

## MEMORANDUM

Date: September 16, 2010  
To: Chair, SES Faculty Council  
From: Dr. Adam Van Tuyl, Chair, Dept. of Math. Sci.  
Subject: Calendar Changes from the Department of Mathematical Sciences

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Please find attached the following calendar changes for the Department of Mathematical Sciences:

- Splitting Math 1160 and Math 1180 into half year courses
- Renaming Math 1210 and 1230

These calendar change were approved at our department meetings held on January 28, February 2, and September 10, 2010. A hard copy, along with the necessary signatures, will be forwarded at a later date.

Sincerely,



Adam Van Tuyl, Chair

Department of Mathematical Sciences

## Request for Calendar Change Form

Tracking No:  
(Senate Secretary's Office  
use only)

Date:  
09/03/2010

To Secretary of Senate  
From Name(Dean): Faculty  
Dr. Andrew P. Dean Science & Environmental Studies  
Department the change relates to  
Mathematical Sciences  
Contact Person  
Dr. Adam Van Tuyl

Is the proposed calendar change Undergraduate

### Instructions:

1. In all cases please complete and attach sections 1 and 2
2. If the calendar change affects other departments/schools/faculties complete and attach section 3
3. If the answer to any of the questions below is yes, please explain. Attach separate sheets with reference to the question

- |  |  |   |
|--|--|---|
| 1. Do the proposed calendar entry affect other departments/schools/faculties in terms of their calendar?                                 | Yes<br><input checked="" type="checkbox"/> | No<br><input type="checkbox"/>            |
| 2. Is a transition plan needed for student in progress?  | Yes<br><input type="checkbox"/>            | No<br><input checked="" type="checkbox"/> |
| 3. Are the proposed changes likely to affect student enrollment in your department/school/faculty?                                       | Yes<br><input type="checkbox"/>            | No<br><input checked="" type="checkbox"/> |
| 4. Are the proposed changes likely to affect student enrollment in other departments/schools/faculties at Lakehead University?           | Yes<br><input type="checkbox"/>            | No<br><input checked="" type="checkbox"/> |
| 5. Will the proposed changes require additional teaching space and/or teaching staff and/or equipment and/or other resources?            | Yes<br><input type="checkbox"/>            | No<br><input checked="" type="checkbox"/> |
| 6. Will the proposed changes affect existing teaching loads within your department/school/faculty?                                       | Yes<br><input type="checkbox"/>            | No<br><input checked="" type="checkbox"/> |
| 7. Will the proposed changes increase demand for teaching support services such as the library, computing services and technical staff ? | Yes<br><input type="checkbox"/>            | No<br><input checked="" type="checkbox"/> |
| 8. Will the proposed change require direct or in-kind support from outside the academic unit?  | Yes<br><input type="checkbox"/>            | No<br><input checked="" type="checkbox"/> |
| 9. Do the proposed changes include a course(s) which is/are required core course(s) for a major in your, or another, department?         | Yes<br><input checked="" type="checkbox"/> | No<br><input type="checkbox"/>            |

- |  |  |   |
|--|--|---|
| 10. Do the proposed changes include a course(s) which is/are a service course(s) in your, or another, department?                    | Yes<br><input checked="" type="checkbox"/> | No<br><input type="checkbox"/>            |
| 11. Do the proposed changes include a course(s) which is/are an open elective available to any student in any program?               | Yes<br><input type="checkbox"/>            | No<br><input checked="" type="checkbox"/> |
| 12. Do the proposed changes include a course(s) which is/are an elective in your major that is restricted to students in your major? | Yes<br><input type="checkbox"/>            | No<br><input checked="" type="checkbox"/> |

Signatures:

Date approved by faculty council

Section 1

Description of the Proposed Calendar Change:

Split the 1 FCE course Math 1160 & Math 1180 into 2 - 0.5 FCE courses.

Rationale of the Proposed Calendar Change(s):

(Corresponding to Section 2 where required)

1

Reasons to split the courses:

1. Weaker students usually drop this course after completing the first half of the course. We can now give them some credit for the first part of calculus.
2. Accommodate students who transfer in from universities which already have one semester long courses.
3. Allow students the flexibility of switching between calculus streams if they change their major mid-year.
4. Gives the chair more flexibility in teaching assignments.
5. Allows for the possibility of teaching calculus through CEDL.
6. This split was recommended as part of our recent undergraduate program review.

Section 2

Existing Calendar Entries:  
(Page reference based on hard copy or URL based on electronic version of calendar)

Proposed Calendar Entries/Addition/ Deletion  
-If only addition, specify page number and placement in university calendar  
-If only deletion, write Deleted

1

<http://mycoursecalendar.lakeheadu.ca/pg180.html>

Mathematics 1160  
Calculus for Social and Life Sciences  
Credit Weight: 1

Prerequisite(s): MHF4U or permission of the Department

Description: Functions, the derivative, logarithmic and exponential functions, the graphs of functions, applications of the derivative, integration, applications of integration, and infinite series.

Offering: 3-1; 3-1

[Delete Math 1160 and replace with the following two courses:]

Math 1151  
Calculus I for Social and Life Sciences  
Credit Weight: 0.5

Prerequisite(s): MHF4U or permission of the Department

Description:  
Functions, the derivative, logarithmic and exponential functions, the graphs of functions, applications of the derivative.

Offering: 3-1; 0-0

Notes: Students who have taken Math 1160 previously may not take Math 1151 for credit.

Math 1152  
Calculus II for Social and Life Sciences Credit Weight: 0.5  
Prerequisite(s): Math 1151 or permission of the Department  
Description: Fundamental Theorem of Calculus, integration, applications of integration, and infinite series.  
Offering: 0-0; 3-1  
Notes: Students who have taken Math 1160 previously may not take Mathematics 1152 for credit.

2

<http://mycoursecalendar.lakeheadu.ca/pg180.html>

Mathematics 1180  
Calculus  
Credit Weight: 1

Prerequisite(s): MHF4U or permission of the Department

Description: Basic properties of the real number system, definitions and basic properties of algebraic and transcendental

[Delete Math 1180 and replace with the following two courses:]

Math 1171  
Calculus I  
Credit Weight: 0.5

Prerequisite(s): MHF4U or permission of the Department

Description: Basic properties of the real number

functions together with their differential and integral calculus, basic results of analysis and applications of differential and integral calculus, and sequences and series.

Offering: 3-1; 3-1

system; limits and continuity of functions; derivatives and differentiation formulas; applications of derivatives; anti-derivatives, definite integrals, indefinite integrals; Fundamental Theorem of Calculus; u-substitution.  
Offering: 3-1; 0-0  
Notes: Students who have taken Math 1180 previously may not take Math 1171 for credit.

Math 1172

Calculus II

Credit Weight: 0.5

Prerequisite(s): Math 1171 or permission of the Department

Description: Applications of integrals; one-to-one functions and inverses; logarithmic, exponential, power and inverse trigonometric functions; techniques of integration; limits of sequences; indeterminate forms; improper integrals; infinite series; tests for convergence; Taylor series; power series.

Offering: 0-0; 3-1

Notes: Students who have taken Math 1180 previously may not take Math 1172 for credit.

DEPARTMENT OF MATHEMATICAL  
SCIENCES, MATHEMATICS ARTS  
PROGRAM

3

<http://mycoursecalendar.lakeheadu.ca/pg550.html>

1. BA (Mathematics Major)  
Three year program  
3. BA (Mathematics Major)  
Four Year Non-Direct Entry program

First Year:  
(a) Mathematics 1180 and 1281

1. BA (Mathematics Major)  
Three year program  
3. BA (Mathematics Major)  
Four Year Non-Direct Entry program

First Year:  
(a) Mathematics 1171, 1172, and 1281

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<http://mycoursecalendar.lakeheadu.ca/pg550.html>

4. Honours BA (Mathematics)  
Four Year program

First Year:

4. Honours BA (Mathematics)  
Four Year program

(a) Mathematics 1180, 1281

First Year:

(a) Mathematics 1171, 1172, and 1281

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<http://mycoursecalendar.lakeheadu.ca/pg550.html>

5. Minor Program in Statistics

(a) Mathematics 1180, 2331, 2333, 3335, 4331, 4335

5. Minor Program in Statistics

(a) Mathematics 1171, 1172, 2331, 2333, 3335, 4331, 4335

DEPARTMENT OF MATHEMATICAL  
SCIENCES, MATHEMATICS SCIENCE  
PROGRAM

6

<http://mycoursecalendar.lakeheadu.ca/pg551.html>

1. BSc (Mathematics Major)

Three Year program

2. BSc (Mathematics Major)

Four Year Non-Direct Entry program

3. Honours BSc (Mathematics)

Four Year program

6. BSc (Mathematics and Physics Majors)

Three Year program

First Year:

(a) Mathematics 1180, 1281

1. BSc (Mathematics Major)

Three Year program

2. BSc (Mathematics Major)

Four Year Non-Direct Entry program

3. Honours BSc (Mathematics)

Four Year program

6. BSc (Mathematics and Physics Majors)

Three Year program

First Year:

(a) Mathematics 1171, 1172, and 1281

DEPARTMENT OF MATHEMATICAL  
SCIENCES, MATHEMATICS COURSES

9

<http://mycoursecalendar.lakeheadu.ca/pg180.html>

Mathematics 2111 Differential Equations  
Credit Weight: 0.5

Prerequisite(s): Mathematics 1160 or 1180

Mathematics 2111 Differential Equations  
Credit Weight: 0.5

Prerequisite(s): Mathematics 1152 or Mathematics  
1172

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<http://mycoursecalendar.lakeheadu.ca/pg180.html>

Mathematics 2131 Vector Calculus  
Credit Weight: 0.5

Prerequisite(s): Mathematics 1180 or permission of the Department

Mathematics 2131 Vector Calculus  
Credit Weight: 0.5

Prerequisite(s): Mathematics 1172 or permission of the Department

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<http://mycoursecalendar.lakeheadu.ca/pg180.html>

Mathematics 2321 Statistics  
Credit Weight: 1

Prerequisite(s): Mathematics 1160

Mathematics 2321 Statistics  
Credit Weight: 1

Prerequisite(s): Mathematics 1152

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<http://mycoursecalendar.lakeheadu.ca/pg180.html>

Mathematics 2331 Introduction to Mathematical Probability  
Credit Weight: 0.5

Prerequisite(s): Mathematics 1180

Mathematics 2331 Introduction to Mathematical Probability  
Credit Weight: 0.5

Prerequisite(s): Mathematics 1172

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<http://mycoursecalendar.lakeheadu.ca/pg180.html>

Mathematics 3231 Introductory Analysis I  
Credit Weight: 0.5

Prerequisite(s): Mathematics 1180 and either Mathematics 1281 or permission of the Department

Mathematics 3231 Introductory Analysis I  
Credit Weight: 0.5

Prerequisite(s): Mathematics 1172, and either Mathematics 1281 or permission of the Department

#### DEPARTMENT OF ANTHROPOLOGY

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<http://mycoursecalendar.lakeheadu.ca/pg260.html>

4. BSc (Anthropology Major)  
Three Year program

4. BSc (Anthropology Major)  
Three Year program



- 5. BSc (Anthropology Major)  
Four Year Non-Direct Entry program
- 6. Honours BSc (Anthropology Major)  
Four Year program

First Year:

(c) Three FCEs from: Biology 1110, 1130, Chemistry 1110, 1130, Geography 1120, Geology 1110, 1130, Mathematics 0210, 1160, Business 1513, Physics 1101

- 5. BSc (Anthropology Major)  
Four Year Non-Direct Entry program
- 6. Honours BSc (Anthropology Major)  
Four Year program

First Year:

(c) Three FCEs from: Biology 1110, 1130, Chemistry 1110, 1130, Geography 1120, Geology 1110, 1130, Mathematics 0210, 1151, 1152, Business 1513, Physics 1101

## APPLIED BIO-MOLECULAR SCIENCE

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- 1. HBSc (Applied Bio-Molecular Science Major)  
Four Year program
  - 2. BSc (Applied Bio-Molecular Science Major)  
Four Year Non-Direct Entry program
  - 3. Honours BSc (Physics) with Major Concentration in Applied Bio-Molecular Science  
Four Year program
- First Year:  
Chemistry Major)  
Four Year program  
(d) Mathematics 1160 or 1180

- 1. HBSc (Applied Bio-Molecular Science Major)  
Four Year program
  - 2. BSc (Applied Bio-Molecular Science Major)  
Four Year Non-Direct Entry program
  - 3. Honours BSc (Physics) with Major Concentration in Applied Bio-Molecular Science  
Four Year program
- First Year:  
d) Mathematics 1151 and 1152, or Mathematics 1171 and 1172

## DEPARTMENT OF BIOLOGY

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<http://mycoursecalendar.lakeheadu.ca/pg273.html>

- 1. BSc (Biology Major)  
Three Year program
  - 2. Honours BSc (Biology Major)  
Four Year program
  - 3. BSc (Biology Major)  
Four Year Non-Direct Entry program
  - 4. Honours BSc (Biology and Chemistry Major)  
Four Year program
- First Year:  
(d) Mathematics 1180

- 1. BSc (Biology Major)  
Three Year program
  - 2. Honours BSc (Biology Major)  
Four Year program
  - 3. BSc (Biology Major)  
Four Year Non-Direct Entry program
  - 4. Honours BSc (Biology and Chemistry Major)  
Four Year program
- First Year:

(d) Mathematics 1171 and 1172

## ENVIRONMENTAL STUDIES

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<http://mycoursecalendar.lakeheadu.ca/pg283.html>

1. HBESc (Biology Major)  
Four Year Program
3. HBESc (Geography Major)  
Four Year program  
First Year:  
(e) Mathematics 1160, or Physics 1113 and 1133
2. HBESc (Earth Science Major)  
Four Year program  
First Year:  
(d) Mathematics 1160 or 1180

### Note:

Students who lack high school MHF4U (Advanced Functions) or its equivalent must register for Mathematics 1051 and 1077. Mathematics 1160 or 1180 is taken in Year 2.

1. HBESc (Biology Major)  
Four Year Program
3. HBESc (Geography Major)  
Four Year program  
First Year:  
(e) Mathematics 1151 and 1152, or Physics 1113 and 1133
2. HBESc (Earth Science Major)  
Four Year program  
First Year:  
(d) Mathematics 1151 and 1152, or Mathematics 1171 and 1172

### Note:

Students who lack high school MHF4U (Advanced Functions) or its equivalent must register for Mathematics 1051 and 1077. Mathematics 1151 and 1152, or Mathematics 1171 and 1172 is taken in Year 2.

## BIOINFORMATICS

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<http://mycoursecalendar.lakeheadu.ca/pg687.html>

1. Honours BSc (Bioinformatics Major)  
Four Year program  
First Year:  
(d) Mathematics 1180
2. BSc (Bioinformatics Major)  
Four Year Non-Direct Entry program  
Bioinformatics Core Courses  
Mathematics 1180 - Calculus

1. Honours BSc (Bioinformatics Major)  
Four Year program  
First Year:  
(d) Mathematics ~~1180~~ 1171 and 1172
2. BSc (Bioinformatics Major)  
Four Year Non-Direct Entry program  
Bioinformatics Core Courses  
Mathematics 1171 and 1172 - Calculus

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<http://mycoursecalendar.lakeheadu.ca/pg687.html>

Bioinformatics Core Courses  
Mathematics 1180 - Calculus

Bioinformatics Core Courses  
Mathematics 1171 - Calculus I  
Mathematics 1172 - Calculus II

## DEPARTMENT OF CHEMISTRY

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<http://mycoursecalendar.lakeheadu.ca/pg275.html>

1. Honours BSc (Chemistry Major)  
Four Year program  
First Year:  
(b) Mathematics 1180  
2. BSc (Chemistry Major)  
Four Year Non-Direct Entry program  
4. Honours BSc (Biology and Chemistry Major)  
Four Year program  
First Year:  
(d) Mathematics 1180  
5. BSc (Biology and Chemistry Major)  
Four Year Non-Direct Entry program

1. Honours BSc (Chemistry Major)  
Four Year program  
First Year:  
(b) Mathematics 1172 and 1172  
2. BSc (Chemistry Major)  
Four Year Non-Direct Entry program  
4. Honours BSc (Biology and Chemistry Major)  
Four Year program  
First Year:  
(d) Mathematics 1171 and 1172  
5. BSc (Biology and Chemistry Major)  
Four Year Non-Direct Entry program

## DEPARTMENT OF COMPUTER SCIENCE

22

<http://mycoursecalendar.lakeheadu.ca/pg277.html>

1. Honours BSc (Computer Science)  
Cooperative Program  
(a) Business Option  
(b) Science Option  
(c) Hardware Option  
2. BSc (Computer Science) - Co-op  
Four Year Non-Direct Entry Program  
3. BSc (Computer Science Major)  
Three Year Program  
4. HBS (Computer Science Major)  
Four Year Program  
5. BSc (Computer Science Major)

1. Honours BSc (Computer Science)  
Cooperative Program  
(a) Business Option  
(b) Science Option  
(c) Hardware Option  
2. BSc (Computer Science) - Co-op Four Year Non-Direct Entry Program  
3. BSc (Computer Science Major)  
Three Year program  
4. HBS (Computer Science Major)  
Four Year program

Four Year Non-Direct Entry Program

First Year (Fall and Winter):  
(a) Mathematics 1180, 1281; Computer  
Science 1411, 1431

5. BSc (Computer Science Major)  
Four Year Non-Direct Entry program

First Year (Fall and Winter):  
(a) Mathematics 1171 and 1172, 1281; Computer  
Science 1411, 1431

## DEPARTMENT OF ECONOMICS

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<http://mycoursecalendar.lakeheadu.ca/pg703.html>

Notes:

4. One course in calculus, e.g. Mathematics 1160, is highly recommended for honours.

Notes:

4. One FCE in calculus, e.g. Mathematics 1151 and 1152, is highly recommended for honours.

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<http://mycoursecalendar.lakeheadu.ca/pg703.html>

2. BA (Mathematics and Economics Majors)  
Three Year program

First Year:

(b) Mathematics 1180

5. BA (Economics Major)

Four Year Non-Direct Entry program

8. Honours BSc (Resource and  
Environmental Economics)

Four Year program

First Year:

(c) Mathematics 1180

2. BA (Mathematics and Economics Majors)  
Three Year program

First Year:

(b) Mathematics 1171 and 1172

5. BA (Economics Major)

Four Year Non-Direct Entry program

8. Honours BSc (Resource and Environmental  
Economics)

Four Year program

First Year:

(c) Mathematics 1171 and 1172

## DEPARTMENT OF GEOGRAPHY

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<http://mycoursecalendar.lakeheadu.ca/pg555.html>

5. BSc (Geography Major)  
Three Year program

6. Honours BSc (Geography Major)

5. BSc (Geography Major)  
Three Year program

Four Year program  
7. BSc (Geography Major)  
Four Year Non-Direct Entry program  
First Year:  
(b) One FCE from: Anthropology 1032;  
Biology 1110, 1130; Computer Science 1411,  
1431; Geology 1111, 1131; Mathematics 1160

8. Honours BSc (Geography with Geology  
Minor)  
Four Year program  
9. BSc (Geography with Geology Minor)  
Four Year Non-Direct Entry program  
First Year:  
(c) Mathematics 1160

6. Honours BSc (Geography Major)  
Four Year program  
7. BSc (Geography Major)  
Four Year Non-Direct Entry program  
First Year:  
(b) One FCE from: Anthropology 1032; Biology  
1110, 1130; Computer Science 1411, 1431;  
Geology 1111, 1131; Mathematics 1151 and 1152

8. Honours BSc (Geography with Geology Minor)  
Four Year program  
9. BSc (Geography with Geology Minor)  
Four Year Non-Direct Entry program  
First Year:  
(c) Mathematics 1151 and 1152

## GEOARCHEOLOGY

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<http://mycoursecalendar.lakeheadu.ca/pg561.html>

1. BSc (Geoarchaeology Major)  
Three Year program  
First Year:  
(e) One full course equivalent from: Biology  
1110, 1130; Chemistry 1110, 1130; Physics  
1101; Mathematics 1160  
2. Honours BSc (Geoarchaeology Major)  
Four Year program  
The courses for the first three years are the  
same as for the three year BSc program.  
3. BSc (Geoarchaeology Major)  
Four Year Non-Direct Entry program

1. BSc (Geoarchaeology Major)  
Three Year program  
First Year:  
(e) One full course equivalent from: Biology 1110,  
1130; Chemistry 1110, 1130; Physics 1101;  
Mathematics 1151 and 1152  
2. Honours BSc (Geoarchaeology Major)  
Four Year program  
The courses for the first three years are the same  
as for the three year BSc program.  
3. BSc (Geoarchaeology Major)  
Four Year Non-Direct Entry program

## DEPARTMENT OF GEOLOGY

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<http://mycoursecalendar.lakeheadu.ca/pg553.html>

1. Honours BSc (Geology Major)  
Four Year program

1. Honours BSc (Geology Major)  
Four Year program

First Year:

(d) Mathematics 1160 or 1180

Notes:

2. Mathematics: Students who lack high school MHF4U (Advanced Functions) or its equivalent must register for Mathematics 1051 and 1077. Mathematics 1160 or 1180 is taken in Year 2.

2. BSc (Geology Major)

Four Year Non-Direct Entry program

3. HBSc (Geology with Major Concentration in Physics)

Four Year program

(e) Mathematics 1160 or 1180

Note: Students who lack high school MHF4U (Advanced Functions) or its equivalent must register for Mathematics 1051 and 1077.

Mathematics 1160 or 1180 is taken in Year 2.

4. BSc (Geology with Major Concentration in Physics)

Four Year Non-Direct Entry program

First Year:

(d) Mathematics 1151 and 1152 or 1171 and 1172

Notes:

2. Mathematics: Students who lack high school MHF4U (Advanced Functions) or its equivalent must register for Mathematics 1051 and 1077. Mathematics 1151 and 1152 or 1171 and 1172 is taken in Year 2.

2. BSc (Geology Major)

Four Year Non-Direct Entry program

3. HBSc (Geology with Major Concentration in Physics)

Four Year program

(e) Mathematics 1151 and 1152 or 1171 and 1172

Note: Students who lack high school MHF4U (Advanced Functions) or its equivalent must register for Mathematics 1051 and 1077.

Mathematics 1151 and 1152 or 1171 and 1172 is taken in Year 2.

4. BSc (Geology with Major Concentration in Physics)

Four Year Non-Direct Entry program

## DEPARTMENT OF PHYSICS

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<http://mycoursecalendar.lakeheadu.ca/pg557.html>

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1. BSc (Physics Major)

Three Year program

First Year:

2. Honours BSc (Physics Major)

Four Year program

A cumulative average of 70% in all Physics courses is required.

First Year:

3. BSc (Physics Major)

Four Year Non-Direct Entry program

4. Honours BSc (Physics)

Co-operative Option Program

First Year:

Same as Honours BSc (Physics Major)

5. BSc (Physics)

Four Year Co-operative Option Non-Direct Entry program

7. Honours BSc (Mathematical Physics Major)

Four Year program

(b) Mathematics 1180

8. BSc (Mathematical Physics Major)

1. BSc (Physics Major)

Three Year program

First Year:

2. Honours BSc (Physics Major)

Four Year program

A cumulative average of 70% in all Physics courses is required.

First Year:

3. BSc (Physics Major)

Four Year Non-Direct Entry program

4. Honours BSc (Physics)

Co-operative Option Program

First Year:

Same as Honours BSc (Physics Major)

5. BSc (Physics)

Four Year Co-operative Option Non-Direct Entry program

7. Honours BSc (Mathematical Physics Major)

Four Year program

(b) Mathematics 1171 and 1172.

Four Year Non-Direct Entry program  
9. Honours BSc (Physics) with Major Concentration in Applied Bio-Molecular Science  
Four Year program  
10. BSc (Physics) with Major Concentration in Applied Bio-Molecular Science  
Four Year Non-Direct Entry program

BSc (Mathematical Physics Major)  
Four Year Non-Direct Entry program  
9. Honours BSc (Physics) with Major Concentration in Applied Bio-Molecular Science  
Four Year program  
10. BSc (Physics) with Major Concentration in Applied Bio-Molecular Science  
Four Year Non-Direct Entry program

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<http://mycoursecalendar.lakeheadu.ca/pg191.html>

Physics 1101 Introductory Physics  
Credit Weight: 1.0

Physics 1101 Introductory Physics  
Credit Weight: 1.0

Corequisite(s): Mathematics 1160 or 1180

Corequisite(s): Mathematics 1151 and 1152, or Mathematics 1171 and 1172

## DEPARTMENT OF PSYCHOLOGY

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<http://mycoursecalendar.lakeheadu.ca/pg254.html>

5. BSc (Psychology Major)  
Three Year program  
6. BSc (Psychology Major)  
Four Year program  
7. Honours BSc (Psychology Major)  
Four Year program  
8. Honours BSc (Specialized Honours in Psychology)  
Four Year program  
First Year:  
(b) Mathematics 1160 or Computer Science 1411 and 1431

5. BSc (Psychology Major)  
Three Year program  
6. BSc (Psychology Major)  
Four Year program  
7. Honours BSc (Psychology Major)  
Four Year program  
8. Honours BSc (Specialized Honours in Psychology)  
Four Year program  
First Year:  
(b) Mathematics 1151 and 1152 or Computer Science 1411 and 1431

## FACULTY OF EDUCATION

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<http://mycoursecalendar.lakeheadu.ca/pg636.html>

P/J Mathematics  
15. BA, BEd (Mathematics Major) P/J  
16. BSc, BEd (Mathematics Major) P/J  
Four Year program  
First Year:  
(a) Mathematics 1180

P/J Mathematics  
15. BA, BEd (Mathematics Major) P/J  
16. BSc, BEd (Mathematics Major) P/J  
Four Year program  
First Year:  
(a) Mathematics 1171 and 1172

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<http://mycoursecalendar.lakeheadu.ca/pg627.html>

2. BSc, BEd (Anthropology Major) P/J  
Four Year program  
First Year:

2. BSc, BEd (Anthropology Major) P/J  
Four Year program  
First Year:

(c) Three FCEs from: Biology 1110, 1130,  
Chemistry 1101, Geography 1120, Geology  
1110, 1130, Mathematics 0210, 1160,  
Business 1513, Physics 1101

(c) Three FCEs from: Biology 1110, 1130,  
Chemistry 1101, Geography 1120, Geology 1110,  
1130, Mathematics 0210, 1151, 1152, Business  
1513, Physics 1101

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<http://mycoursecalendar.lakeheadu.ca/pg645.html>

3. BSc, BEd (Chemistry Major) P/J  
Five Year Program  
First Year:  
(b) Mathematics 1180

3. BSc, BEd (Chemistry Major) P/J  
Five Year Program  
First Year:  
(b) Mathematics 1171 and 1172.

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<http://mycoursecalendar.lakeheadu.ca/pg656.html>

19. BSc, BEd (Physics Major) P/J  
Four Year program

19. BSc, BEd (Physics Major) P/J  
Four Year program

First Year:  
(b) Mathematics 1180

First Year:  
(b) Mathematics 1171 and 1172.

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<http://mycoursecalendar.lakeheadu.ca/pg653.html>

14. BA, BEd (Mathematics Major) J/I  
15. BSc, BEd (Mathematics Major) J/I  
Four Year program  
First Year:  
(a) Mathematics 1180

14. BA, BEd (Mathematics Major) J/I  
15. BSc, BEd (Mathematics Major) J/I  
Four Year program  
First Year:  
(a) Mathematics 1171 and 1172.

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<http://mycoursecalendar.lakeheadu.ca/pg644.html>

2. BSc, BEd (Anthropology Major) J/I  
Four Year program  
First Year:  
(c) Three FCEs from: Biology 1110, 1130,  
Chemistry 1101, Geography 1120, Geology  
1110, 1130, Mathematics 0210, 1160,  
Business 1513, Physics 1101

BSc, BEd (Anthropology Major) J/I  
Four Year program  
First Year:  
(c) Three FCEs from: Biology 1110, 1130,  
Chemistry 1101, Geography 1120, Geology 1110,  
1130, Mathematics 0210, 1151, 1152, Business  
1513, Physics 1101

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<http://mycoursecalendar.lakeheadu.ca/pg645.html>

3. BSc, BEd (Chemistry Major) J/I  
Five Year Program  
First Year:  
(b) Mathematics 1180

3. BSc, BEd (Chemistry Major) J/I  
Five Year Program  
First Year:  
(b) Mathematics 1171 and 1172.

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<http://mycoursecalendar.lakeheadu.ca/pg656.html>

18. BSc, BEd (Physics Major) J/I  
Four Year program  
First Year:

(b) Mathematics 1180

18. BSc, BEd (Physics Major) J/I  
Four Year program  
First Year:

(b) Mathematics 1171 and 1172.

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<http://mycoursecalendar.lakeheadu.ca/pg663.html>

2. BSc, BEd (Biology and Chemistry Majors)  
I/S  
Five Year program  
First Year:  
(d) Mathematics 1180

2. BSc, BEd (Biology and Chemistry Majors) I/S  
Five Year program  
First Year:  
(d) Mathematics 1171 and 1172.

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<http://mycoursecalendar.lakeheadu.ca/pg664.html>

4. BSc, BEd (Chemistry Major) I/S  
Five Year Program  
First Year:

(b) Mathematics 1180

4. BSc, BEd (Chemistry Major) I/S  
Five Year Program  
First Year:

(b) Mathematics 1171 and 1172.

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<http://mycoursecalendar.lakeheadu.ca/pg665.html>

6. BSc, BEd (Computer Science Major) I/S  
Four Year program  
First Year:

(b) Mathematics 1180, 1281

6. BSc, BEd (Computer Science Major) I/S  
Four Year program  
First Year:

(b) Mathematics 1171, 1172, and 1281.

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<http://mycoursecalendar.lakeheadu.ca/pg673.html>

16. BA, BEd (Mathematics Major) I/S  
Four Year program  
First Year:

(a) Mathematics 1180,

16. BA, BEd (Mathematics Major) I/S  
First Year:

(a) Mathematics 1171, 1172

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<http://mycoursecalendar.lakeheadu.ca/pg673.html>

17. BSc, BEd (Mathematics Major) I/S  
Four Year program  
First Year:

(a) Mathematics 1180, 1281

17. BSc, BEd (Mathematics Major) I/S  
Four Year program

First Year:

(a) Mathematics 1171, 1172, 1281

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<http://mycoursecalendar.lakeheadu.ca/pg674.html>

18. BSc, BEd (Physics Major) I/S  
Four Year program  
First Year:

(b) Mathematics 1180

18. BSc, BEd (Physics Major) I/S  
Four Year program

First Year:

(b) Mathematics 1171 and 1172.

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<http://mycoursecalendar.lakeheadu.ca/pg675.html>

21. BSc, BEd (Psychology Major) I/S  
Four Year program

22. BSc, BEd (Psychology Major) I/S  
Five Year program

First Year:

(b) Mathematics 1160 or Computer Science  
1411 and 1431

21. BSc, BEd (Psychology Major) I/S  
Four Year program

22. BSc, BEd (Psychology Major) I/S  
Five Year program

First Year:

(b) Mathematics 1151 and 1152, or Computer  
Science 1411 and 1431

Section 3

The Faculty(ies) affected by the proposed calendar change

Faculty of Science and Environmental Studies

**I have been consulted regarding the attached calendar change and understand the academic and budgetary implication on my Faculty.**

I agree to this calendar change proposal Yes  No

If you choose "No" please explain why in the box below

Name:

Faculty:

Date:

*John O'Meara*  
Signature of Dean

*John O'Meara*  
*John O'Meara* Oct 5/10

Name:	Department	Date	AGREE	Y/N
Stephen A. Kissin	Geology	October 4, 2010	Y	Y
ADAM VAN TUYL	Math	Sept 16, 2010	Y	Y
<i>[Signature]</i>	GEOA	Oct. 08/10	Y	Y
<i>[Signature]</i>	Psych	Sept 21, 2010	Y	Y
<i>[Signature]</i>	Undergraduate Studies in Education	Sept. 21, 2010	Y	Y
<i>[Signature]</i>	ECOENRPHY	OCT 4 2010	Y	Y
<i>[Signature]</i>	COMP SCI	Oct 4/2010	Y	Y
<i>[Signature]</i>	BIOINFORMATICS	Oct 7, 2010	Y	Y
<i>[Signature]</i>	Anthropology	04/10/2010	Y	Y
<i>[Signature]</i>	CHEM	Oct 10/10	Y	Y
William Seary	Physics	Oct 4, 2010	yes	yes
Heidi Schraft (Acting Biology)	Biology/ Appl. Biomed. Sci.	Oct. 4, 2010	Y	Y
<i>[Signature]</i>	ESM	Oct 4, 2010	Y	Y

## Mathematical Sciences Math 1160/1180

### Explanation of Questions with YES.

Question 1: This calendar change will affect all departments which have Math 1160 or 1180 as a program requirement or prerequisite for their courses.

Question 2: Math 1180 is a core course in our department, as well as many other science programs.  
Math 1160 is a core course in some other science programs.

Question 10: We teach Math 1160 as a service course for some departments.

Question 11: Students outside of science may take these courses to fulfill science electives (although I think this is rare).

Departments/Faculties which have 1160 as a program requirement; Education, Anthropology, ABMS, Biology, Environmental Studies, Geoarchaeology, Geography, Geology, Psychology.

Departments/Faculties which have 1180 as a program requirement; Education, ABMS, Biology, Bioinformatics,

Chemistry, Computer Science, Geology, Mathematics, Physics, Economics.