



Office of Graduate Studies and Postdoctoral Fellows

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MEMORANDUM

FROM

ATTENTION Senate Mary-Ellen Kelm, Acting Dean of Graduate Studies RE: Faculty of Science

7 October 2014 DATE GS2014.38 No.

For information:

Acting under delegated authority at its meeting of October 6, 2014, SGSC approved the following curriculum revisions effective Summer 2015:

Faculty of Science

Department of Earth Sciences Course change (units): EASC 898

Department of Physics

Course change (description): PHYS 812

Course change (description and title): PHYS 821

Course change (co-requisite and description): PHYS 871



MEMO

Faculty of Science

ATTENTION Krista Gerlich-Fitzgerald, Graduate Studies

FROM Peter Ruben, Associate Dean, Faculty of Science

RE Minor Course Change – Earth Science

DATE September 8, 2014

тіме 8:21 РМ

The graduate program in the Department of Earth Sciences seeks to change the number of credits for its MSc thesis course, EASC 898, from 6 to 18 credits to conform to the 30-credit university standard. The Minor Course Change form is attached, along with a memo from the Chair of the Earth Sciences Graduate Studies Committee. This change has my approval and that of the Faculty of Science Graduate Studies Committee.

P. Ruben



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GRADUATE STUDIES & POSTDOCTORAL FELLOWS

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	Contact name	Contact email
Earth Sciences	Andrew Calvert	acalvert@sfu.ca

Please revise the following elements of the indicated graduate course: 🛛 Units 🗖 Title 🗖 Description 🗖 Pre-requisites 🗖 Other

Rationale for this change:

To conform with proposed SGSC regulation change requiring a minimum of 30 units for a Masters degree

CURRENT COURSE

Please complete only the fields to be changed.

REVISED COURSE

Please complete only the fields to be changed.

Course subject	Number (eg. 810)	Units (credits	5)	Course subject	Number	eg. 810)	Units (credits)	
EASC	898	6		EASC	898		18	
Course title (max 100 characters)				Course title (max 100 characters)				
Short title (appears on transcripts, max 30 characters)				Short title (appears on transcripts, max 30 characters)				
Course description for SFU Calendar 🗖 see attached				Course description for SFU Calendar 🗖 see attached				
Available course compor	nents 🗌 Lecture 🛛 icum 🗖 Online 🗖	_	Available course components □Lecture □Seminar □Laboratory □Practicum □Online □					
Practicum work done in this class will involve children or vulnerable adults Yes No				Practicum work done in this class will involve children or vulnerable adults Yes No				
Grading basis Graded Satisfactory / Unsatisfactory				Grading basis Graded Satisfactory / Unsatisfactory				
Prerequisites (if any)				Prerequisites (if any)				
This is combined with an undergrad course. Yes No Course number and units: Additional course requirements for graduate students				This is combined with an undergrad course. Yes No Course number and units: Additional course requirements for graduate students				
APPROVA	LS							
Faculty graduate studies committee name Second Seco			Signa	ignature Rode Date 8 September 2014				
Senate graduate studies committee name			Signa	gnature Date 25 Sect 2014				

Revised January 2014



MEMO

Faculty of Science

ATTENTION Sheilagh MacDonald, Graduate Studies

FROM Peter Ruben, Associate Dean, Faculty of Science

RE Minor Course Change - Physics

DATE September 2, 2014

TIME 4:01 PM

The graduate program in the Department of Physics seeks a number of changes, as follows:

- 1. Updated course description for PHYS 812;
- 2. Updated course description and course title for PHYS 821;
- 3. Updated co-requisite and course description for PHYS 871.

These changes have my approval and that of the Faculty of Science Graduate Studies Committee.

P. Ruben



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GRADUATE STUDIES & POSTDOCTORAL FELLOWS

Graduate Course Minor Change Form

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Revised January 20

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

DEPARTME	NT				The approva	at to Senate	for information.	
Department / School / Program Physics		Contact name Eldon Emberly		Contact email				
Please revise the following elements of the indicated graduate of			ate cou	rse: Ulloits OlTitle	Deceriation	iy@siu.c		
Rationale for this change:	1			La Description	n L Pre-req	uisites D Other		
Updated cours	se descript	ion.						
CURRENT C	OURSE			Please complete or	D COURSE	E to be chang	ed	
Course subject PHYS	Number (eg. 810) 812	Units (cred	its)	Course subject	Number	(eg. 810)	Units (credits)	
Course title (max 100 char	acters)			Course title (max 10)	characters)			
Introduction to (Quantum F	eld Theo	ory		characters)			
Short title (appears on tran	scripts, max 30 ch	aracters)		Short title (appears o	n transcripts,	max 30 char	acters)	
Course description for SFU Calendar See attached A first course in relativistic Quantum Field Theory (QFT), specifically Quantum Electrodynamics (QED). The basic formalism underlying QED is developed, generalizing the canorical quantization procedure of Schroedinger quantum mechanics. Feynman diagrams and rules are derived and applied at leading order to several fundamental processes. An introduction to ultravolute infinities and the renormalization of QED is given. Renormalization is illustrated by calculations of the anomalous magnetic moment of the electron and the Lamb shift.				Course description for SFU Calendar see attached A first course in relativistic quantum field theory, mainly quantum electrodynamics. Canonical quantization of the Klein-Gordon, electromagnetic, and Dirac fields; gauge freedom; Feynman diagrams and rules, with applications to scattering cross sections and pair creation; renormalization, with applications to the anomalous magnetic moment of the electron and the Lamb shift.				
Available course components 🛛 Lecture 🔲 Seminar				Available course components Lecture Seminar Laboratory Practicum Online				
Practicum work done in this vulnerable adults		Practicum work done in this class will involve children or vulnerable adults Ves No						
Grading basis 🖾 Graded 🗖 Satisfactory / Unsatisfactory				Grading basis Graded Satisfactory / Unsatisfactory				
Prerequisites (if any)				Prerequisites (if any)				
This is combined with an unc	dergrad course.	Yes IN No	-	This is combined with	an undergrad	COURSE D	Ver PN	
Course number and units:				Course number and units.				
Additional course requirements for graduate students				Additional course requirements for graduate students				
PHYS 810 c	or equiva	alent						
APPROVALS								
Faculty graduate studies com	mittee name		Signat	He P ~		Date	_	
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Senate graduate studies com	Signat	ure ///		Date	· · · · · · · · · · · · · · · · · · ·			
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DEPARTMENT	Г				••	e e e endre	ioi mormation.		
Department / School / Progra Physics	am C	Contact name	berly	Contact email					
Please revise the following el	lements of the inc	dicated gradu	ate cour		cember	iy@sfu.c	a		
Rationale for this change:		grade			2 Descriptio	on D Pre-requ	uisites 🛛 Other		
Updated course description. + +; +le.									
CURRENT COL	JRSE					E			
		14		Please complete on	ly the fields	to be change	ed.		
Course subjectNurPHYS82	mber (eg. 810) 21	Units (credi	ts)	Course subject	Numbe	r (eg. 810)	Units (credits)		
Course title (max 100 charact	ers)	1		Course title (may 100	(choracter)		L		
Electromagn	otic Th	000							
Short title (species and		eory		Auvanced	Elect	romagr	netism I		
Short are tappears on transcr	ipts, max 30 chai	racters)		Short title (appears on transcripts, max 30 characters)					
Course dess inits of arrive				Electromagnetism I					
Advanced topics in classical ele	lendar 🛛 see a	attached		Course description for SFU Calendar					
Maxwell's equations, wave prop	Maxwell's equations, wave propagation, radiation theory, speci			Advanced topics in classical electromagnetic theory: review of Maxwell's equations in free space and in					
relativity and electromagnetic theory, magnetohydrodynamics and plasma physics, radiation damping. Course offered regularly				macroscopic media, with applications in contemporary research;					
				Hamiltonian methods in	n electromag	netism; Lagran netism.	gian and		
Available course components 🛛 Lecture 🗖 Seminar				Available course components					
□ Laboratory □ Practicum □ Online □			-	Laboratory Practicum Online					
Practicum work done in this class will involve children or vulnerable adults Yes No				Practicum work done in this class will involve children or vulnerable adults I Yes I No					
Grading basis 🛛 Graded 🗖	Satisfactory / Ur	satisfactory		Grading basis Graded D Satisfactors (1)					
In Progress / Complete I.			_	In Progress / Complete					
Prerequisites (if any)	Prerequisites (if any)				Prerequisites (if any)				
PHYS 421 or	equiva	alent							
This is combined with an undergrad course. 🛛 Yes 🖾 No				This is combined with an undergrad course.					
Course number and units:			-	Course number and units:					
Additional course requirements for graduate students				Additional course requirements for graduate students					
APPROVALS									
Faculty graduate studies commit	ttee name		Signatu	<u> </u>		T			
FETER KUR	FEER KURON					Date	C		
ienate graduate studies committee name Si				re		2 300	12014		

Revised January 2014

Date 26



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ļ	DEPARTM	ENT					e e e enau			
	Department / School / F Physics	Program	Contact name	e mberl	Contact email					
	Please revise the followi	ing elements of the ir	dicated grad	uate cou						
ſ	Rationale for this change			11		Description	Pre-re	quisites 🛛 Other		
L	Opualeu co-n	equisite. + C	escrit	Stio	γ .					
	CURRENT	COURSE			Please complete on	COURSE	to be chan	aed		
	Course subject PHYS	Number (eg. 810) 871	Units (crea 3	dits)	Course subject	Number	(eg. 810)	Units (credits)		
	Course title (max 100 cha	aracters)	- L		Course title (max 100	(haractere)				
1	ntroduction to El	ementary Parl	icle Phys	sics		characters)				
5	Short title (appears on tra	anscripts, max 30 cha	racters)		Short title (appears or	n transcripts,	max 30 cha	racters)		
C fc el in oc	ourse description for SF lementary particle pheno prces, conservation laws, ectromagnetic interaction teractions, gauge theorie ccasionally.	U Calendar	s, red	Course description for SFU Calendar Elementary particle phenomenology; classification of particles, forces, conservation laws, relativistic scattering theory, electromagnetic interactions of leptons and hadrons, weak interactions, gauge theories, strong interactions.						
	Available course components Lecture Seminar Laboratory Practicum Online				Available course components 🛛 Lecture 🗖 Seminar					
vu	Inerable adults D Yes			Practicum work done in this class will involve children or vulnerable adults Yes No						
Grading basis 🖾 Graded 🗖 Satisfactory / Unsatisfactory					Grading basis Graded Satisfactory / Unsatisfactory					
Pr	erequisites (if any)				Prerequisites (if any)					
					Recommende	d corequ	isite: P	HYS 812.		
Thi	s is combined with an ur	ndergrad course. 🗵	Yes 🛛 No		This is combined with a	n undergrad o	ourse. 🗖	Yes TINO		
Cou	Course number and units: PHYS 485 - 3				Course number and units:					
Ado	litional course requirem	ents for graduate stu	dents		Additional course requi	rements for gr	aduate stud	dents		
2.04	APPROVALS	5								
Faci	ulty graduate studies con	mmittee name		Signatu	Ire					
	TEER C	UBEN			A.		Date	C 2		
Sena	ienate graduate studies committee name Sigr			Signatu	ire		C 20	1 4014		
Jeorge Agnes					No la construction de la constru		25 5	ed 2014		
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