/B, Calculus 1301A/B, Calculus 1501A/B; Mathematics 1225A/B, Mathematics 1228A/B, Mathematics 1229A/B, and enrolment in a MOS Honours Specialization, Specialization or Major module.
(Brescia, Huron, King's)

Effective September 1, 2021, the following change(s) be made: Course Introduction.

Management and Organizational Studies 2320A/B
MARKETING
An introduction to the role of marketing in the organization including information systems, corporate strategy, opportunities assessment, product differentiation, pricing strategies, distribution, communication and advertising.
Antirequisite(s): MOS 3320A/B.
Prerequisite(s): Business Administration 1220E or both MOS 1021A/B and MOS 1023A/B and enrolment in BMOS.
Extra Information: 3 lecture hours. Note: Students interested in pursuing an HBA Degree at the Richard Ivey School of Business should not take this course in second year as Ivey does not recognize this course as part of the HBA degree.
(Main, Brescia, Huron)
WRITING

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Revision to Course Hours.

Writing 0011F/G: INTRODUCTION TO BASIC ACADEMIC WRITING IN ENGLISH FOR MULTILINGUAL STUDENTS
Antirequisite(s): Writing 1002F/G; Writing 0002F/G.
Extra Information: 3 lecture hours.
(Brescia, Huron)

Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Revision to Course Hours.

Writing 1021F/G BASIC ACADEMIC WRITING FOR MULTILINGUAL STUDENTS
Antirequisite(s): Writing 1020F/G; Writing 1022F/G.
Prerequisite(s): Writing 0011F/G, or permission of the instructor.
Extra Information: 3 lecture hours.

Approval Route: Minor Change

Faculty of Arts and Humanities

WRITING

Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Writing 2291F/G SPECIAL TOPICS IN WRITING
Please consult the Writing, Rhetoric, and Professional Communication Office, Faculty of Arts and Humanities for current offerings Writing Studies Office for current or anticipated offerings.

Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Writing 2292F/G SPECIAL TOPICS IN WRITING
Please consult the Writing, Rhetoric, and Professional Communication Office, Faculty of Arts and Humanities for current offerings Writing Studies Office for current or anticipated offerings.

Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Writing 2293F/G SPECIAL TOPICS IN WRITING
Please consult the Writing, Rhetoric, and Professional Communication Office, Faculty of Arts and Humanities for current offerings Writing Studies Office for current or anticipated offerings.

Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Writing 2294F/G SPECIAL TOPICS IN WRITING
Please consult the Writing, Rhetoric, and Professional Communication Office, Faculty of Arts and Humanities for current offerings Writing Studies Office for current or anticipated offerings.

Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Writing 2295F/G SPECIAL TOPICS IN WRITING
Please consult the Writing, Rhetoric, and Professional Communication Office, Faculty of Arts and Humanities for current offerings Writing Studies Office for current or anticipated offerings.
Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Writing 2296F/G SPECIAL TOPICS IN WRITING
Please consult the Writing, Rhetoric, and Professional Communication Office, Faculty of Arts and Humanities for current offerings Writing Studies Office for current or anticipated offerings.

Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Writing 2297F/G SPECIAL TOPICS IN WRITING
Please consult the Writing, Rhetoric, and Professional Communication Office, Faculty of Arts and Humanities for current offerings Writing Studies Office for current or anticipated offerings.

Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Writing 2298F/G SPECIAL TOPICS IN WRITING
Please consult the Writing, Rhetoric, and Professional Communication Office, Faculty of Arts and Humanities for current offerings Writing Studies Office for current or anticipated offerings.

Faculty of Engineering

MECHANICAL AND MATERIALS ENGINEERING

Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Mechanical and Materials Engineering 3381A/B KINEMATICS & DYNAMICS OF MACHINES
Displacement, velocity and acceleration analysis of linkages; static and dynamic force analysis of mechanisms; balancing of reciprocating and rotating masses; special-purpose joints and mechanisms. Linkage mechanisms; inertia force analysis of mechanisms; balancing of reciprocating and rotating masses; introduction to vibration analysis of single-degree-of-freedom systems.

MECHATRONIC SYSTEMS ENGINEERING

Effective September 1, 2021, the following change(s) be made: Course Title or Description Revision.

Mechatronic Systems Engineering 3381A/B KINETICS & DYNAMICS OF MACHINES
Displacement, velocity and acceleration analysis of linkages; static and dynamic force analysis of mechanisms; balancing of reciprocating and rotating masses; special-purpose joints and mechanisms. Linkage mechanisms; inertia force analysis of mechanisms; balancing of reciprocating and rotating masses; introduction to vibration analysis of single-degree-of-freedom systems.

Faculty of Science

DATA SCIENCE

Effective September 1, 2021, the following change(s) be made: Revision to the Extra Information Field.

Data Science 3000A/B INTRODUCTION TO MACHINE LEARNING
Extra Information: 2 lecture hours/week, 2 lab hour/week. For a full list of Introductory Statistics courses please see: https://www.westerncalendar.uwo.ca/Departments.cfm?DepartmentID=55 &SelectedCalendar=Live&ArchiveID=
Effective September 1, 2021, the following change(s) be made: Course Antirequisite Revision, Revision to Course Hours.

Sociology 2227A/B SOCIAL CHANGE AND DEVELOPMENT
Antirequisite(s): The former Sociology 2237.
Extra Information: 2 seminar 3 lecture hours.