

Request for Calendar Change Form

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

Date:

To Secretary of Senate
From Name(Dean): Dr. Andrew P. Dean Faculty Faculty of Science & Environmental Studies
Department the change relates to PHYSICS
Contact Person Dr. William Sears

Is the proposed calendar change Undergraduate

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
<input checked="" type="checkbox"/> | No
<input type="checkbox"/> |
| 2. Is a transition plan needed for student in progress? | Yes
<input type="checkbox"/> | No
<input checked="" type="checkbox"/> |
| 3. Are the proposed changes likely to affect student enrollment in your department/school/faculty? | Yes
<input type="checkbox"/> | No
<input checked="" type="checkbox"/> |
| 4. Are the proposed changes likely to affect student enrollment in other departments/schools/faculties at Lakehead University? | Yes
<input type="checkbox"/> | No
<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
<input type="checkbox"/> | No
<input checked="" type="checkbox"/> |
| 6. Will the proposed changes affect existing teaching loads within your department/school/faculty? | Yes
<input type="checkbox"/> | No
<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
<input type="checkbox"/> | No
<input checked="" type="checkbox"/> |
| 8. Will the proposed change require direct or in-kind support from outside the academic unit? | Yes
<input type="checkbox"/> | No
<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
<input type="checkbox"/> | No
<input checked="" type="checkbox"/> |
| 10. Do the proposed changes include a change in course which is | Yes | No |

- 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
13/11/2008

Section 1

Description of the Proposed Calendar Change:
Rearrangement and rationalization of course offerings.

Rationale of the Proposed Calendar Change(s):
(Corresponding to Section 2 where required)

With the addition of a new faculty member, we are rearranging some of our course offerings.

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

Under heading PHYSICS COURSES
http://calendar.lakeheadu.ca/current/programs/Faculty_of_Science_%26_Env_St/phycrse.html

Physics 4313
Computer Acquisition and Control
0-0; 0-4
Prerequisite: Physics 3231
This course will introduce techniques for making physical measurements using computer-based instrumentation. The course also acts as an introduction to the graphical programming language LabVIEW. This language finds wide application in physics (and other) disciplines, for computer-based data acquisition and control.

Physics 3611
Computer Acquisition and Control
0-0; 0-4
Prerequisite: Physics 3231
This course will introduce techniques for making physical measurements using computer-based instrumentation. The course also acts as an introduction to the graphical programming language LabVIEW. This language finds wide application in physics (and other) disciplines, for computer-based data acquisition and control.

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Under heading PHYSICS COURSES

Physics 2151
Thermodynamics
0-0; 3-0

Physics 2151
Thermodynamics
3-0; 0-0

3

Under heading: 1. BSc (Physics Major) Three Year program
(http://calendar.lakeheadu.ca/current/programs/Faculty_of_Science_%26_Env_St/physprog.html)

Second Year:
(a) Physics 2111, 2211, 2311, 2331 and 2332
(b) Mathematics 2111 and 2131
(c) One and one-half FCE elective

Second Year:
(a) Physics 2111, 2151, 2211, 2311, 2331 and 2332
(b) Mathematics 2111 and 2131
(c) One FCE elective

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Under heading 1. BSc (Physics Major) Three Year program

Third Year:
(a) Physics 3113, 3211 and 3231
(b) One FCE in Physics

Third Year:
(a) Physics 3113, 3211 and 3231
(b) One half FCE in Physics at the third or fourth

- (c) Mathematics 3131 and 3133
- (d) One and one-half FCE elective

- year level
- (c) Mathematics 3131 and 3133
- (d) Two FCE electives

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Under heading 1. BSc (Physics Major) Three Year program

HBSc (Computer Science) Hardware Option
The Honours BSc (Computer Science) Hardware Option is designed for students interested in computer hardware and software, computer controlled instrumentation, virtual reality modelling, and simulation of physical systems. Students wishing to complete the requirements for a BSc in Physics following the HBSc (Computer Science) Hardware Option program must complete Chemistry 1110/1130 and Physics 2111 and 3113. See Department of Computer Science, page 170.

HBSc (Computer Science) Hardware Option
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Under heading 2. Honours BSc (Physics Major) Four Year program

Second Year:

- (a) Physics 2211, 2311, 2331 and 2332
- (b) Physics 2111 or 2151 (when given)
- (c) Mathematics 2111 and 2131
- (d) One and one-half FCE elective

Second Year:

- (a) Physics 2111, 2151, 2211, 2311, 2331 and 2332
- (b) Mathematics 2111 and 2131
- (c) One FCE elective

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Under heading 2. Honours BSc (Physics Major) Four Year program

Third Year:

- (a) Physics 3113, 3211 and 3231
- (b) Physics 2111 or 2151 (the one not previously taken)
- (c) Physics 4113 or 4171
- (d) Physics 3371 or 4211
- (e) A Physics half-course elective
- (f) Mathematics 3131 and 3133
- (g) A half-course elective

Third Year:

- (a) Physics 3113, 3211 and 3231
- (b) Physics 4113 or 4171
- (c) Physics 3371 or 4211
- (d) A Physics half-course elective at the third or fourth year level
- (e) Mathematics 3131 and 3133
- (f) One FCE elective

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Under heading 2. Honours BSc (Physics Major) Four Year program

Fourth Year:

- (a) Physics 4115
- (b) Two of Physics 4411, 4412 or 4313
- (c) Physics 4113 or 4171 (the one not

Fourth Year:

- (a) Physics 4115, 4411 and 4412
- (b) Physics 4113 or 4171 (the one not previously taken)

previously taken)
(d) Physics 3371 or 4211 (the one not previously taken)
(e) A Physics half-course elective
(f) Two FCE electives

(c) Physics 3371 or 4211 (the one not previously taken)
(d) A Physics half-course elective at the third or fourth year level
(e) Two FCE electives

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Under heading 3. Honours BSc (Physics) Co-operative Program

Second Year (Fall and Winter):
Same as Honours BSc (Physics Major) but both Physics 2111 and 2151 must be taken

Second Year (Fall and Winter):
Same as Honours BSc (Physics Major)

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Under heading 3. Honours BSc (Physics) Co-operative Program

Fourth Year (Fall):
(a) Physics 4115 and either 4411 or 4412
(b) Physics 4113 or 4171 (the one not previously taken)
(c) One FCE elective

Fourth Year (Fall):
(a) Physics 4115 and 4411
(b) Physics 4113 or 4171 (the one not previously taken)
(c) One FCE elective

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Under heading 3. Honours BSc (Physics) Co-operative Program

Fourth Year (Winter):
(a) Physics 3371 or 4211
(b) One half-course in physics
(c) One FCE elective
(d) Mathematics 3133

Fourth Year (Winter):
(a) Physics 3371 or 4211
(b) One half-course in physics at the third or fourth year level
(c) One FCE elective
(d) Mathematics 3133

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Under heading 3. Honours BSc (Physics) Co-operative Program

Fifth Year (Winter):
(a) Physics 3371 or 4211 (the one not previously taken)
(b) Physics 4313
(c) One half-course in Physics
(d) One FCE elective

Fifth Year (Winter):
(a) Physics 3371 or 4211 (the one not previously taken)
(b) Physics 4412
(c) One half-course in Physics at the third or fourth year level
(d) One FCE elective

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Under heading 5. Honours BSc (Mathematical Physics Major)

The program is the same as the Honours BSc

(Physics Major) program except that Mathematics 2255, 2275 and 3171 must be taken in place of elective courses, while Physics 4411, 4412 or 4313 are replaced by one FCE elective.

The program is the same as the Honours BSc (Physics Major) program except that Mathematics 2255, 2275 and 3171 must be taken in place of elective courses, while Physics 4411 and 4412 are replaced by one FCE elective.

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Under heading 6. Honours BSc (Physics) with Major Concentration in Applied Bio-Molecular Science, Four Year program

Second Year:

- (a) Physics 2211, 2311, 2331 and 2332
- (b) Physics 2111 or 2151 (when given)
- (c) Mathematics 2111 and 2131
- (d) Biology 2711* and 2230*
- (e) Chemistry 2211*

Second Year:

- (a) Physics 2211, 2311, 2331 and 2332
- (b) Physics 2111 or 2151
- (c) Mathematics 2111 and 2131
- (d) Biology 2711* and 2230*
- (e) Chemistry 2211*

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Under heading 6. Honours BSc (Physics) with Major Concentration in Applied Bio-Molecular Science, Four Year program

Third Year:

- (a) Physics 3113, 3211 and 3231
- (b) Physics 2111 or 2151 (the one not previously taken)
- (c) Two half-course electives in Physics
- (d) Mathematics 3131 and 3133
- (e) Chemistry 2231*
- (f) Anthropology 3138* or Biology 2910*

Third Year:

- (a) Physics 3113, 3211 and 3231
- (b) Physics 2111 or 2151 (the one not previously taken)
- (c) One FCE in Physics at the third or fourth year level
- (d) Mathematics 3131 and 3133
- (e) Chemistry 2231*
- (f) Anthropology 3138* or Biology 2910*

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Under heading 6. Honours BSc (Physics) with Major Concentration in Applied Bio-Molecular Science, Four Year program

Fourth Year:

- (a) Two of: Physics 4411, 4412 or 4313
- (b) Three half-courses in Physics at the fourth year level
- (c) Two of Anthropology 3136*, 3139*, 4417*, 4419*, Biology 3250*, 3330*, 3711*, 4230* or 4711*
- (d) Chemistry 3251
- (e) One FCE elective

Fourth Year:

- (a) Physics 4411 and 4412
- (b) Three half-courses in Physics at the fourth year level
- (c) Two of Anthropology 3136*, 3139*, 4417*, 4419*, Biology 3250*, 3330*, 3711*, 4230* or 4711*
- (d) Chemistry 3251
- (e) One FCE elective

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Under heading 18. BSc, BEd (Physics Major)
P/J

<http://calendar.lakeheadu.ca/current/programs>

[/Faculty_of_Education/educusieprogj.html](#)

Third Year:

- (a) Physics 3113, 3211 and 3231
- (b) One FCE in Physics
- (c) Mathematics 3131, 3133
- (d) One half-course in Music or Visual Arts
- (e) Education Third Year P/J Core Courses. See page 61.

Third Year:

- (a) Physics 2151, 3113, 3211 and 3231
- (b) One half FCE in Physics at the third or fourth year level
- (c) Mathematics 3131, 3133
- (d) One half-course in Music or Visual Arts
- (e) Education Third Year P/J Core Courses. See page 61.

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Under heading 18. BSc, BEd (Physics Major)

J/I

http://calendar.lakeheadu.ca/current/programs/Faculty_of_Education/educusieprogji.html

Third Year:

- (a) Physics 3113, 3211 and 3231
- (b) One FCE in Physics
- (c) Mathematics 3131, 3133
- (d) One half-course in Music or Visual Arts
- (e) Education Third Year J/I Core Courses. See page 66.

Third Year:

- (a) Physics 2151, 3113, 3211 and 3231
- (b) One half FCE in Physics at the third or fourth year level
- (c) Mathematics 3131, 3133
- (d) One half-course in Music or Visual Arts
- (e) Education Third Year J/I Core Courses. See page 66.

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Under heading 18. BSc, BEd (Physics Major)

I/S

http://calendar.lakeheadu.ca/current/programs/Faculty_of_Education/educusieprogis.html

Third Year:

- (a) Physics 3113, 3211 and 3231
- (b) One FCE in Physics
- (c) Mathematics 3131, 3133
- (d) One half-course elective
- (e) Education Third Year I/S Core Courses. See page 72.

Third Year:

- (a) Physics 2151, 3113, 3211 and 3231
- (b) One half FCE in Physics at the third or fourth year level
- (c) Mathematics 3131, 3133
- (d) One half-course elective
- (e) Education Third Year I/S Core Courses. See page 72.

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Under heading 1. Honours BSc (Computer Science) (c) Hardware Option

http://calendar.lakeheadu.ca/current/programs/Faculty_of_Science_%26_Env_St/compprog.html

Fourth Year (Winter):

- (a) Mathematics 2275
- (b) Computer Science 4475 and a half-course Computer Science elective
- (c) Physics 3313
- (d) One half-course elective

Fourth Year (Winter):

- (a) Mathematics 2275
- (b) Computer Science 4475 and a half-course Computer Science elective
- (c) Physics 3611
- (d) One half-course elective

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Under heading HBS (Computer Science) (c)
Hardware Option
http://calendar.lakeheadu.ca/current/programs/Faculty_of_Science_%26_Env_St/compprog.html

Fifth Year (Winter):

- (a) Computer Science 4453 and one half-course Computer Science elective
- (b) Physics 3311, 4313
- (c) One half-course elective

Fifth Year (Winter):

- (a) Computer Science 4453 and one half-course Computer Science elective
- (b) Physics 3311
- (c) Two half-course electives

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Under heading BSc (Physics)

BSc (Physics)

Students wishing to complete the requirements for a BSc in Physics following the HBS (Computer Science) Hardware Option program must complete Chemistry 1101 and Physics 2111 and 3113.

BSc (Physics)

Students wishing to complete the requirements for a BSc in Physics following the HBS (Computer Science) Hardware Option program must complete Chemistry 1101 and Physics 2111 and 3113 and have a total of at least 6 FCE in Physics.

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Under heading List of Program Electives

Physics:

Physics 2211 - Intermediate Electricity and Magnetism
Physics 3231 - Introductory Electronics
Physics 3313 - Experimental Physics I - Computer Interfacing
Physics 4313 - Microprocessor Applications

Physics:

Physics 2211 - Intermediate Electricity and Magnetism
Physics 3231 - Introductory Electronics
Physics 3611 - Computer Acquisition and Control

Section 3

The Faculty(ies) affected by the proposed calendar change

Education

Computer Science *I Years 20, 21, 22, 23, 24 have been approved by the Dept of Comp Sci. Follows*

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:

*Andrew P. Dean
Dean SES*

Faculty:

Date:

Nov. 14 108

Signature of Dean



Section 3

The Faculty(ies) affected by the proposed calendar change

Education

Computer Science

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:

J. O'MEARA

Faculty:

EDUC

Date:

NOV 12/08

Signature of Dean



Section 3

The Faculty(ies) affected by the proposed calendar change

Education

Computer Science

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

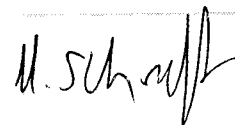
No

Name: H. Schraft

Faculty: SES, Applied Biomolecular Science Program

Date: Dec. 4, 2008

Signature of ~~Dean~~
Program
Coordinator



Section 3

The Faculty(ies) affected by the proposed calendar change

Education

Computer Science

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

Items 20, 21, 22, 23 have the approval of the Department of Computer Science

Name: *Frank Allaire*

Faculty/Dept: *Science & Env Studies Computer Science*

Date: *Dec 4 2008*

Signature of ~~Dean~~ *Chair*

Frank Allaire
acting chair.