

The following proposals, received on DAP between April 1-15, 2015, have been approved. For more information on the DAP process, [see the Academic Handbook here](#).

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## FACULTY OF ARTS AND HUMANITIES

### FILM STUDIES

Effective **September 1, 2015**, the following course will be introduced.

#### Film Studies 2230F/G: Critical Reading and Writing in Film Studies

This course will build on skills and knowledge acquired in Film 1022 to engage students in the critical practices involved in reading various genres of writing in Film Studies. In addition to writing their own film reviews, students will learn research skills that prepare them for writing critical essays on cinema.

Prerequisite(s): At least 60% in Film Studies 1020E or Film Studies 1022 or permission of the Department  
2 lecture/seminar hours, 3 screening hours, 0.5 course.

Effective **September 1, 2015**, the following modules will be revised.

#### HONORS SPECIALIZATION IN FILM STUDIES

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##### Module

9.0 courses:

~~3.5~~ **4.0** courses: Film Studies 2200F/G, **2230F/G**, 2250F/G, 2251E, 2253E, 3371F/G.

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~~2.0~~ **1.5** courses from: Film Studies 2255E, 2256F/G, 2260F/G, 2261F/G, 2270F/G, 2275F/G, 2295F/G, 3360F/G, 3370F/G.

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#### MAJOR IN FILM STUDIES

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##### Module

6.0 courses:

1.5 courses from: Film Studies 2250F/G, 2251E, 2253E.

~~4.5~~ **2.0** course: Film Studies 2200F/G, **2230F/G**, 3371F/G, 3373F/G.

1.0 course from: Film Studies 2242F/G, 2243F/G, 2244E, 2245F/G-2247F/G, 2258F/G, 3330F/G or an approved course offered by another Department or Faculty.

~~2.0~~ **1.5** additional courses in Film Studies at the 2100 level or above or approved courses offered by other Departments or Faculties. No more than 1.0 of these courses may be at the 2100 level.

#### SPECIALIZATION IN FILM STUDIES

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##### Module

9.0 courses:

~~3.5~~ **4.0** courses: Film Studies 2200F/G, **2230F/G**, 2250F/G, 2251E, 2253E, 3371F/G.

0.5 course: Film Studies 2258F/G or any course at the 2200 level or above deemed to be in the area of Canadian Cinema.

~~2.0~~ **1.5** courses from: Film Studies 2255E, 2256F/G, 2260F/G, 2261F/G, 2270F/G, 2275F/G, 2295F/G, 3360F/G, 3370F/G.

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#### MINOR IN FILM STUDIES

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##### Module

4.0 courses:

4-5 **2.0** courses: Film Studies 2200F/G, **2230F/G**, 2251E.

0.5 course from: Film Studies 2158F/G, 2258F/G.

2-0 **1.5** additional courses in Film Studies at the 2100 level\* or above. Other courses may be substituted with permission of the Department.

\*No more than 1.0 course at the 2100 level may be counted towards the Minor in Film Studies.

## MINOR IN NATIONAL CINEMAS

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### Module

4.0 courses:

4-0 **1.5** course: Film Studies 2200F/G, **2230F/G**, 3373F/G.

1.5 courses from: Film Studies 2250F/G, 2251E, 2253E.

4-5 **1.0** courses from: Film Studies 2158F/G, 2242F/G, 2243F/G, 2244E, 2245F/G-2247F/G, 2258F/G, 3330F/G or an approved course offered by another Department or Faculty.

## FACULTY OF ENGINEERING

### CIVIL AND ENVIRONMENTAL

Effective **September 1, 2015**, the following course be revised.

#### Civil and Environmental Engineering 3348A/B - Project Management and Engineering Cases

Students develop decision making skills for **based upon** case histories including those involving project management, ~~natural and environmental hazards (earthquake, floods, etc.)~~ and sustainable development.

Prerequisite(s): Completion of second year of the Civil Engineering program or third year of the Integrated Engineering program.

3 2 lecture hours, **2 tutorial hours**, 0.5 course.

### ELECTRICAL AND COMPUTER

Effective **September 1, 2015**, the following courses be revised.

#### ECE 2233A/B - Circuits and Systems

Course description: No change.

Antirequisite(s): **MSE 2233A/B**.

Prerequisite(s): **Applied Mathematics 2270A/B**, ECE 2205A/B.

Corequisite(s): Applied Mathematics-2445 **2276A/B**, ECE 2236A/B.

3 lecture hours, 1 tutorial hour, 0.5 course.

#### ECE 2205A/B - Electric Circuits I

Course description: No change.

Prerequisite(s): Physics 1402A/B or the former Physics 1026, Applied Mathematics 1411A/B, Applied Mathematics 1413, ES 1036A/B or Computer Science 1026A/B.

Corequisite(s): Applied Mathematics 2445 **2270A/B**.

3 lecture hours, 1 tutorial hour, 0.5 course.

#### ECE 2208A/B - Electrical Measurement and Instrumentation

Course description: No change.

Antirequisite(s): ECE 2205A/B.

Prerequisite(s): ~~Applied Mathematics 1411A/B, Applied Mathematics 1413, the former Physics 1026, ES 1036A/B or Computer Science 1026A/B,~~ **Physics 1402A/B**.

Corequisite(s): ~~Applied Mathematics 2445 or 2441.~~

Pre-or Corequisite(s): Applied Mathematics 2270A/B.

3 lecture hours, 1 laboratory hour, 0.5 course.

**ECE 2236A/B - Magnetic Circuits and Transmission Lines**

Course description: No change.

Prerequisite(s): Applied Mathematics 4413 **2270A/B**, ECE 2205A/B, Physics 1402A/B or the former Physics 4026.

Corequisite(s): ~~Applied Mathematics 2415, ECE 2241A/B~~ **Applied Mathematics 2276A/B**.

Pre-or Corequisite(s): **ECE 2241A/B**.

3 lecture hours, 1 tutorial hour, 0.5 course.

**ECE 2238A/B - Introduction to Electrical Engineering**

Course description: No change.

Antirequisite(s): ECE 2205A/B, ECE 2231A/B.

Prerequisite(s): ~~Applied Mathematics 1411A/B, Applied Mathematics 1413, ES 1036A/B or Computer Science 1026A/B, Physics 1402A/B or the former Physics 1026.~~

Corequisite(s): ~~Applied Mathematics 2415 or 2411.~~

Pre-or Corequisite(s): **Applied Mathematics 2270A/B**.

3 lecture hours, 1 tutorial hour, 1 laboratory hour, 0.5 course.

**ECE 2274A/B - Electric Circuits and Electromechanics**

This course ~~studies~~ **introduces** the principles of electrical circuits and components, including common electric motors employed in mechanical engineering systems. ~~The course also uses a series of laboratories to~~ **Laboratories** introduce the students to common measurement tools used to assess and troubleshoot electrical circuits. ~~The~~ **These** foundations from this course are expanded on **upon** in the a subsequent course which ~~focuses~~ **focusing** on electronic components and their applications.

Antirequisite(s): ECE 2205A/B, ECE 2231A/B, the former ECE 3373A/B.

Prerequisite(s): ES 1036A/B or Computer Science 1026A/B, Physics 1402A/B or the former Physics 1026.

Corequisite(s): ~~Applied Mathematics 2413 or 2415~~

Pre-or Corequisite(s): **Applied Mathematics 2270A/B**.

3 lecture hours, 1.5 laboratory hours, 0.5 course

**ECE 3330A/B - Control Systems**

The concept of feedbacks; modelling of dynamic systems; characteristics of feedback control systems, performance of control systems in time and frequency domains; stability of feedback systems; control system analysis and design. Using root locus and frequency response techniques.

Antirequisite(s): CBE 3310A/B or the former CBE 4410A/B.

Prerequisite(s): Applied Mathematics 2415 **2270A/B** and (ECE 2233A/B or MSE 2233A/B).

3 lecture hours, 1 laboratory hour, 0.5 course.

**ECE 3332A/B - Electric Machines**

Course description: No change.

Prerequisite(s): ~~Applied Mathematics 2415 and (ECE 2233A/B and ECE 2236A/B and ECE 2240A/B and ECE 2241A/B) or (MSE 2201A/B and MSE 2233A/B).~~

3 lecture hours, 1 laboratory hour, 0.5 course.

**ECE 3336A/B - Electromagnetic Theory**

Radio-frequency transmission lines, telegrapher's equations, Smith chart. A vector treatment of the theory of electric and magnetic fields. Integral and differential forms of Maxwell's equations. Boundary conditions. Scalar and vector potentials, reflection and transmission of electromagnetic waves in dielectric and conducting media.

Antirequisite(s): Physics 3300A/B.

Prerequisite(s): Applied Mathematics 2415 **2276A/B**, Applied Mathematics 3415A/B, ECE 2233A/B, ECE 2236A/B.

3 lecture hours, 1 tutorial hour, 0.5 course.

**ECE 4464A/B - Electric Power Systems II**

Course description: No change.

Prerequisite(s): ECE 3333A/B, ~~Applied Mathematics 2415.~~

Corequisite(s): ~~Applied Mathematics 3415A/B~~  
3 lecture hours, 1 tutorial hour, 1 laboratory hour, 0.5 course.

### **ECE 4468A/B - Systems Optimization**

Course description: No change.  
Prerequisite(s): ~~Applied Mathematics 2415~~, Applied Mathematics 3415A/B.  
3 lecture hours, 0.5 course.

## **INTERDEPARTMENTAL**

Effective **September 1, 2015**, the following course be revised.

### **Mechatronic Systems Engineering 2233A/B - Circuits and Systems**

Course description: No change.  
Antirequisite(s): ECE 2233A/B.  
Prerequisite(s): Applied Mathematics 2270A/B, ECE 2205A/B, MSE 2201A/B.  
Corequisite(s): Applied Mathematics 2415 2276A/B.  
3 lecture hours, 2 tutorial hours, 1 laboratory hour, 0.5 course.  
Restricted to students enrolled in the Mechatronics Systems Engineering program or in Computer Engineering Option B.

## **MECHANICAL AND MATERIALS**

Effective **September 1, 2015**, the following course be introduced.

### **Mechanical and Materials Engineering 4437A/B – Advanced Topics in Computer Aided Engineering**

Nonlinear structural analysis, vibration of discrete and distributed systems, kinematic and dynamic analysis, flexible mechanism analysis, nonlinear thermal analysis, fluid flow analysis, thermal fluids, multi-physics simulation, interfacing between structural, thermal and mechanism analyses.  
Prerequisite(s): MME3307A/B, MME 3360A/B, MME 3380A/B.  
3 lecture hours, 2 laboratory hours, 0.5 course.

Effective **September 1, 2015**, the following courses be revised.

### **Mechanical and Materials Engineering 3380A/B - Mechanical Components Design**

Course description: No change.  
Antirequisite(s): MSE 3380A/B  
Prerequisite(s): MME 2200Q/R/S/T, MME 2202A/B, MME 3381A/B.  
3 lecture hours, 3 laboratory/tutorial hours, 0.5 course.

### **Mechanical and Materials Engineering 4450A/B – Modern Control Systems: Theory and Practice**

Basic analytical Modern Control techniques for solving vibration and control problems associated with practical mechanical systems. The emphasis of the course is on the basic concepts, ideas and applications and numerical simulations to aid Power-train dynamics, Hardware-in-the-loop (HIL) simulations and communications.

Prerequisite(s): MME 2213A/B, Applied Mathematics 3413A/B MME 3350A/B or ECE 3330A/B  
3 lecture hours, 2 tutorial hours, 0.5 course

## **INFORMATION AND MEDIA STUDIES**

Effective **September 1, 2015**, the following courses be revised.

### **MIT 2570A/B - Introduction to Digital Imaging and Web Site Design**

Course description: No change.  
Antirequisite(s): Registration in the Multimedia Design and Production stream of the MTP Program. Digital

**Communication 2203A/B.**

Prerequisite(s): At least 65% in each of MIT 1200F/G, 1500F/G and 1700F/G.  
2 lecture hours, 2 laboratory hours, 0.5 course.

**MIT 3115F/G - Search Engines and Data Mining**

Course description: No change.

Antirequisite(s): **Digital Communication 3204F/G**

3 lecture hours, 0.5 course.

**MIT 3133F/G - Net-Work: Labour and Profit on Facebook, Flickr, YouTube and Web 2.0**

Course description: No change.

Antirequisite(s): MIT 3771F if taken in 2009-10, 2010-11 or 2011-12, **Digital Communication 3205F/G.**

3 lecture hours, 0.5 course.

**MIT 3371F/G - Game On! Video Game Culture, Technology, and Industry**

Course description: No change.

Antirequisite(s): **Digital Communication 3206F/G.**

Prerequisite(s): At least 65% in each of MIT 1200F/G, 1500F/G and 1700F/G.

3 lecture hours, 0.5 course.

**MIT 3372A/B - Design of Digital Cognitive Games**

Course description: No change.

Antirequisite(s): MIT 3663B if taken in 2009-10 or 2010-11, **Digital Communication 3207A/B.**

3 lecture hours, 0.5 course.

**MIT 3373F/G - Social Media & Organizations**

Course description: No change.

Antirequisite(s): MIT 3852G if taken in 2011-2012, **Digital Communication 3209F/G.**

3 lecture hours, 0.5 course.

**MIT 3374F/G - Social Networking in Everyday Life: Social Relations, Social Movements, and Privacy**

Course description: No change.

Antirequisite(s): MIT 3650G if taken in 2011-2012, **Digital Communication 3208F/G.**

3 lecture hours, 0.5 course.

**MIT 3720F/G - Virtual Worlds: Theory and Practice**

Course description: No change.

Antirequisite(s): MIT 3653G if taken in 2011-2012, **Digital Communication 3210F/G.**

3 lecture hours, 0.5 course.

**INTERFACULTY MODULES/DEPARTMENTS*****WOMEN'S STUDIES AND FEMINIST RESEARCH***

*Effective **September 1, 2015**, the following courses be withdrawn on Main Campus.*

**Women's Studies 2256E:** Feminist Theory and Practice in the Arts and Humanities

**Women's Studies 2257E:** Feminist Theory and Practice in the Social Sciences

*Effective **September 1, 2015**, the following courses be revised.*

**Women's Studies 3330F/G -** Special Topics in Women's Studies

**Women's Studies 3331F/G -** Special Topics in Women's Studies

**Women's Studies 3350F/G -** Feminism Across Borders

**Women's Studies 3355E -** Special Topics in Women's Studies

**Women's Studies 3357F/G** - Special Topics in Women's Studies  
**Women's Studies 3358F/G** - Special Topics in Women's Studies  
**Women's Studies 3359F/G** - Special Topics in Women's Studies  
**Women's Studies 3362F/G** - Special Topics in Women's Studies  
**Women's Studies 4456F/G** - Advanced Seminar in Feminist Theory and Practice  
**Women's Studies 4457E** - Advanced Seminar and Practicum: Feminist Perspectives on Violence Against Women  
**Women's Studies 4458F/G** - Advanced Seminar in Feminist Theory and Practice  
**Women's Studies 4459F/G** - Special Topics in Women's Studies  
**Women's Studies 4460F/G** - Special Topics in Women's Studies  
**Women's Studies 4461F/G** - Special Topics in Women's Studies  
**Women's Studies 4464F/G** - Special Topics in Women's Studies

Prerequisite(s): Women's Studies ~~2256E~~ or ~~2257E~~ or 2220E or permission of the Department.

Effective **September 1, 2015**, the following courses be revised.

**Women's Studies 3153F/G** - Bad Girls: Dissident Women and Popular Culture  
**Women's Studies 3305F/G** - Gender, Sexuality and Cultural Resistance  
**Women's Studies 3345F/G** - Feminist Topics in Sexuality Studies

Prerequisite(s): Women's Studies 2253E or ~~2256E~~ or ~~2257E~~ or 2273E or 2220E or permission of the Department.

Effective **September 1, 2015**, the following courses be revised.

**Women's Studies 3363F/G** - Feminist Topics in Sexuality Studies  
**Women's Studies 3373F/G** - Feminist Topics in Sexuality Studies  
**Women's Studies 4463F/G** - Advanced Seminar in Sexuality Studies

Prerequisite(s): Women's Studies ~~2256E~~ or ~~2257E~~ or 2220E or 2273E or 2253E or permission of the Department.

Effective **September 1, 2015**, the following courses be revised.

**Women's Studies 3356F/G - Feminist Topics in Sexuality Studies**

Prerequisite(s): Women's Studies ~~2256E~~ or ~~2257E~~ or 2220E or 2253E or 2273E permission of the Department.

**Women's Studies 4455E - Honors Thesis in Women's Studies**

Prerequisite(s): Women's Studies ~~2256E~~ or ~~2257E~~ or 2220E or permission of the Department. Restricted to fourth-year Honors Women's Studies students.

**Women's Studies 4465E - Advanced Topics in Women's Studies**

Prerequisite(s): Registration in a fourth year Women's Studies module and either Women's Studies ~~2256E~~ or ~~2257E~~ or 2220E or permission of the Department.

Effective **September 1, 2015**, the following modules be revised.

#### HONORS SPECIALIZATION IN WOMEN'S STUDIES

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##### Module

9.0 courses:

1.0 course: Women's Studies 2220E or ~~2256E~~ or ~~2257E~~.

1.0 course: Women's Studies 3321F/G and 3322F/G (or both Women's Studies ~~2256E~~ and ~~2257E~~)

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**SPECIALIZATION IN WOMEN'S STUDIES**

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**Module**

9.0 courses:

1.0 course: Women's Studies 2220E ~~or 2256E or 2257E.~~1.0 course: Women's Studies 3321F/G and 3322F/G ~~(or both Women's Studies 2256E and 2257E).~~

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**MAJOR IN WOMEN'S STUDIES**

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**Module**

6.0 courses:

1.0 course: Women's Studies 2220E ~~or 2256E or 2257E.~~1.0 course: Women's Studies 3321F/G and 3322F/G ~~(or both Women's Studies 2256E and 2257E).~~

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**MINOR IN WOMEN'S STUDIES**

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**Module**

4.0 courses:

1.0 course: Women's Studies 2220E ~~or 2256E or 2257E.~~

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**MINOR IN FEMINIST THEORY**

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**Module**

4.0 courses:

1.0 course: Women's Studies 2220E ~~or 2256E or 2257E.~~1.0 course: Women's Studies 3321F/G and 3322F/G ~~(or both Women's Studies 2256E and 2257E).~~

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**FACULTY OF LAW**

*Effective **September 1, 2015**, Law 5560 A/D: Securities Regulation be withdrawn.*

*Effective **September 1, 2015**, the following courses be introduced.*

**Law 5559 a/c/d - Securities Regulation**

An introduction to theoretical and doctrinal foundations of Canadian securities regulation, focusing principally on Ontario legislation, rules and policies. Topics may include: foundational concepts; regulators, SROs and regulatory instruments; registration and prospectus requirements; exempt markets; insider trading; continuous disclosure; take-over bids; enforcement; emerging issues; and securities regulation in other jurisdictions.

Antirequisite: Law 5560 a/d.

Four credits, one term.

**Law 5737 - Western Journal of Legal Studies**

This course is for the editorial board of the Western Journal of Legal Studies. Students are fully responsible for journal publication, including the solicitation and selection of articles, the editorial process, communication with authors, finances, publication and marketing. Students are expected to demonstrate critical judgment with respect to articles submitted for publication.

Antirequisite: Law 5911

Pass/fail. Four credits, Full year (2+2).

**Law 5747A/D - Law in the Aftermath of War**

This course concerns legal retribution and reconstruction after the Second World War. The first section will

examine the legal history of the Nuremberg and Tokyo war crimes trials. The second will focus on the destruction and subsequent reconstruction of the constitutional order of Nazi Germany and Imperial Japan.

Antirequisite: Law 5859

Three credits, one term.

## FACULTY OF SCIENCE

### MATHEMATICS

Effective **September 1, 2015**, *Mathematics 2123A/B - Real Analysis II* will be withdrawn.

Effective **September 1, 2015**, the following courses be introduced.

#### **Mathematics 3159A/B - Introduction to Cryptography**

Modern cryptological algorithms will be discussed with an emphasis placed on their mathematical foundation. Main topics will include: basic number theory, complexity of algorithms, symmetric-key cryptosystems, public-key cryptosystems, RSA encryption, primality and factoring, discrete logarithms, elliptic curves and information theory.

Prerequisite(s): Mathematics 1600A/B and one of Mathematics 2120A/B, 2124A/B, 2151A/B, 2155F/G, 3150A/B, Applied Mathematics 2811B, or Computer Science 2214A/B.

3 lecture hours, 0.5 course.

Effective **September 1, 2015**, the following courses be revised.

#### **Mathematics 2122A/B - Real Analysis I**

~~A rigorous introduction to analysis on the real line, primarily for honors students. Sets, functions, natural numbers, axioms for the real numbers, completeness and its consequences, sequences and limits, continuous and differentiable functions, the Mean Value Theorem.~~

A rigorous introduction to analysis on the real line. Sets and functions, logic and mathematical proof, the natural and real numbers, completeness and its consequences, limits of sequences, limits of real functions, continuity and uniform continuity.

Prerequisite(s): Calculus 1501A/B or Applied Mathematics 1413, with a minimum mark of 60%, or Calculus 1301A/B with a minimum mark of 85%.

3 lecture hours, 0.5 course.

#### **Mathematics 2155F/G –Discrete Structures I Mathematical Structures**

This course provides an introduction to logical reasoning and proofs. Topics include sets, counting (permutations and combinations), mathematical induction, relations and functions, partial order relations, equivalence relations, binary operations, elementary group theory, ~~groups~~ and applications to error-correcting codes.

Antirequisite(s): Mathematics 2151A/B, the former Software Engineering 2251A/B, the former Mathematics 2155A/B.

~~Prerequisite(s): 4.0 course from: Mathematics 1120A/B, Applied Mathematics 1413, Calculus 1000A/B, the former 1100A/B or 1500A/B Calculus 1301A/B or 1501A/B, Mathematics 1600A/B or permission of the department.~~ 1.0 course from: Mathematics 1120A/B, 1600A/B, Applied Mathematics 1413, Calculus 1000A/B, 1500A/B, 1301A/B, 1501A/B, or the former Calculus 1100A/B, in each case with a minimum mark of 60%; or permission of the department.

3 lecture hours, 0.5 course.

#### **Mathematics 3020A/B - Introduction to Abstract Algebra**

~~Sets and binary operations, commutativity, associativity, distributivity, groups and subgroups, cyclic groups, permutation groups, cosets, Lagrange's theorem, normal subgroups, quotient groups, first isomorphism theorem, rings, integral domains, fields, polynomial rings, unique factorization of polynomials over a field, finite fields.~~



Properties of integers, rational, real and complex numbers: commutativity, associativity, distributivity. Polynomials, prime and irreducible elements. Rings, ideals, integral and Euclidean domains, fields, and unique factorization. First isomorphism theorem, quotient rings and finite fields. Introduction to groups.

Prerequisite(s): Mathematics 1600A/B and one of Mathematics 1120A/B, 2120A/B, 2124A/B, 2151A/B, 2155F/G, or Applied Mathematics 2811B, Computer Science 2214A/B.

3 lecture hours, 0.5 course.

### **Mathematics 3120A/B - Group Theory**

Course description: No change

Prerequisite(s): Mathematics 3020A/B (recommended); or Mathematics 1600A/B and one of Mathematics 1120A/B, 2120A/B, 2124A/B, 2155F/G, Applied Mathematics 2811B.

3 lecture hours, 0.5 course.

### **Mathematics 3122A/B – Metric Space Topology Real Analysis II**

An introduction to the theory of metric spaces with emphasis on the point-set topology of Euclidean  $n$ -space, including convergence, compactness, completeness, continuity, uniform continuity, homeomorphism, equivalence of metrics, connectedness, path-connectedness, fixed-point theorem for contractions, separability, complete normality, product spaces, category.

Differentiation, the Mean Value Theorem, and integration. Metric spaces, including topology, convergence, compactness, completeness, and connectedness. Uniform convergence of functions. Selected additional topics.

Prerequisite(s): Either Mathematics 2122A/B or the former Mathematics 2123A/B, each with a minimum mark of 60%.

3 lecture hours, 0.5 course.

### **Mathematics 3123A/B - Differential Equations**

Course description: No change.

Prerequisite(s): 2.0 courses: Calculus 2503A/B; Mathematics 2123A/B; Mathematics 3122A/B; Mathematics 2120A/B or Applied Mathematics 2811B.

3 lecture hours, 0.5 course

### **Mathematics 3124A/B - Complex Analysis I**

Course description: No change.

Antirequisite(s): Applied Mathematics 3811A/B.

Prerequisite(s): Mathematics 2122A/B 2123A/B.

3 lecture hours, 0.5 course.

### **Mathematics 3152A/B - Combinatorial Mathematics**

Course description: No change.

Prerequisite(s): 0.5 course from: Mathematics 2120A/B, 2155F/G, 2156A/B, 2211A/B, Applied Mathematics 2811B, or permission of the Department.

3 lecture hours, 0.5 course.

### **Mathematics 4120A/B - Field Theory**

Course description: No change.

Prerequisite(s): Mathematics 3020A/B and 3120A/B.

3 lecture hours, 0.5 course.

### **Mathematics 4121A/B –General Topology**

Topological spaces, operations on subsets (e.g. closure), neighbourhoods, bases, subspaces, quotient spaces, product and quotient spaces, connectedness, compactness, countability and separation axioms, function spaces.

Antirequisite(s): The former Mathematics 3132B.

Prerequisite(s): Mathematics 3122A/B.

3 lecture hours, 0.5 course.

**Mathematics 4122A/B – Lebesgue Integration and Fourier Series Introduction to Measure Theory**

Lebesgue measure, measurable sets and functions, approximation theorems, the Lebesgue integral, comparison with the Riemann integral, the basic convergence theorems and continuity properties, the space  $L^2$ , the Riesz-Fischer theorem and completeness of the trigonometric system, pointwise convergence of Fourier series, Fejér's theorem.

Lebesgue measure, measurable sets and functions, Littlewood principles; the Lebesgue integral, basic convergence theorems, approximation theorems; measure spaces, signed measures, Radon-Nikodym Theorem.

Prerequisite(s): Mathematics 3122A/B.

3 lecture hours, 0.5 course.

**Mathematics 4123A/B - Rings and Modules**

Commutative rings, ring homomorphisms and quotient rings, ideals, rings of fractions, the Chinese remainder theorem; Euclidean domains, principal ideal domains, unique factorization domains; polynomial rings over fields; modules, direct sums of modules, free modules; modules over a principal ideal domain, the rational canonical form, the Jordan canonical form.

Rings: fractions and localization, Chinese Remainder Theorem, factorization in commutative rings, Euclidean algorithm, PIDs, algebraic integers, polynomials and formal power series, factorization in polynomial rings; Modules: generation, direct products and sums, freeness, presentations, tensor algebras, exact sequences, projectivity, injectivity, Hom and duality, Zorn's Lemma, chain conditions, modules over PIDs.

Prerequisite(s): Mathematics 3120A/B 3020A/B.

3 lecture hours, 0.5 course.

Note: It is recommended that Mathematics 3121A/B (or the former Math 2121A/B) be taken before or concurrently with Mathematics 4123A/B.

**Mathematics 4152A/B - Algebraic Topology**

Homotopy, fundamental group, Van Kampen's theorem, fundamental theorem of algebra, Jordan curve theorem, singular homology, homotopy invariance, long exact sequence of a pair, excision, Mayer-Vietoris sequence, Brouwer fixed point theorem, Jordan-Brouwer separation theorem, invariance of domain, Euler characteristic, cell complexes, projective spaces, Poincaré theorem.

Homotopy, fundamental group, Van Kampen's theorem, covering spaces, simplicial and singular homology, homotopy invariance, long exact sequence of a pair, excision, Mayer-Vietoris sequence, degree, Euler characteristic, cell complexes, projective spaces. Applications include the fundamental theorem of algebra, the Brouwer fixed point theorem, division algebras, and invariance of domain.

Prerequisite(s): Mathematics 3120A/B and either Mathematics 4121A/B or the former Mathematics 3132B.

3 lecture hours, 0.5 course.

**Mathematics 4153A/B - Algebraic Geometry**

Course description: No change.

Prerequisite(s): Mathematics 4120A/B; Mathematics 3154A/B is recommended but not required. Mathematics 4123A/B.

3 lecture hours, 0.5 course.

**Mathematics 4154A/B – Introduction to Functional Analysis**

Banach and Hilbert spaces, dual spaces, annihilators, Hahn-Banach theorem, Riesz representation theorems, bounded linear operators, adjoints, closed graph and Banach-Steinhaus theorems, compact operators, the Fredholm alternative, the operational calculus, spectral resolution of compact normal operators, applications to integral equations.

Hilbert spaces:  $L^2$  spaces, orthogonal complements, dual spaces, Riesz representation theorem, the Fredholm alternative, spectral resolution of compact normal operators. Banach spaces: Hahn-Banach theorem, bounded linear operators, adjoints, closed graph and Banach Steinhaus theorems.

Prerequisite(s): Mathematics 2120A/B, Mathematics 3122A/B.

Pre- or Corequisite(s): Mathematics 3124A/B.

3 lecture hours, 0.5 course.

**Mathematics 4155A/B – ~~Multivariable~~ Calculus on Manifolds**

~~Review of differentiability in Euclidean space, inverse and implicit function theorems, integration in Euclidean space, Fubini's theorem, partitions of unity, change of variable, multilinear functions, tensor and wedge product, vector fields, differential forms, Poincaré's lemma, Stokes' theorem, manifolds, fields and forms on manifolds, Stokes' theorem on manifolds.~~

Manifolds (definition, examples, constructions), orientation, functions, partitions of unity, tangent bundle, cotangent bundle, vector fields, integral curves, differential forms, integration, manifolds with boundary, Stokes' theorem, submersions, immersions, embeddings, submanifolds, Sard's theorem, Whitney embedding theorem.

Prerequisite(s): Calculus 2503A/B and Mathematics 3122A/B.

3 lecture hours, 0.5 course.

**Mathematics 4156A/B - Complex Variables Analysis II**

~~Moebius transformations; local behavior of analytic functions, open and inverse mapping theorems; Schwarz's lemma; harmonic functions, solution of the Dirichlet problem on the disk, the Jensen and Poisson-Jensen formulas, the Schwarz reflection principle; analytic continuation; normal families, the Riemann mapping theorem, the homotopic version of Cauchy's theorem; conformal mapping.~~

Linear-fractional transformations, Schwarz's lemma, Reflection Principle, the Argument principle, the Riemann mapping theorem, Runge's theorem, the Mittag-Leffler and Weierstrass theorems.

Prerequisite(s): Mathematics 3124A/B.

3 lecture hours, 0.5 course.

Effective **September 1, 2015**, the following modules be revised.

**HONORS SPECIALIZATION IN MATHEMATICS**

...

**Module**

...

2.0 additional courses in Mathematics, **Actuarial Science**, Applied Mathematics, **Financial Modelling** or Statistical Sciences at the 2100 level or above.

...

**HONORS SPECIALIZATION IN MATHEMATICS IN SOCIETY**

...

**Module**

...

3.0 courses from: Actuarial Science, Applied Mathematics, Computer Science, **Financial Modelling**, Mathematics, or Statistical Sciences courses, at the 2100 level or above.

...

**HONORS SPECIALIZATION IN MATHEMATICAL SCIENCES**

...

**1.0 course from: Group A:** Courses Emphasizing Proofs.

- Applied Mathematics 3815A/B or 4615F/G.
- Mathematics 2122A/B, 2155F/G, 2251F/G, **3020A/B**, 3120A/B, 3122A/B, 3150A/B, 3154A/B, 4123A/B.
- Statistical Sciences 3858A/B, 4654A/B.

**1.0 course from: Group B:** Applications.

- Actuarial Science 2553A/B, Financial Modelling 2555A/B or the former Actuarial Science 2555A/B.
- Applied Mathematics 3129A/B, 3151A/B, 3615A/B, 3813A/B, 3911F/G, 4129A/B, 4251A, 4351A.
- Mathematics 2156A/B, 3152A/B, **3159A/B**.

...

**MAJOR IN MATHEMATICS**

...

**Module**

...

1.5 additional courses in Mathematics, **Actuarial Science**, Applied Mathematics, **Financial Modelling** or Statistical Sciences at the 2100 level or above.

2.0 additional courses in Mathematics at the 3000 level or above.

### **SPECIALIZATION IN MATHEMATICS**

...

#### **Module**

...

2.0 additional courses in Mathematics, **Actuarial Science**, Applied Mathematics, **Financial Modelling** or Statistical Sciences at the 2100 level or above.

...

### **SPECIALIZATION IN MATHEMATICS IN SOCIETY**

...

#### **Module**

...

4.0 courses from: Actuarial Science, Applied Mathematics, Computer Science, **Financial Modelling**, Mathematics, or Statistics courses, at the 2100 level or above.

It is strongly recommended that Mathematics 2122A/B be completed in the year of entry into the module.

### **MINOR IN MATHEMATICS**

...

#### **Module**

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2.5 additional courses from: ~~Computer Science 3331A/B, 3340A/B,~~ Earth Sciences 2222A/B, Economics 2122A/B, 2123A/B, 2141A/B, 2142A/B, 2210A/B, 2222A/B, 2223A/B, 3310A/B, Philosophy 2250, 2251F/G, 2252W/X, 2254A/B, 3201A/B, 3202B, 4201A/B, 4202A/B, any Actuarial Science, Applied Mathematics, Computer Science, **Financial Modelling**, Mathematics, or Statistical Sciences course at the 2000 level or above. Note that some of these courses have prerequisites that are not part of the module.

## **STATISTICAL AND ACTUARIAL SCIENCES**

Effective **September 1, 2015**, the following courses be revised.

#### **Actuarial Science 4997F/G/Z - Project in Actuarial Science**

Course description: No change.

Antirequisite(s): **Financial Modelling 4998F/G/Z**, Statistical Sciences 4999F/G/Z, **the former** Statistical Sciences 4998F/G/Z.

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#### **Financial Modelling 2555A/B - Corporate Finance**

Course description: No change.

Antirequisite(s): **Management and Organizational Studies 2310A/B, 3310A/B**, the former Actuarial Science 2555A/B.

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#### **Financial Modelling 2557A/B - Financial Markets and Investments**

Course description: No change.

Antirequisite(s): **Business Administration 4413A/B**, the former Actuarial Science 2557A/B.

Prerequisite(s): A minimum mark of 60% in Calculus 1501A/B or Applied Mathematics 1413, or Calculus 1301A/B with a minimum mark of 85%.

3 lecture hours, 1 tutorial hour, 0.5 course.

#### **Financial Modelling 3520A/B - Financial Modelling I**

Course description: No change.

Antirequisite(s): The former Statistical Sciences 3520A/B.

Prerequisite(s): A minimum mark of 60% in ~~both~~ **one of Business Administration 4413A/B**, Financial Modelling 2557A/B ~~(or the former Actuarial Science 2557A/B)~~; and **a minimum mark of 60% in** Statistical Sciences 2857A/B.

3 lecture hours, 0.5 course.

### **Statistical Sciences 2035 - Statistics for Business and Social Sciences**

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Prerequisite(s): One full course or equivalent from: Applied Mathematics **1201A/B**, 1413, Statistical Sciences 1024A/B, Calculus 1000A/B or 1100A/B or 1500A/B, Calculus 1301A/B or 1501A/B, Mathematics 1600A/B or the former Linear Algebra 1600A/B, Mathematics 1225A/B, 1228A/B, 1229A/B.

3 lecture hours, 1.0 course.

### **Statistical Sciences 4999F/G/Z - Project in Statistical Sciences**

Course description: No change.

Antirequisite(s): Actuarial Science 4997F/G/Z, **Financial Modelling 4998F/G/Z**, the former Statistical Sciences 4998F/G/Z.

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*Effective **September 1, 2015**, the following module be revised.*

### **HONORS SPECIALIZATION IN FINANCIAL MODELLING**

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#### **Module**

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0.5 courses from: Applied Mathematics **3611F/G (or the former Applied Mathematics 4611F/G)**, Applied Mathematics 4613A/B\*\* or Applied Mathematics 4617A/B\*, Applied Mathematics 4999Z, Financial Modelling 4998F/G/Z (or the former Statistical Sciences 4998F/G/Z), Statistical Sciences 4999F/G/Z, or Actuarial Science 4997F/G/Z.

Calculus 2402A/B may be replaced by either (Calculus 2502A/B and Calculus 2503A/B) or (Calculus 2502A/B and **Mathematics 2122A/B or the former** Mathematics 2123A/B). When such a replacement occurs, the module will include 10.0 courses.

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## **FACULTY OF SCIENCE and SCHULICH SCHOOL OF MEDICINE & DENTISTRY**

### **BIOCHEMISTRY**

*Effective **September 1, 2015**, the following course be revised.*

#### **Biochemistry 4483E – Research Project and Seminar**

Course description: No change.

Antirequisite(s): **Anatomy and Cell Biology 4480E**, Biochemistry 4485E, Chemical Biology 4500E, **Medical Biophysics 4970E**, Medical Sciences 4900F/G, Microbiology and Immunology 4970E, **Pathology 4980E**, **Pathology and Toxicology 4980E**, the former Biochemistry 4800E, 4491E.

Prerequisite(s): Biochemistry 3380G, 3381A and 3382A, with marks in each of at least 70%. Enrolment is limited, and is available only to students in Year 4 of Honors Specialization modules in Biochemistry, Biochemistry and Cell Biology, **Biochemistry and Pathology of Human Disease**, Biochemistry and Chemistry, Biochemistry of Infection and Immunity, Computational Biochemistry, **and Medical Biophysics and Biochemistry**. Students in the Honors Specialization in Biochemistry of Infection and Immunity may substitute one of Microbiology and Immunology 3610F, 3620G, or the former 3600G with a minimum mark of 70% in lieu of Biochemistry 3380G as a prerequisite. Students in the Honors Specialization in Computational Biochemistry may substitute Biochemistry 3383F/G with a minimum mark of 70% in lieu of Biochemistry 3380G as a prerequisite.

15 hours per week, 1.5 course. Enrolment in this course is limited.

**FACULTY OF SOCIAL SCIENCE****HISTORY**

Effective **September 1, 2015**, the following course be introduced.

**History 2901E – Conceptions of Humanity and Society in Western Culture**

This course examines debates that helped define the cultural climate of the eras in which they took place and influenced the subsequent history of Western culture. Assigned authors or texts include: Homer and Aristotle; the Hebrew and Christian Bibles and St. Augustine; Erasmus and Luther; Montesquieu, Voltaire, Rousseau and Burke.

2 seminar hours, 1.0 course.

**POLITICAL SCIENCE**

Effective **September 1, 2015**, the following courses be revised.

**Political Science 3201F/G** - Issues in International Law

**Political Science 3203F/G** - Critical Approaches to Global Security

**Political Science 3321F/G** - Politics of India

**Political Science 3340F/G** - The Rise and Fall of Communism in the USSR and Eastern Europe

**Political Science 3341F/G** - The Post Communist Transformations

**Political Science 3343F/G** - European Union: The Politics of Integration

**Political Science 3344F/G** - Western European Politics: States, Nations, and Regimes

**Political Science 3366E** - International Conflict Management

**Political Science 3367F/G** - Political Economy: North America

**Political Science 3388E** - International Human Rights

**Political Science 4411F/G** - Threats to Global Democracy

Prerequisite(s): Political Science 2231E or Political Science 2245E or **International Relations 2702E**, or the **former** International Relations 2701E.

**FACULTY OF SOCIAL SCIENCE and AFFILIATED UNIVERSITY COLLEGES****MANAGEMENT AND ORGANIZATIONAL STUDIES**

Effective **September 1, 2015**, the following courses be revised at all campuses they are offered.

**Management and Organizational Studies 3360A/B - Intermediate Accounting I**

Course description: No change.

Antirequisite(s): Business Administration 4417A/B.

Prerequisite(s): Business Administration 2257 and enrolment in 3rd or 4th year of BMOS or Music Administrative Studies (MAS).

Pre- or Corequisite(s): **MOS 2310A/B or MOS 3310A/B**

3 lecture hours, 0.5 course

**Management and Organizational Studies 3363A/B - Introduction to Auditing**

Course description: No change.

Antirequisite(s): Business Administration 4497A/B.

Prerequisite(s): ~~MOS 3360A/B~~ **3361A/B** and enrolment in 3rd or 4th year of BMOS.

Corequisite(s): ~~MOS 3361A/B~~.

3 lecture hours, 0.5 course

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**BRESCIA UNIVERSITY COLLEGE****HISTORY**

Effective **September 1, 2015**, the following course be introduced.

**History 0011 – How We Got Here: The Twentieth-Century World**

Understanding the history of the 20th century world is an important element in participating in modern society.

This course will examine the origins of the historical political, economic, social and cultural forces that shape the modern world. The emphasis in this course will be on ideas that govern actions, motivate people and provide structure to our understanding of the world.

Prerequisite(s): Enrolment in the Preliminary Year Program

3 lecture/seminar hours, 1.0 course

(Brescia)

**MANAGEMENT AND ORGANIZATIONAL STUDIES**

Effective **September 1, 2015**, the following courses be introduced.

**MOS 3260A/B: Financial Management for Non-Financial Managers**

This course is designed to develop financial management and control competencies in non-financial managers to aid in their understanding of the financial impact of decisions and in measurement and evaluation processes.

Students will be expected to apply the concepts in case-based, decision-focused situations.

Prerequisite(s): Business Administration 2257 or permission of the instructor.

Antirequisite(s): MOS 3371A/B

3 lecture hours, 0.5 course.

(Brescia)

**MOS 4425A/B: Nonprofit Marketing and Advancement**

This course explores the unique ways that nonprofit organizations use traditional marketing methods to generate support for their mission, to create social change and to raise funds. Course topics include social marketing, fundraising, public relations and the grant writing process. This course will prepare students for marketing challenges in the context of nonprofit organizations.

Prerequisite(s): MOS 2320A/B or MOS 3320A/B and enrolment in year 4 of the BMOS program.

3 lecture hours, 0.5 course.

(Brescia)

**MOS 4426A/B: Advanced Nonprofit Management**

This course provides students with an advanced understanding of the unique aspects of nonprofit management. Topics include: nonprofit governance; development of strategic mission, vision and direction; aligning resources to achieve the strategic direction; and, execution, including volunteer management, and government relations.

Prerequisite(s): Enrolment in 4th year BMOS or permission of the instructor

3 lecture hours, 0.5 course.

(Brescia)

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**HURON UNIVERSITY COLLEGE**

Effective **September 1, 2015**, the following courses be revised.

**Hebrew 1030 –Hebrew 1**

An introduction to **A course in** oral and written modern Hebrew for students with **little or no previous rudimentary** knowledge of the language. Prepares students for direct progression to Hebrew 2200 Hebrew 2.

Antirequisite(s): Grade 12 **University-preparatory** Hebrew, or equivalent level of secondary study.

4 hours, 1.0 course.  
(Huron)

**Hebrew 2200- Hebrew 2**

Course description: No change.

Antirequisite(s): ~~The former Hebrew 025.~~

Prerequisite(s): Hebrew 1030 ~~or the former Hebrew 005~~, or Grade 12 **University-preparatory** Hebrew or equivalent.

4 hours, 1.0 course.  
(Huron)

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**DAP UPDATE: MINOR CHANGES****RICHARD IVEY SCHOOL OF BUSINESS and FACULTY OF SOCIAL SCIENCE**

Effective **September 1, 2015**, the following module requirement be revised for consistency.

**PSYCHOLOGY/HBA COMBINED DEGREE PROGRAM**

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**Year 3 (HBA1)**

**All students will take 8.0 courses from:** Business Administration 3300K, 3301K, 3302K, 3303K, 3304K, 3307K, 3311K, 3316K, 3321K, 3322K, 3323K (with at least a 78% average for combined degree acceptance).

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**FACULTY OF SOCIAL SCIENCE**

Effective **September 1, 2015**, the following module requirement be revised to correct a submission error.

**HONORS SPECIALIZATION IN GEOGRAPHY – BSC**

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4.5 courses in Geography at the 2200 level or above, at least ~~2.0~~ **3.0** of which must be at 3000 level or above, with Geography 3000Y or 3001F/G strongly recommended, and where 2.0 courses must be taken from the following list of Science–equivalent courses. (Students wishing to pursue Graduate Studies are encouraged to take Geography 4901E).

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