



Maggie Benston Student Services
Centre 1100
8888 University Drive
Burnaby, BC
Canada V5A 1S6

TEL 778.782.3042
FAX 778.782.3080

report-dgs@sfu.ca
www.sfu.ca/Dean-
GradStudies

MEMORANDUM

ATTENTION Senate
FROM Wade Parkhouse, Dean of Graduate
Studies
RE: Faculty of Science

DATE 5 December 2012
No. GS2012.39, GS2012.44

For information:

Acting under delegated authority at its meeting of 3 December, 2012, SGSC approved the following curriculum revision:

Effective Date is Summer 2013

Faculty of Science

- a) Department of Earth Sciences [GS2012.44]
 - 1. New course: EASC 609-3
Interferometric Synthetic Aperture Radar Remote Sensing Applications

- b) Department of Physics [GS2012.39]
 - MSc Program:
 - 1. Admission Requirements
 - 2. Program Requirements
 - i) New course: PHYS 802-2 Introduction to Graduate Studies: Research and Teaching in Physics
 - 3. Change units: PHYS 898-18 MSc Thesis

 - PhD Program:
 - 1. Admission Requirements
 - 2. Program Requirements
 - i) New course: PHYS 802-2 Introduction to Graduate Studies: Research and Teaching in Physics
 - 3. Language requirement

- c) Department of Statistics and Actuarial Science
 - 1. Minor course change: STATS 895 (variable units 1-4)

MEMO

Faculty of Science

ATTENTION Wade Parkhouse, Dean, Graduate Studies

FROM Peter Ruben, Associate Dean, Research and Graduate
Studies, Faculty of Science

RE Physics Curriculum Changes

DATE December 6, 2012

TIME 2:02 PM

The following changes have been approved by the Faculty of Science and are forwarded for approval by the Senate Graduate Studies Committee. Please include them on the next SGSC agenda.

Physics

1. Changes to the Physics MSc program
2. Changes to the Physics PhD program
3. New Graduate Course Proposal Form: PHYS 802
4. Graduate Course Minor Change Form: PHY898



P. Ruben



Department of Physics
 Graduate Programs
 P8429 Shrum Science Centre
 8888 University Drive, Burnaby, BC
 Canada V5A 1S6

OFFICE 778.782.4465
 DIRECT 778.782.4310
 FACSIMILE 778.782.3592

physgrad@sfu.ca
 www.physics.sfu.ca

MEMORANDUM

ATTENTION	Faculty of Science, Graduate Studies Committee Senate Graduate Studies Committee	DATE	December 10, 2012
FROM	Steve Dodge, Physics Graduate Program Chair	PAGES	2
RE:	Department of Physics Calendar Change Request – MSc Program		

Please find following a summary of and rationale for changes to MSc admission and program requirements approved for submission to the Faculty Graduate Studies Committee at the Physics department meeting held on June 28, 2012. Detailed calendar edits are attached.

Summary of Changes

Admission Requirements

- Replace specific degree programs with specific course requirements and a general program description.
- Remove the 3.0 GPA requirement as it duplicates University requirements.
- Add specific reference to University requirements.

Program Requirements

- Reduce overall course requirements, from 17 units to 15 units.
- Eliminate the option to count 3 undergraduate credits toward the overall course requirements.
- Add a new course, PHYS 802, to the list of courses required of all students.
- Remove PHYS 810 and PHYS 821 from the first list of courses, required of all students.
- Add PHYS 810 and PHYS 821 to the second list of courses, from which students are required to choose at least one.
- Remove PHYS 812 from the second list of courses, from which students are required to choose at least one.
- Remove language that provides for additional courses "to remedy deficiencies in background".
- Add language to grant supervisory committees the discretion to require additional courses, subject to graduate program committee approval.
- Add language to provide guidance on course selection.
- Reformat course requirements and thesis requirements so that they both appear as part of the overall program requirements.

Thesis

- Change emphasis from "conducting original research" to "develop the skills necessary to perform independent research".

Foreign Language Requirement

- Remove the foreign language requirement

Rationale

Overall, these changes are designed to establish a stronger focus on research training in our MSc program, facilitate more timely degree completion, and provide greater course flexibility for terminal MSc students while maintaining the standards of subject mastery expected of the PhD program.

The admission requirements are more explicit about the undergraduate course requirements for admission. With more relaxed MSc course requirements, this will help ensure that we maintain a uniform educational level among entering MSc students.

The new minimum course requirements are more consistent with other Science programs at SFU and with the Physics Departments of the University of Toronto, McMaster University, the University of Alberta, and the University of Victoria, all of which require four one-semester courses for an MSc in Physics. We believe the new requirements are more appropriate for terminal MSc students, who will probably benefit most from their research experience. We are also proposing changes to the course requirements of our PhD program so that our joint MSc and PhD course requirements remain largely unchanged. The addition of PHYS 802, "Introduction to graduate research and teaching in physics", is designed to provide a structured introduction to graduate teaching and research, and encourage students to begin thinking about research upon arrival.

The changes to the thesis requirement are designed to distinguish more clearly between the MSc thesis and the PhD thesis.

The removal of the foreign language requirement reflects the historical trend toward English as the dominant language of science. The Physics Department has not enforced this requirement in over ten years.

Admission Requirements

~~Applicants to the master of science (MSc) program will have a 3.0 cumulative grade point average (CGPA) or equivalent in honours physics, honours mathematics and physics, engineering physics, or electrical engineering.~~

A bachelor's degree in physics or a related subject, including advanced undergraduate coursework in quantum mechanics, electromagnetism, and statistical mechanics is required. Applicants whose primary language is not English must submit English proficiency examination results that meet the University minimum requirements for graduate admission, as per Graduate General Regulation 1.3.12.

Program Requirements

Course Requirements

The minimum requirement is the completion of ~~47~~ 15 graduate units, ~~of which at least 14 must be in graduate courses, and will normally include~~ including all of

- PHYS 801-12 Student Seminar
- PHYS 802-2 Introduction to graduate research and teaching in physics
- PHYS 810-3 Advanced Quantum Mechanics
- PHYS 821-3 Electromagnetic Theory

and at least one of

- PHYS 810-3 Advanced Quantum Mechanics
- PHYS 821-3 Electromagnetic Theory
- PHYS 841-3 Statistical Mechanics

and one of

- PHYS 812-3 Introduction to Quantum Field Theory
- PHYS 841-3 Statistical Mechanics

~~Additional undergraduate courses, including prerequisites to required graduate courses, may be required to remedy deficiencies in background.~~

Additional courses beyond the minimum of 15 graduate units may be required by a student's supervisory committee, subject to graduate program committee approval. Students are strongly advised to consult the Physics Department web site and with potential supervisors before choosing MSc courses. Also, students who intend to pursue a PhD in Physics after completing the MSc are advised to review the PhD course requirements.

Research and Thesis Requirements

~~Part of the program is conducting original research. A thesis describing this research is submitted and defended at the program's conclusion.~~
Students are expected to develop the skills necessary to perform independent research

through participation in supervised original research. A thesis that demonstrates these skills is submitted and defended at the program's conclusion.

Language Requirement

~~In certain areas of research, familiarity with languages other than English may be important so a student's supervisory committee may require a reading knowledge of one such language.~~

Current calendar description:

Admission Requirements

Applicants to the master of science (MSc) program will have a 3.0 cumulative grade point average (CGPA) or equivalent in honours physics, honours mathematics and physics, engineering physics, or electrical engineering.

Program Requirements

The minimum requirement is the completion of 17 units, of which at least 14 must be in graduate courses, and will normally include all of

PHYS 801-2 Student Seminar

PHYS 810-3 Advanced Quantum Mechanics

PHYS 821-3 Electromagnetic Theory

and one of

PHYS 812-3 Introduction to Quantum Field Theory

PHYS 841-3 Statistical Mechanics

Additional undergraduate courses, including prerequisites to required graduate courses, may be required to remedy deficiencies in background.

Thesis

Part of the program is conducting original research. A thesis describing this research is submitted and defended at the program's conclusion.

Language Requirement

In certain areas of research, familiarity with languages other than English may be important so a student's supervisory committee may require a reading knowledge of one such language.

Proposed calendar description:

Admission Requirements

A bachelor's degree in physics or a related subject, including advanced undergraduate coursework in quantum mechanics, electromagnetism, and statistical mechanics is

required. Applicants whose primary language is not English must submit English proficiency examination results that meet the University minimum requirements for graduate admission, as per Graduate General Regulation 1.3.12.

Program Requirements

Course Requirements

The minimum requirement is the completion of 15 graduate units, including all of

PHYS 801-1 Student Seminar

PHYS 802-2 Introduction to graduate research and teaching in physics

and at least one of

PHYS 810-3 Advanced Quantum Mechanics

PHYS 821-3 Electromagnetic Theory

PHYS 841-3 Statistical Mechanics

Additional courses beyond the minimum of 15 graduate units may be required by a student's supervisory committee, subject to graduate program committee approval. Students are strongly advised to consult the Physics Department web site and with potential supervisors before choosing MSc courses. Also, students who intend to pursue a PhD in Physics after completing the MSc are advised to review the PhD course requirements.

Research and Thesis Requirements

Students are expected to develop the skills necessary to perform independent research through participation in supervised original research. A thesis that demonstrates these skills is submitted and defended at the program's conclusion.



Department of Physics
 Graduate Programs
 P8429 Shrum Science Centre
 8888 University Drive, Burnaby, BC
 Canada V5A 1S6

OFFICE 778.782.4465
 DIRECT 778.782.4310
 FACSIMILE 778.782.3592

physgrad@sfu.ca
 www.physics.sfu.ca

MEMORANDUM

ATTENTION	Faculty of Science, Graduate Studies Committee Senate Graduate Studies Committee	DATE	November 26, 2012
FROM	Steve Dodge, Physics Graduate Program Chair	PAGES	2
RE:	Department of Physics Calendar Change Request – PhD Program		

Please find following a summary of and rationale for changes to PhD admission and program requirements approved for submission to the Faculty Graduate Studies Committee at the Physics department meeting held on June 28, 2012. Detailed calendar edits are attached.

Summary of Changes*Admission Requirements*

- Group admission and transfer requirements under one heading.
- Add specific references to University admission requirements.
- Remove the 3.67 GPA requirement for direct transfer in favour of the 3.5 GPA requirement set by the University.

Program Requirements

- Add a section on overall requirements.
- Establish a separate course requirement section.
- Provide a framework to award credit for previous graduate coursework.
- Add a new course, PHYS 802, to the list of courses required of all students.
- Establish core course requirements.
- Group research and thesis requirements under program requirements.

Foreign Language Requirement

- Remove the foreign language requirement.

Rationale

Overall, these changes are designed to communicate more clearly the departmental standards for the PhD degree, and to provide more uniform course requirements for students with varying academic preparation.

The addition of PHYS 802, "Introduction to graduate research and teaching in physics", is designed to provide a structured introduction to graduate teaching and research at SFU. The remaining course requirements are PHYS 801, three core courses, and four electives. This is one course fewer than the current total course requirements for the MSc and the PhD programs at SFU, which are PHYS 801,

three core courses, and five electives.

The removal of the foreign language requirement reflects the historical trend toward English as the dominant language of science. The Physics Department has not enforced this requirement in over ten years.

Admission Requirements

To qualify for admission to the doctor of philosophy (PhD) program, a student must have a ~~A~~ master's degree, or the equivalent, in physics, or the equivalent, is required. Applicants whose primary language is not English must submit English proficiency examination results that meet the University minimum requirements for graduate admission, as per Graduate General Regulation 1.3.12.

Students who have demonstrated strong academic and research performance may transfer directly from the Master's program to the doctoral program, with the approval of the student's supervisory committee. See also the Graduate General Regulation 1.3.4 on University transfer requirements.

Admission from a Master's Program to the PhD Program

A student may be admitted from a master of science (MSc) program with a 3.67 cumulative grade point average (CGPA) calculated over a minimum of 15 graduate units, and approval of the student's supervisory committee and the senate graduate studies committee.

Program Requirements

Overall Requirements

1. PhD students must demonstrate the ability to perform and disseminate independent research that makes a significant, publishable contribution to knowledge in the discipline.
2. PhD students must demonstrate the following disciplinary knowledge:
 - mastery of the core subjects in physics, which include classical mechanics, electromagnetism, quantum mechanics, and statistical mechanics;
 - mastery of more specialized topics related to one's research topic; and
 - breadth of knowledge in physics at an advanced level.

Course Requirements

The minimum course requirements for the Physics PhD program are determined on an individual basis. Upon admission, the graduate program committee will review a student's previous coursework and set minimum requirements according to the guidelines provided below. In exceptional circumstances, the graduate program committee may allow the student to proceed without additional course work over and above that for a master's degree. With the approval of the graduate program committee, the supervisory committee may also require additional coursework beyond those specified at admission to the PhD program.

PhD course requirement guidelines

For a student entering the PhD program after completing an MSc in Physics at SFU, the minimum course requirement is 9 additional graduate units, which will include any of the following core courses that were not completed previously:

Core professional skills:

PHYS 801-1 Student Seminar

PHYS 802-2 Introduction to graduate research and teaching in physics

Core physics content:

PHYS 810-3 Advanced Quantum Mechanics

PHYS 821-3 Electromagnetic Theory

PHYS 841-3 Statistical Mechanics

Graduate units beyond the 15 units required for the MSc may be transferred to the PhD, subject to the approval of the graduate program committee. For example, a student who has completed 18 graduate units during the MSc program at SFU will typically be required to complete 6 units in the PhD program.

For a student entering the PhD program directly from another institution, the graduate program committee will award credit for equivalent coursework upon admission. No equivalent credit will be given for the two core professional skills courses, and an award of equivalent credit for any of the three core physics content courses may require further approval after the student has begun the program. The minimum PhD course requirements will then be set as for a student entering with an MSc in Physics from SFU. For example, a student who has completed six one-semester graduate courses in physics would typically be awarded 18 units of equivalent graduate course credit, so that the minimum PhD requirement would be 6 additional graduate units, including any core courses that were not completed previously.

~~The minimum requirement consists of nine graduate units beyond the master's or equivalent degree.~~

~~Students who have not previously received credit for PHYS 801 must complete this course as well.~~

~~Faculty of Science requirements must also be met.~~

Research & Thesis Requirements

A major portion of this program is conducting original research. A thesis, embodying new and important results or original research, must be presented and defended at the conclusion of the degree program.

Language Requirement

~~In certain areas of research, familiarity with languages other than English may be important so a student's supervisory committee may require a reading knowledge of one such language.~~

Current calendar description:

Admission Requirements

To qualify for admission to the doctor of philosophy (PhD) program, a student must have a master's degree, or the equivalent, in physics.

Admission from a Master's Program to the PhD Program

A student may be admitted from a master of science (MSc) program with a 3.67 cumulative grade point average (CGPA) calculated over a minimum of 15 graduate units, and approval of the student's supervisory committee and the senate graduate studies committee.

Program Requirements

The minimum requirement consists of nine graduate units beyond the master's or equivalent degree.

Students who have not previously received credit for PHYS 801 must complete this course as well.

Faculty of Science requirements must also be met.

Research

A major portion of this program is conducting original research. A thesis, embodying new and important results or original research, must be presented and defended at the conclusion of the degree program.

Language Requirement

In certain areas of research, familiarity with languages other than English may be important so a student's supervisory committee may require a reading knowledge of one such language.

Proposed calendar description:

Admission Requirements

A master's degree in physics, or the equivalent, is required. Applicants whose primary language is not English must submit English proficiency examination results that meet the University minimum requirements for graduate admission, as per Graduate General Regulation 1.3.12.

Students who have demonstrated strong academic and research performance may transfer directly from the Master's program to the doctoral program, with the approval of the student's supervisory committee. See also the Graduate General Regulation 1.3.4 on University transfer requirements.

Program Requirements

Overall Requirements

1. PhD students must demonstrate the ability to perform and disseminate independent research that makes a significant, publishable contribution to knowledge in the discipline.
2. PhD students must demonstrate the following disciplinary knowledge:
 - mastery of the core subjects in physics, which include classical mechanics, electromagnetism, quantum mechanics, and statistical mechanics;
 - mastery of more specialized topics related to one's research topic; and
 - breadth of knowledge in physics at an advanced level.

Course Requirements

The minimum course requirements for the Physics PhD program are determined on an individual basis. Upon admission, the graduate program committee will review a student's previous coursework and set minimum requirements according to the guidelines provided below. In exceptional circumstances, the graduate program committee may allow the student to proceed without additional course work over and above that for a master's degree. With the approval of the graduate program committee, the supervisory committee may also require additional coursework beyond those specified at admission to the PhD program.

PhD course requirement guidelines

For a student entering the PhD program after completing an MSc in Physics at SFU, the

minimum course requirement is 9 additional graduate units, which will include any of the following core courses that were not completed previously:

Core professional skills:

PHYS 801-1 Student Seminar

PHYS 802-2 Introduction to graduate research and teaching in physics

Core physics content:

PHYS 810-3 Advanced Quantum Mechanics

PHYS 821-3 Electromagnetic Theory

PHYS 841-3 Statistical Mechanics

Graduate units beyond the 15 units required for the MSc may be transferred to the PhD, subject to the approval of the graduate program committee. For example, a student who has completed 18 graduate units during the MSc program at SFU will typically be required to complete 6 units in the PhD program.

For a student entering the PhD program directly from another institution, the graduate program committee will award credit for equivalent coursework upon admission. No equivalent credit will be given for the two core professional skills courses, and an award of equivalent credit for any of the three core physics content courses may require further approval after the student has begun the program. The minimum PhD course requirements will then be set as for a student entering with an MSc in Physics from SFU. For example, a student who has completed six one-semester graduate courses in physics would typically be awarded 18 units of equivalent graduate course credit, so that the minimum PhD requirement would be 6 additional graduate units, including any core courses that were not completed previously.

Research and Thesis Requirements

A major portion of this program is conducting original research. A thesis, embodying new and important results or original research, must be presented and defended at the conclusion of the degree program.



New Graduate Course Proposal Form

PROPOSED COURSE

Program (eg. ECON) PHYS	Number (eg. 810) 802	Units (eg. 4) 2
Course Title (max 80 characters) Introduction to Graduate Studies: Research and Teaching in Physics		
Short Title (appears on transcripts, max 25 characters) Intro to grad studies		
Course Description for SFU Calendar <input checked="" type="checkbox"/> see attached document <input type="checkbox"/> Learning outcomes identified Basic skills for research and teaching in physics. Required for all students beginning an MSc or PhD degree in physics.		
Available Course Components: <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Seminar <input type="checkbox"/> Laboratory <input type="checkbox"/> Practicum <input type="checkbox"/> Online <input type="checkbox"/> _____		
Grading Basis <input type="checkbox"/> Graded <input checked="" type="checkbox"/> Satisfactory/Unsatisfactory <input type="checkbox"/> In Progress/Complete		
Prerequisites (if any) <input type="checkbox"/> see attached document		
<input type="checkbox"/> This proposed course is combined with an undergrad course: Course number and units: _____		
Additional course requirements for graduate students <input type="checkbox"/> See attached document (if this space is insufficient)		
Campus at which course will be offered (check all that apply) <input checked="" type="checkbox"/> Burnaby <input type="checkbox"/> Vancouver <input type="checkbox"/> Surrey <input type="checkbox"/> GNW <input type="checkbox"/> _____		
Estimated enrolment 10	Date of initial offering 1127	Course delivery (eg. 3 hrs/week for 13 weeks) 2 hrs/week for 13 weeks
Justification <input type="checkbox"/> See attached document To provide a structured introduction to graduate research and teaching.		

RESOURCES

If additional resources are required to offer this course, the department proposing the course should be prepared to provide information on the source(s) of those additional resources.

Faculty member(s) who will normally teach this course <input type="checkbox"/> information about their competency to teach the course is appended Physics faculty
Number of additional faculty members required in order to offer this course None
Additional space required in order to offer this course <input type="checkbox"/> see attached document None
Additional specialized equipment required in order to offer this course <input type="checkbox"/> see attached document None
Additional Library resources required (append details) <input type="checkbox"/> Annually \$ _____ <input type="checkbox"/> One-time \$ _____ None

PROPOSED COURSE from first page

Program (eg. ECON) PHYS	Number (eg. 810) 802	Units (eg. 4) 2
Course title (max 80 characters) Introduction to Graduate Studies: Research and Teaching in Physics		

APPROVAL SIGNATURES

When a department proposes a new course it must first be sent to the chairs of each faculty graduate program committee where there might be an overlap in course content. The chairs will indicate that overlap concerns have been dealt with by signing the appropriate space or via a separate memo or e-mail (attached to this form).

The new course proposal must also be sent to the Library for a report on library resources.

Once overlap concerns have been dealt with, signatures indicate approval by the department, home faculty and Senate Graduate Studies Committee.

Other Faculties

The signature(s) below indicate that the Dean(s) or designate of other Faculties affected by the proposed new course support(s) the approval of the new course.

Name of Faculty	Signature of Dean or Designate	Date
FASS	<i>email</i>	<i>Sept 21, 2012</i>
<i>Beedie school of Business</i>	<i>email</i>	<i>Sept 21, 2012</i>
FENV	<i>email</i>	<i>Sept 21, 2012</i>

Departmental Approval (non-departmentalized faculties need not sign)

Department Graduate Program Committee Steve Dodge	Signature <i>Steve Dodge</i>	Date <i>Sept. 20, 2012</i>
Department Chair Simon Watkins	Signature <i>Simon Watkins</i>	Date <i>Sept 20, 2012</i>

Faculty Approval

Faculty approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/Department commits to providing the required Library funds and any other necessary resources.

Faculty Graduate Program Committee	Signature <i>[Signature]</i>	Date <i>21 Sept 2012</i>
------------------------------------	---------------------------------	-----------------------------

Senate Graduate Studies Committee Approval

SGSC approval indicates that the Library report has been seen, and all resource issues dealt with. Once approved, new course proposals are sent to Senate for information.

Senate Graduate Studies Committee W Partridge	Signature <i>W Partridge</i>	Date <i>Dec 11/12</i>
---	---------------------------------	--------------------------

CONTACT

Upon approval of the course, the Dean of Graduate Studies office will consult with the department or school regarding other course attributes that may be required to enable the proper entry of the new course in the student record system.

Department / School / Program Physics	Contact name Steve Dodge	Contact email jsdodge@sfu.ca
---	------------------------------------	--

17

Login

Home

About SFU Physics

Teaching

Research

People

PHYS 802-2 – Introduction to Graduate Studies: Research and Teaching in Physics

Dodge, J. Steven <jsdodge(at)sfu(dot)ca>
 Phone 778.782.4736
 Fax 778.782.3592

Basic skills for research and teaching in physics. Required for all students beginning an MSc or PhD degree in physics.

Students will meet on a weekly basis with the course instructor to develop skills in research and teaching. Students will also work with a course supervisor, chosen from the physics faculty, to develop a preliminary thesis research proposal. See below for a detailed schedule of class activities and assignments.

Week	Topic	Assignment due
1	Orientation to department, degree requirements, course requirements	
2	TA training I: running tutorials and labs	Choose course supervisor
3	TA training II: marking strategies	Choose proposal topic
4	TA training III: overview of research on teaching and learning physics	Submit preliminary bibliography
5	Research planning: establishing goals	Submit a list of goals for next week, month, semester, and year, including one research goal to be completed by the end of the course.
6	Time management in graduate school	Description and analysis of time usage during the last week
7	Review and discussion of individual research plans	Monthly research plan for the next four semesters
8	Close reading of a research proposal	Draft research proposal: one-page summary
9	Close reading of a journal article	Draft research proposal: objectives and literature review
10	Peer assessment and revision of individual proposals	Draft research proposal: methodology and plan; significance
11	Peer assessment and revision of individual proposals	Revised research proposal
12	Academic integrity: fabrication, falsification, and plagiarism	Final research proposal
13	Mock proposal review	Report on progress toward research goal (see Week 5)

Patricia Gosling and Bart Noordam, *Mastering Your PhD: Survival and Success In the Doctoral Years and Beyond*

Grading for students will be Satisfactory (S)/Unsatisfactory (U). Attendance is mandatory.

Students who cannot write their exam during the course's scheduled exam time must request accommodation from their instructor in writing, clearly stating the reason for this request, before the end of the first week of classes.

18

SFU Connect

physgrad@sfu.ca

Re: Request for Library Report for New Grad Course Proposal - Physics

From : Ivana Niseteo <iniseteo@sfu.ca> Tue, Jul 03, 2012 01:47 PM
Subject : Re: Request for Library Report for New Grad Course Proposal - Physics 1 attachment
To : physgrad@sfu.ca
Cc : Patty Gallilee <plg@sfu.ca>

Dear Rose,

I have now added the course PHYS 802: *Introduction to Graduate Studies: Research and Teaching in Physics* to the Library Course Assessments page <http://www.lib.sfu.ca/collections/course-assessments> , which will be adequate proof of library sign-off.

Best,
 Ivana

~ ~ ~ ~ ~

Ivana Niseteo, MA, MLIS
 Collections Librarian
 Liaison Librarian for Linguistics, French, Humanities, French Cohort in Arts
 Bennett Library, Simon Fraser University
 Tel: 778.782.6838 | Fax: 778.782.6926 | iniseteo@sfu.ca

From: "Todd Mundle" <Todd.Mundle@kwantlen.ca>
To: "Physics Graduate Secretary SFU" <physgrad@sfu.ca>
Cc: "Patty Gallilee" <plg@sfu.ca>, "iniseteo@sfu.ca" <iniseteo@sfu.ca>
Sent: Tuesday, July 3, 2012 10:19:51 AM
Subject: RE: Request for Library Report for New Grad Course Proposal - Physics

Hi Rose,

I have moved on from my position at SFU and Patty Gallilee has taken over my Collections role in the interim. I've cc'd her in this message so that she has a copy of the request and will be following up.



Graduate Course Minor Change Form

This form is for an SFU department or program to request a minor change to an existing graduate course. After approval and signature by the faculty graduate studies committee, this form should be forwarded to the Dean of Graduate Studies for approval by the Senate Graduate Studies Committee (SGSC). SGSC will forward the approval to Senate for information.

DEPARTMENT

Department / School / Program Physics	Contact name Steve Dodge	Contact email jsdodge@sfu.ca
Please revise the following elements of the indicated graduate course: <input type="checkbox"/> Catalogue number <input checked="" type="checkbox"/> Units <input type="checkbox"/> Title <input type="checkbox"/> Description <input type="checkbox"/> Other: _____		

CURRENT COURSE

Please complete only the fields to be changed.

Program (eg. LBST) PHYS	Number (eg. 810) 898	Units (eg. 4) 6
Course title (max 80 characters) MSc THESIS		
Short title (appears on transcripts, max 25 characters)		
Course description for SFU Calendar <input type="checkbox"/> see attached		
Available course components <input type="checkbox"/> Lecture <input type="checkbox"/> Seminar <input type="checkbox"/> Laboratory <input type="checkbox"/> Practicum <input type="checkbox"/> Online <input type="checkbox"/> _____		
Practicum work done in this class will involve children or vulnerable adults (If the "Yes" box is checked, all students and instructors will require criminal record checks) <input type="checkbox"/> Yes <input type="checkbox"/> No		
Grading basis <input type="checkbox"/> Graded <input type="checkbox"/> Satisfactory / Unsatisfactory <input type="checkbox"/> In Progress / Complete <input type="checkbox"/> _____		
Prerequisites (if any)		
This is combined with an undergrad course. <input type="checkbox"/> Yes <input type="checkbox"/> No		
Course number and units: _____		
Additional course requirements for graduate students		

REVISED COURSE

Please complete only the fields to be changed.

Program (eg. LBST) PHYS	Number (eg. 810) 898	Units (eg. 4) 18
Course title (max 80 characters)		
Short title (appears on transcripts, max 25 characters)		
Course description for SFU Calendar <input type="checkbox"/> see attached		
Available course components <input type="checkbox"/> Lecture <input type="checkbox"/> Seminar <input type="checkbox"/> Laboratory <input type="checkbox"/> Practicum <input type="checkbox"/> Online <input type="checkbox"/> _____		
Practicum work done in this class will involve children or vulnerable adults (If the "Yes" box is checked, all students and instructors will require criminal record checks) <input type="checkbox"/> Yes <input type="checkbox"/> No		
Grading basis <input type="checkbox"/> Graded <input type="checkbox"/> Satisfactory / Unsatisfactory <input type="checkbox"/> In Progress / Complete <input type="checkbox"/> _____		
Prerequisites (if any)		
This is combined with an undergrad course. <input type="checkbox"/> Yes <input type="checkbox"/> No		
Course number and units: _____		
Additional course requirements for graduate students		

APPROVALS

Peter Roper
Faculty graduate studies committee name

W Parkhouse
Senate graduate studies committee name

[Signature]
Signature

[Signature]
Signature

21 Sept 2012
Date

Dec 11/12
Date

GS2012.44



Faculty of Science
Dean's Office
TASC 11 - 9900
8888 - University Drive
Burnaby, BC V5A 1S6



TO: W. Parkhouse
Dean of Graduate Studies

FROM: P. Ruben, Chair & Associate Dean
Faculty of Science Graduate Studies
Committee

RE: Earth Sciences

DATE: October 23, 2012

The following new course has been approved by the Faculty of Science and is forwarded for approval by the Senate Graduate Studies Committee. Please include it on the next SGSC agenda.

Earth Sciences

New course proposal – EASC 609

A handwritten signature in black ink, appearing to read "P. Ruben", written over a horizontal line.

P. Ruben

Enclosure

c. C. Cupples

Department of
Earth Sciences

MEMO

ATTENTION **Peter Ruben – Chair, Faculty of
Science Graduate Committee**

TEL

FROM **Dan Gibson – Chair, Earth Sciences Graduate Program Committee**

RE **New Graduate Course Proposal – EASC 609**

DATE **October 15, 2012**

TIME 3:52 PM

Dear Peter,

On September 24, 2012, the department of Earth Sciences approved the application for a new graduate course in Earth Sciences:

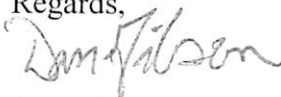
EASC 609 - Interferometric Synthetic Aperture Radar Remote Sensing Applications

Please find attached to this memo the New Graduate Course Proposal Form.

The content of this proposed course includes a comprehensive overview of the principles of Interferometric Synthetic Aperture Radar (InSAR) remote sensing applications and advanced InSAR methods geared for Earth Science research that use radar remote sensing applications and data. The new course will also include application-oriented labs that will expose students to important software tools for processing and manipulating SAR/InSAR data.

At present, there are currently no undergraduate or graduate courses offered at SFU that provide a comprehensive coverage of InSAR principles and applications, especially as it pertains to studies in Earth Sciences.

Regards,



Dan Gibson
Chair, Earth Sciences Graduate Program Chair

cc. James MacEachern – Chair, Department of Earth Sciences

New Graduate Course Proposal Form

PROPOSED COURSE

Subject (eg. MAPH) EASC	Number (eg. 810) 609	Units (eg. 4) 3
Course Title (max 80 characters) Interferometric Synthetic Aperture Radar Remote Sensing Applications		
Short Title (appears on transcripts, max 25 characters) InSAR Applications		
Course Description for SFU Calendar <input checked="" type="checkbox"/> see attached document <input checked="" type="checkbox"/> Learning outcomes identified Principles of Interferometric Synthetic Aperture Radar Remote Sensing and its Applications. An overview of the basic theory is presented to understand the capabilities and limitations of complex SAR data and their key land and marine applications. Learning outcomes for the course include proficiency with applications of interferometric SAR (InSAR) to Geosciences, including generation of topographic maps as well as advanced time series analysis for measuring ground surface motion associated with seismic displacement, compaction related subsidence, volcanic inflation, and landslides.		
Available Course Components: <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Seminar <input checked="" type="checkbox"/> Laboratory <input type="checkbox"/> Practicum <input type="checkbox"/> Online <input type="checkbox"/> _____		
Grading Basis <input checked="" type="checkbox"/> Letter grades <input type="checkbox"/> Satisfactory/Unsatisfactory <input type="checkbox"/> In Progress/Complete		This is a capstone course <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Prerequisites (if any) <input type="checkbox"/> see attached document (if more space is required) Recommended: undergraduate courses in advanced mathematics, remote sensing, geophysics, natural hazards (or permission of instructor).		
<input type="checkbox"/> This proposed course is combined with an undergrad course: Course number and units: <u>N/A</u>		
Additional course requirements for graduate students <input type="checkbox"/> See attached document (if this space is insufficient)		
Campus at which course will be offered (check all that apply) <input checked="" type="checkbox"/> Burnaby <input type="checkbox"/> Vancouver <input type="checkbox"/> Surrey <input type="checkbox"/> GNW <input type="checkbox"/> _____		
Estimated enrolment 2-10	Date of initial offering Spring 2013	Course delivery (eg. 3 hrs/week for 13 weeks) 5 hrs/week for 11 weeks (2 hrs lecture & 3hrs lab)
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Practicum work done in this class will involve children or vulnerable adults (If the "Yes" box is checked, all students will require criminal record checks)		
Justification <input checked="" type="checkbox"/> See attached document (if more space is required) <small>This course enables graduate students who intend to apply radar remote sensing to geoscience problems to access the core expertise of the instructor. The course is designed to provide a graduate level, application focused, understanding of Spaceborne Synthetic Aperture Radar, not met by any undergraduate or graduate courses currently offered by Earth Sciences, the new Applied Sciences SAR chair, or other departments at SFU.</small>		

RESOURCES

If additional resources are required to offer this course, the department proposing the course should be prepared to provide information on the source(s) of those additional resources.

Faculty member(s) who will normally teach this course <input type="checkbox"/> information about their competency to teach the course is appended Dr. Bernhard Rabus (as alternate: successful applicant for the new Applied Sciences SAR chair, TBD)
Number of additional faculty members required in order to offer this course 0
Additional space required in order to offer this course <input type="checkbox"/> see attached document 0
Additional specialized equipment required in order to offer this course <input type="checkbox"/> see attached document 0
Additional Library resources required (append details) <input type="checkbox"/> Annually \$ ⁰ _____ <input type="checkbox"/> One-time \$ ⁰ _____

PROPOSED COURSE from first page

Program (eg. MAPH) EASC	Number (eg. 810) 609	Units (eg. 4) 3
Course title (max 80 characters) Interferometric Synthetic Aperture Radar Remote Sensing Applications		

APPROVAL SIGNATURES

When a department proposes a new course it must first be sent to the chairs of each faculty graduate program committee where there might be an overlap in course content. The chairs will indicate that overlap concerns have been dealt with by signing the appropriate space or via a separate memo or e-mail (attached to this form).

The new course proposal must also be sent to the Library for a report on library resources.

Once overlap concerns have been dealt with, signatures indicate approval by the department, home faculty and Senate Graduate Studies Committee.

Other Faculties

The signature(s) below indicate that the Dean(s) or designate of other Faculties affected by the proposed new course support(s) the approval of the new course.

Name of Faculty	Signature of Dean or Designate	Date

Departmental Approval (non-departmentalized faculties need not sign)

Department Graduate Program Committee <i>Dan Gibson</i>	Signature <i>Dan Gibson</i>	Date <i>Oct 15, 2012</i>
Department Chair <i>James MacEachern</i>	Signature <i>James MacEachern</i>	Date <i>Oct 15, 2012</i>

Faculty Approval

Faculty approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/Department commits to providing the required Library funds and any other necessary resources.

Faculty Graduate Program Committee <i>Peter Ruben</i>	Signature <i>P. Ruben</i>	Date <i>25 Oct 2012</i>
--	------------------------------	----------------------------

Senate Graduate Studies Committee Approval

SGSC approval indicates that the Library report has been seen, and all resource issues dealt with. Once approved, new course proposals are sent to Senate for information.

Senate Graduate Studies Committee <i>W. Parkhouse</i>	Signature <i>W. Parkhouse</i>	Date <i>Dec 11/12</i>
--	----------------------------------	--------------------------

CONTACT

Upon approval of the course, the Office of the Dean of Graduate Studies will consult with the department or school regarding other course attributes that may be required to enable the proper entry of the new course in the student record system.

Department / School / Program	Contact name	Contact email
-------------------------------	--------------	---------------

Summary Statement (justification for EASC 609)

Justification: The new course **EASC 609 – Interferometric Synthetic Aperture Radar Remote Sensing Applications** consists of eleven 2hr lectures and a weekly 3 hr lab.

The content of this course includes an overview of math and physics that is InSAR application specific, as well as lectures on advanced InSAR methods that include polarimetric interferometry, SAR tomography and corresponding applications. The result is a comprehensive InSAR applications graduate course that is geared for applications in Earth Sciences.

The lab component provides InSAR application-oriented exercises that will expose students to important software tools for processing and manipulating SAR/InSAR data. These tools are then used by the students to conduct their chosen projects, which, for a key application, involves individual hands-on SAR/InSAR processing and data analysis under the guidance of the instructor as well as training scientific writing skills (term paper centering on the project results).

Statement on potential content overlap with other SFU courses:

There are currently no known InSAR graduate courses offered at SFU.

EASC 609
Interferometric Synthetic Aperture Radar Remote Sensing Applications

Course Outline

General:

This course provides a review of the principles of Interferometric Synthetic Aperture Radar Remote Sensing and its Applications. An overview of the basic theory is presented to enable students to understand the capabilities and limitations of complex SAR data and their key land and marine applications. The course focus is on interferometric SAR (InSAR) applications, including generation of topographic maps as well as advanced time series analysis for measuring ground surface motion associated with seismic displacement, compaction related subsidence, volcanic inflation, and landslides.

Recommended courses: undergraduate courses in advanced mathematics, remote sensing, geophysics, natural hazards (or permission of instructor)

Course Topics:

1. Radar and SAR principles
2. SAR marine applications
3. SAR land applications
4. InSAR principles
5. InSAR processing (interferogram formation, phase unwrapping, geocoding)
6. InSAR applications (topography)
7. InSAR applications (differential InSAR, 3D velocity)
8. Advanced applications (Polarimetric InSAR and Tomography)
9. Advanced processing (Surface displacement time series)
10. Advanced applications (Surface displacement time series – infrastructure)
11. Advanced applications (Surface displacement time series – natural hazards)

Course Organization:

1 two-hour lecture and 1 three-hour computer laboratory per week. Biweekly assignments. 1 term research paper and 20 minute presentation of the research paper.

Course Materials:

The course does not use a specific textbook. A number of books are available that cover the topic, e.g. Woodhouse, I.H. (2006): Introduction to Microwave Remote Sensing. CRC Press, Taylor & Francis.

Online materials: e.g., Tutorials of the Canadian Center for Remote Sensing(http://www.ccrs.nrcan.gc.ca/resource/index_e.php#tutor) or parts of NASA's remote sensing tutorial (<http://rst.gsfc.nasa.gov/>).

The materials for reading assignments will be provided. Powerpoint lecture materials, lab instructions, software manuals, and data sets required for the lab assignments will be posted on line.

Additional Resources:

Massonet, D. & Souyris, J.-C. (2008): Imaging with Synthetic Aperture Radar. EPFL Press distributed by CRC Press.

Henderson, F.M. & Lewis, A.J. (1998): Principles and Applications of Imaging Radar. Manual of Remote Sensing. Third Edition, Vol. 2. John Wiley & Sons. Inc.

Olivie, C. & Quegan, S. (2004): Understanding Synthetic Aperture Radar Images. Scitech.

Lee, J.-S. & Pottier, E. (2009): Polarimetric Radar Imaging. From Basics to Applications. CRC Press, Taylor & Francis.

Rees, G. (2006): Remote Sensing of Snow and Ice. CRC Press, Taylor & Francis.

Ferretti, A., Monti-Guarneri, A., Prati, C., Rocca, F. & Massonet, D. (2007): InSAR Principles. Guidelines for SAR Interferometry Processing and Interpretation. ESA TM-19, ISBN 92-9092-233-8.

Course Grading:

1. Lab Assignments	30%
2. Research Paper	60%
3. Presentation	10%

SFU Connect**hotell@sfu.ca****Fwd: Library Report for EASC 609**

From : EASC Grad Secretary <eascgsec@sfu.ca>
Subject : Fwd: Library Report for EASC 609
To : Rosemary Hotell <hotell@sfu.ca>

Thu, Oct 25, 2012 11:58 AM

Hi Rosemary:

Please see response from the Library below with regards to EASC 609.

Thanks
Glenda

From: "Megan Crouch" <mcrouch@sfu.ca>
To: hdgibson@sfu.ca, "Glenda Pauls" <eascgsec@sfu.ca>
Cc: "Patty Gallilee" <plg@sfu.ca>, "Jenna Thomson" <jennat@gmail.com>, "Heather De Forest" <hdefores@sfu.ca>, "Christine Manzer" <cmcconne@sfu.ca>
Sent: Thursday, 25 October, 2012 11:55:08
Subject: Library Report for EASC 609

Dear Dan and Glenda,

I have reviewed the course proposal for EASC 609: Interferometric Synthetic Aperture Radar Remote Sensing Applications and concluded that no additional library resources will be required to support it.

The course will therefore added it to the appropriate list at <http://www.lib.sfu.ca/collections/course-assessments>

This will be enough to indicate library sign-off as it moves through the approval process.

Best,
Megan

Megan L. Crouch
Health Sciences Librarian
Collections Librarian
Simon Fraser University Library
Tel: 778.782.4962



SIMON FRASER UNIVERSITY
DEAN OF GRADUATE STUDIES

Graduate Course Minor Change Form

This form is for an SFU department or program to request a minor change to an existing graduate course. After approval and signature by the faculty graduate studies committee, this form should be forwarded to the Dean of Graduate Studies for approval by the Senate Graduate Studies Committee (SGSC). SGSC will forward the approval to Senate for information.

DEPARTMENT

Department / School / Program Statistics & Actuarial Science	Contact name Tim Swartz	Contact email tim@sat.sfu.ca
Please revise the following elements of the indicated graduate course: <input type="checkbox"/> Catalogue number <input type="checkbox"/> Units <input type="checkbox"/> Title <input type="checkbox"/> Description <input checked="" type="checkbox"/> Other: <u>allow "variable between 1 and 4 units"</u>		

CURRENT COURSE

Please complete only the fields to be changed.

Program (eg. LBST) STAT	Number (eg. 810) 895	Units (eg. 4) 4
Course title (max 80 characters)		
Short title (appears on transcripts, max 25 characters)		
Course description for SFU Calendar <input type="checkbox"/> see attached		
Available course components <input type="checkbox"/> Lecture <input type="checkbox"/> Seminar <input type="checkbox"/> Laboratory <input type="checkbox"/> Practicum <input type="checkbox"/> Online <input checked="" type="checkbox"/> offering dependent		
Practicum work done in this class will involve children or vulnerable adults (If the "Yes" box is checked, all students and instructors will require criminal record checks) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Grading basis <input checked="" type="checkbox"/> Graded <input type="checkbox"/> Satisfactory / Unsatisfactory <input type="checkbox"/> In Progress / Complete <input type="checkbox"/> _____		
Prerequisites (if any)		
This is combined with an undergrad course. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Course number and units: _____		
Additional course requirements for graduate students		

REVISED COURSE

Please complete only the fields to be changed.

Program (eg. LBST) STAT	Number (eg. 810) 895	Units (eg. 4) 1 - 4 (variable)
Course title (max 80 characters)		
Short title (appears on transcripts, max 25 characters)		
Course description for SFU Calendar <input type="checkbox"/> see attached		
Available course components <input type="checkbox"/> Lecture <input type="checkbox"/> Seminar <input type="checkbox"/> Laboratory <input type="checkbox"/> Practicum <input type="checkbox"/> Online <input type="checkbox"/> _____		
Practicum work done in this class will involve children or vulnerable adults (If the "Yes" box is checked, all students and instructors will require criminal record checks) <input type="checkbox"/> Yes <input type="checkbox"/> No		
Grading basis <input type="checkbox"/> Graded <input type="checkbox"/> Satisfactory / Unsatisfactory <input type="checkbox"/> In Progress / Complete <input type="checkbox"/> _____		
Prerequisites (if any)		
This is combined with an undergrad course. <input type="checkbox"/> Yes <input type="checkbox"/> No		
Course number and units: _____		
Additional course requirements for graduate students		

APPROVALS

Tim Swartz
Faculty graduate studies committee name
C. Terthouse
Senate graduate studies committee name

[Signature]
Signature
[Signature]
Signature

Nov 21/12
Date
Dec 11/12
Date