

## Request for Calendar Change Form

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

To From	Secretary of Senate Name(Dean): Dr. Andrew P. Dean Department the change relates to Department of Computer Science Contact Person Dr. M.W. Benson, Chair	Faculty Science and Environmental Studies
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Is the proposed calendar change Graduate

**Instructions:**

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

- |  |  |   |
|--|--|---|
| 1. Do the proposed changes affect other departments/ schools/faculties in terms of their calendar change?                                | Yes<br><input checked="" type="checkbox"/> | No<br><input type="checkbox"/>            |
| 2. Is a transition plan needed for student in progress?  | Yes<br><input checked="" type="checkbox"/> | No<br><input type="checkbox"/>            |
| 3. Are the proposed changes likely to affect student enrollment in your department/school/faculty?                                       | Yes<br><input checked="" type="checkbox"/> | No<br><input type="checkbox"/>            |
| 4. Are the proposed changes likely to affect student enrollment in other departments/schools/faculties at Lakehead University?           | Yes<br><input checked="" type="checkbox"/> | No<br><input 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 change in course(s) which is/are required core course(s) for a major?                                 | Yes<br><input checked="" type="checkbox"/> | No<br><input type="checkbox"/>            |
| 10. Do the proposed changes include a change in course which is service/required course(s) in another program?                           | Yes  | No  |

11. Do the proposed changes include change in course(s) which is/are open elective available to any student in any program?  Yes  No

12. Do the proposed changes include change in course(s) which is/are elective in a major i.e. restricted to students in a major?  Yes  No

Signatures:

Date approved by faculty council

Section 1
Description of the Proposed Calendar Change: A new graduate calendar entry for the new Masters of Science Degree in Computer Science
Rationale of the Proposed Calendar Change(s): (Corresponding to Section 2 where required)
With OCGS approval, we need a new calendar entry for the new Masters of Science Degree in Computer Science.

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

Item 1:  
Page 191 in 2008-2009 Calendar

Item 2:  
Page 353 in 2008-2009 Calendar

Item 3:  
Page 354 in 2008-2009 Calendar

Item 4:  
Page 346 in 2008-2009 Calendar

Item 1:  
Change:

Graduate Courses

Information regarding Computer Science courses  
at the graduate level and Graduate Programs  
offered by the Department of Mathematical  
Sciences may be found in the Faculty of Graduate  
Studies section of this Calendar on page 353

To:

Graduate Courses

Information regarding Computer Science courses  
at the graduate level and Graduate Programs  
offered by the Department of Computer Science  
may be found in the Faculty of Graduate Studies  
section of this Calendar on page XXX

Item 2:  
Add new Graduate Calendar entry after page 350  
in 2008-2009 Calendar

Department of Computer Science

Professor and Chair M. W. Benson

MSC (COMPUTER SCIENCE)  
Graduate Coordinator R. Wei

Core: Master's Thesis Supervisory  
M. W. Benson  
H. El Ocla  
J.A.W. Flaidhi  
L. Liu (Mathematics)  
S. Mohammed  
W. Shen (Adjunct)  
R. Wei

Non-Core

F. Allaire

## MASTER OF SCIENCE DEGREE IN COMPUTER SCIENCE

Candidates are accepted under the regulations governing the Master's degree (see page XXX) providing they also satisfy the requirements of the department as stated below:

A student entering the Master's program is expected to have at least a B grade average in an honours Computer Science program or equivalent from an accredited university and have had the necessary undergraduate prerequisites for the graduate courses he/she intends to take. None of the graduate courses are prerequisites for other graduate courses.

Application deadline is February 1 for admission in September. Late applications may be considered for admission, but may not be eligible for funding.

### PROGRAMS

#### (a) The Thesis Program:

A candidate admitted to the MSc Thesis Program will normally be expected to complete six half courses and a thesis (two FCE's) for a total of five FCE's. The half courses consist of: Computer Science 5111, a half course designated by the Department, two half courses in Computer Science at the graduate level and two other half courses at the graduate or fourth year level, at least one of which must be from the Department of Computer Science. Of the graduate Computer Science courses taken, one half course must be taken from each of at least two Groups (see Computer Science course groupings below). In addition, the candidate will be required to pursue a research program and complete a thesis which is considered the equivalent of two full courses. Successful completion of the thesis option requires an original contribution to a particular research area, approval of the written thesis by the examiners and a public oral presentation and defence of the thesis work.

#### (b) The Project Program:

The program consists of five FCE's: Computer Science 5800 and eight half courses which include Computer Science 5111, a half course designated by the Department, four half courses in Computer Science at the graduate level and two other half courses at the graduate or fourth year level, at least one of which must be from the Department of Computer Science. Of the graduate computer science courses taken, at least one half course

must be taken from each of at least two groups (see course groupings list below).

(c) The MSc Co-operative Option:

A graduate student normally will be admitted to this option after completion of three full graduate courses for a starting date in May.

Co-op employment for a minimum of eight months (two terms) must be successfully completed to satisfy co-op requirements for the degree; however students may be employed on co-op for up to a maximum of 16 months (four terms) as part of the program.

Students interested in a co-op placement should inform the Department's Co-op Advisor at least four months in advance of the proposed date of the placement (e.g., by late December for placements beginning in May). The Department's decision as to the suitability of each candidate will be based primarily on academic performance. Successful candidates will work with the Co-op office and the university Co-op Co-ordinator in their search for suitable employment. Upon completion of the co-op placement, the student will either complete a thesis (Thesis Program option) or complete the Project Program option requirements including the required project course.

#### Course Groupings

##### Group I:

Computer Science 5211 - Object Oriented Programming  
Computer Science 5212 - Programming Languages  
Computer Science 5213 - Computer Network Performance

##### Group II:

Computer Science 5311 - Applied Combinatorics  
Computer Science 5312 - Scientific and Parallel Computing  
Computer Science 5313 - Artificial Intelligence

##### Group III:

Computer Science 5450 - Mobile Programming  
Computer Science 5451 - Advanced Multimedia Programming  
Computer Science 5472 - Computer Graphics  
Computer Science 5473 - Computer Security

#### GRADUATE COURSES

Courses not offered this academic year (fall/winter terms) are indicated by the words "NOT OFFERED"

THIS YEAR" below the course description. Nevertheless, students should refer to the Timetable as a final check.

Because the content of special topics and reading courses may vary from year to year, students may take these courses more than once, with departmental permission.

Any course delivered in a reading course format requires departmental approval.

#### Computer Science 5111

Graduate Seminar

3-0; or 3-0

Seminars covering areas of computer science are normally presented by the instructor(s), and by students who are asked to study and discuss a number of papers. The course will emphasize effective independent research approaches in computer science including literature searches, discussion and presentation of research material, and the ability to identify possible new areas for investigation. Students who have taken Computer Science 5400 previously may not take Computer Science 5111 for credit.

#### Computer Science 5211

Object Oriented Programming

3-0; or 3-0

Students are taught to program well in an object-oriented style. The focus is more on object-oriented design and programming than on a particular language and its niceties. Topics covered will include OO design, test-driven development, refactoring, reuse, aspect-oriented, parameterization, distribution, inheritance and programming design patterns. Students who have previously taken Computer Science 5401 may not take this course for credit.

#### Computer Science 5212

Programming Languages

3-0; or 3-0

An examination of one or more of the following topics at an advanced level: logic programming, functional programming, abstract machines, declarative semantics, design and implementation issues. Students who have previously taken Computer Science 5410 may not take this course for credit.

#### Computer Science 5213

Computer Networks

3-0; or 3-0

Students learn how to improve the performance of networks in various ways such as congestion control, call admission control, routing techniques, QoS enhancement. Internetworking and real time multimedia transmission problems will be considered. Simulation and/or experiments will be used to verify and compare the proposed techniques. Attention will be paid to wireless networks (e.g. mobile IP, Ad Hoc networks).

Computer Science 5311

Applied Combinatorics

3-0; or 3-0

Topics are examined in one of the following areas: applied graph theory, combinatorial designs and its application in coding theory, combinatorial algorithms in enumeration and search.

Computer Science 5312

Scientific and Parallel Computing

3-0; or 3-0

Scientific computing topics from areas such as computational linear algebra, differential equations, multi scale methods, scattering problems and image processing are examined in the context of parallel algorithms. A significant part of the course will involve the use of parallel computing resources.

Computer Science 5313

Artificial Intelligence

3-0; or 3-0

Several of the following topics may be covered: logic programming, natural language processing, knowledge representation, uncertain reasoning, machine learning and knowledge discovery, expert systems, and neural networks. Students who have previously taken Computer Science 5415 may not take this course for credit.

Computer Science 5450

Mobile Programming

3-0; or 3-0

Software development in a wireless environment is examined. Students will develop applications capable of being displayed on wireless devices and programs using J2ME (Java 2 - Micro Edition) that will run on Java enabled phones at a MIDP 2.0 level. Program capabilities include connecting to Internet Services, managing interactive dialogs with the user, displaying simple graphics and playing games.

Computer Science 5451

Advanced Multimedia Programming.  
3-0; or 3-0

Efficient programming practices for creating digital media products as well as creating interactive applications using Java, Java3D, Java Media Framework and other design tools. Animation, computer games, Web and sound technology will be studied.

Computer Science 5472

Computer Graphics  
3-0; or 3-0

An examination of one or more of the following topics at an advanced level: surface representation, ray tracing, rendering, image processing, animation. Students who have previously taken Computer Science 5471 may not take this course for credit.

Computer Science 5473

Computer Security  
3-0; or 3-0

Several important research topics in one or more of the following areas are investigated: cryptography, computer network security, data security and information security.

Computer Science 5411 (ST)

Advanced Topics in Computer Science  
3-0; 0-0

Prerequisite: Permission of the Department  
Selected topics in computer science that will be designated by the Department on a case by case basis to fall within one of the above three groups (see group listings above)

Computer Science 5513 (ST)

Advanced Topics in Computer Science  
0-0; 3-0

Prerequisite: Permission of the Department  
Selected topics in computer science that will be designated by the Department on a case by case basis to fall within one of the above three groups (see group listings above)

Computer Science 5435 (ST)

Reading Course  
3-0; 0-0

Directed studies in an area of computer science that will be designated by the Department on a case by case basis to fall within one of the above three groups (see group listings above)



Computer Science 5437 (ST)

Reading Course

0-0; 3-0

Directed studies in an area of computer science that will be designated by the Department on a case by case basis to fall within one of the above three groups (see group listings above)

Computer Science 5800 (9800)

Project

A full year course of directed research that may involve any combination of theory or application in an area of computer science, as agreed to by the student and the research project supervisor in a "learning contract", which states what is to be done in the research project, how and when it will be done, and how it will be evaluated. A significant portion of the work will involve the preparation of a written research report along with a public presentation.

Computer Science 5901 (9901)

Master's Thesis

Computer Science 5990

Co-op Work Term I

Computer Science 5991

Co-op Work Term II

Computer Science 5992

Co-op Work Term III  
(Optional)

Computer Science 5993

Co-op Work Term IV  
(Optional)

Item 3:

Delete the following courses:

Computer Science 5400

Computer Science Graduate Seminar

Computer Science 5401

Object Oriented Programming

Computer Science 5410

Advanced Topics in Programming Languages

Computer Science 5415

Advanced Topics in Artificial Intelligence

Computer Science 5417  
Information Storage and Retrieval

Computer Science 5471  
Advanced Topics in Computer Graphics

Item 4:  
Change:

Mathematical Sciences (with Computer Science)

To:

Mathematical Sciences

Add:  
Computer Science

Section 3

The Faculty(ies) affected by the proposed calendar change

Department of Mathematical Sciences

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

I agree to this calendar change proposal

Yes

No

Name:

Faculty:

Date:

Signature of Dean