

New Course

Proposal Reference : 8318
 Number
 PRN Alias : 13-14#1731
 Version No : 9
 Submitted By : Ms Jeanne Paquette
 Edited By : Ms Josie D'Amico

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New Data							
Program Affected?	Y						
Program Change Form Submitted?	N (Simple Change) - This is a complex change for 2 programs. The course EPSC 240 is added to the U1 required courses in two programs. It is also a pre-requisite added to the descriptions of field courses EPSC 331 and EPSC 241 which appear in the two programs: i) B.Sc. Major in Earth and Planetary Sciences (renamed Major in Geology) ii) B.Sc. Honours in Earth Sciences (renamed Honours in Geology Program Revision Forms are therefore submitted with this form (see attached files). They reflect the concurrent retirement of EPSC 312 and the addition of EPSC 240. Also, please add EPSC 240, as a Complementary Course, to the following two domains: B.Sc. Environment Major, Earth Sciences and Economics, under Complementary Course in Category: List B; Arts Faculty Program in Environment, Economics and the Earth's Environment, under Complementary Course in Category: Advanced Courses.						
Subject/Course/Term	EPSC 240 <ul style="list-style-type: none"> one term 						
Credit Weight or CEU's	3 credits						
Course Activities	<table border="1"> <thead> <tr> <th>Schedule Type</th> <th>Hours per week</th> </tr> </thead> <tbody> <tr> <td>A - Lecture</td> <td>2</td> </tr> <tr> <td>L - Laboratory</td> <td>3</td> </tr> </tbody> </table> <p style="text-align: right;"> Total Hours per Week : 5 Total Number of Weeks : 13 </p>	Schedule Type	Hours per week	A - Lecture	2	L - Laboratory	3
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Course Title	<table border="1"> <tbody> <tr> <td>Official Course Title :</td> <td>Geology in the Field</td> </tr> <tr> <td>Course Title in Calendar :</td> <td>Geology in the Field</td> </tr> </tbody> </table>	Official Course Title :	Geology in the Field	Course Title in Calendar :	Geology in the Field		
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Course Title in Calendar :	Geology in the Field						
Rationale	This course complements the material common to EPSC 233 Earth and Life History and EPSC 201 Understanding Planet Earth. This introduction to the local geology and to the observational paradigm in earth sciences prepares students to get more out of subsequent field courses and excursions throughout the rest of their program.						

Responsible Instructor	Christie Rowe
Course Description	Lectures and field-based exercises, held locally on campus and in the Montreal area, introduce students to the reading and interpretation of a topographic map, the basic description of a stratigraphic section and the inference of its depositional environment, the nature of intrusive contacts, and the field measurement of some structural features and geophysical properties. Students plot geological information on a map, identify landforms in aerial views and learn the tectonic features diagnostic of plate margins. By the end of the course, the students relate a geological map to the geological history of Quebec.
Teaching Dept.	0289 : Earth & Planetary Sciences
Administering Faculty/Unit	SC : Faculty of Science
Prerequisites	
Corequisites	EPSC 233 or EPSC 201 Web Registration Blocked? : N
Restrictions	Restrictions: Open to first-year Major and Honours students in Earth and Planetary Sciences.
Supplementary Calendar Info	1. Students from other programs must obtain permission of the instructor.
Additional Course Charges	
Campus	Downtown
Projected Enrollment	20
Requires Resources Not Currently Available	N
Explanation for Required Resources	
Required Text/Resources Sent To Library?	Y
Library Consulted About Availability of Resources?	N
Consultation Reports Attached?	
Effective Term of Implementation	201509

File Attachments	<ul style="list-style-type: none"> • EPSC240_GeologyInTheField.docx View • ConsultationEPSC240-potential-overlap-with-GEOGCourses.docx View • Major_Geology_2014Revision_WithRationale.doc View • Honours_Geology_2014Revision_WithRationale.doc View
To be completed by the Faculty	
For Continuing Studies Use	

Approvals Summary

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Version No.	Departmental Curriculum Committee	Departmental Meeting	Departmental Chair	Other Faculty	Curric/Academic Committee	Faculty	SCTP	Version Status
9								Submitted to Curriculum/Academic Committee for approval Edited by: Josie D'Amico on: Nov 28 2014
8								Submitted to Curriculum/Academic Committee for approval Edited by: Josie D'Amico on: Nov 28 2014
7								Submitted to Curriculum/Academic Committee for approval Edited by: Josie D'Amico on: Nov 24 2014
6								Submitted to Curriculum/Academic Committee for approval Edited by: Jeanne Paquette on: Nov 21 2014
5								Submitted to Curriculum/Academic Committee for approval Edited by: Josie D'Amico on: Nov 21 2014
4								Submitted to Curriculum/Academic Committee for approval Edited by: Jeanne Paquette on: Nov 21 2014

3								Submitted to Curriculum/Academic Committee for approval Edited by: Geralda Bacaj on: Nov 20 2014
2								Submitted to Curriculum/Academic Committee for approval Edited by: Jeanne Paquette on: Nov 18 2014
1								Submitted to Curriculum/Academic Committee for approval Created on: Nov 17 2014

Course Proposal

EPSC240: Geology In The Field (3 credits)

Instructor/coordinator: Christie Rowe

Co-requisite: EPSC 233 Earth & Life History or EPSC 201 Understanding Planet Earth

Schedule: two 50-minute lectures + one 3-hour lab, scheduled so that one of the lectures is immediately before the laboratory period. Some weeks, the whole time block (1:30-5:30PM) will be used for a field trip.

Enrolment cap: 20

With enrolment capped at 20 students, this course does not require additional resources beyond those currently available for the field component of our undergraduate program.

Textbook: Compton, Geology in the Field (1985), Wiley-Blackwell *or* T. Freeman, Geology Field Methods (2010) Friendship Publications.

Learning goals

A) Conceptual

- Linking geological observations to geologic history
- Application of principle of superposition (time progression in rock layers)
- Observational paradigm, philosophy of geology

B) Skillset

- Reading a topographic map (navigation and interpretation)
- Using a compass for navigation
- Concepts of strike and dip, taking measurements on ideal surfaces
- Plotting measurements on maps
- Reading geologic maps and map symbols for common structural features and rock types
- Making basic field observations on an outcrop
- Basic introduction to rock description: grain shape, size and distribution, crystalline vs. clastic texture.
- Stratigraphy seen in sections, time progression in rock layers
- Visualizing and measuring 1D, 2D and 3D fabrics in rocks
- Relationship between geology and landforms
- Integration of surface aspect and subsurface data

Assessment:

- Topo map trip 10%
- Pace and Compass exercise 10%
- Sedimentary rocks in the field, report 20%
- Structural map report 20%
- Field geophysics exercise 10%
- Landforms and tectonics report 10%
- Geology of Québec Report 20%

Week	Lecture Topic	Field Trip or Lab
1	What is field geology? Reference frames	Topographic map (outside on Mt Royal)
2	Maps, orientations and scale	Pace and compass exercise (outside, on campus)
3	Sediments – identifying and how to measure	Describe sedimentary rocks (Centre de nature de Laval)
4	Stratigraphy, unconformities, continuity, depositional environments	Measure short section with descriptions (fluvial gravel quarry)
5	Reporting Geologic Data	Constructing strat column, descriptions, report (indoors)
6	Geologic maps – symbols, how the 3 rd dimension is displayed	Maps exercise (indoors)
7	Igneous Rocks	Rock descriptions, intrusive contacts (île Sainte-Hélène)
8	Structural geology – faults and joints	Measuring faults and joints - Mount Royal/neighborhoods
9	Structural geology – cross sections	Dipping beds in 3D – Centre de nature de Laval
10	Field geophysics	Data collection and report (with Rebecca Harrington) (on campus)
11	Using Google Earth for photo geology – relating landforms to bedrock composition and structure	Identifying landforms on maps and imagery (computer laboratory)
12	Introduction to plate boundaries	Active tectonic zones on maps and imagery (computer laboratory)
13	Geological history of Montréal region	Relating a geologic map to the local geological history

----- Forwarded message -----

From: Wayne Pollard, Prof. <wayne.pollard@mcgill.ca>
Date: Tue, Feb 25, 2014 at 6:26 PM
Subject: RE: Proposed new Geological Field Methods course
To: "Christie Rowe, Prof." <christie.rowe@mcgill.ca>

Christie

I agree that many aspects of introductory earth science are common to several disciplines (courses) and thus content overlap is unavoidable, however the context should be distinct. I don't object, but offer the following comment.

Students seem to think that duplication of content is a waste of their time and often do not hesitate to say so. Thus my main recommendation to anyone who knows that the material they are teaching is also being taught in another course is to make clear to the students the context of that information and its specific application to the course being given. In my case I constantly reinforce the value of specific course content as it applies to my course goals and overarching paradigm. Please recognize that since both departments are in the same faculty that we will inevitably be teaching many of the same students.

Wayne

From: Christie Rowe, Prof.
Sent: Tuesday, February 25, 2014 5:44 PM
To: Wayne Pollard, Prof.
Cc: Lea Berrang Ford, Prof.; Jeanne Paquette, Dr.; Anthony Williams-Jones, Dr.

Subject: Re: Proposed new Geological Field Methods course

Hi Wayne,

I think it is natural that our courses should address some of the same concepts, as our disciplines are close neighbors. Certainly both geographers and geologists need a comprehensive understanding of maps. Do you see any of these overlaps as a problem that should require modification of the proposal before I introduce the new course?

Thank you,
Christie

On Tue, Feb 25, 2014 at 5:39 PM, Wayne Pollard, Prof. <wayne.pollard@mcgill.ca> wrote:
Christie

The obvious areas of overlap are with parts of Geography 272, 495 and 499 (courses I teach). Overlap includes material and activities relating topographic maps, closed and open compass transects, compass and gps field navigation and geomorphology (landform analysis and process interpretation based on landforms, depositional materials and stratigraphy).

Geography 272: Earth's Changing Surface is an introductory course in geomorphology that includes 5 exercises and supporting lectures based on topographic maps. The first 2 exercises focus on basic map

interpretation and map reading skills while the last 3 exercises link maps, air photos and satellite imagery to landforms and landscape history.

Geography 495 and 499 are geomorphology field methods courses that include map and compass based field activities and basic mapping (e.g. basic compass use, compass and gps transects, dgps mapping, compass-abney profiling, differential leveling, morphologic measurement) landform and process measurement and some geophysics (gpr), soil and sediment analysis and stratigraphy - but all with a geomorphic emphasis.

Even though it is a limited enrollment course I suspect there will be overlap with EPSC373.

Wayne

From: Christie Rowe, Prof.
Sent: Tuesday, February 25, 2014 12:08 PM

To: Lea Berrang Ford, Prof.; Wayne Pollard, Prof.
Cc: Jeanne Paquette, Dr.; Anthony Williams-Jones, Dr.
Subject: Re: Proposed new Geological Field Methods course

Hi Lea and Wayne,
Just checking in to see if you have had a chance to comment on my proposal for the Geological Field Methods course. I would like a comment from Geography regarding lack of overlap to help when the course is considered at the faculty level.

If there is someone else in Geography who I should contact, please let me know.

Thank you,
Christie

On Mon, Feb 17, 2014 at 7:30 PM, Christie Rowe <christie.rowe@mcgill.ca> wrote:
Greetings, Lea and Wayne,

I am working on a proposal for a new course in Geological Field Methods to be taught at the 200-level (outline attached). I would like to request your comments and assistance in making sure that the new course doesn't overlap with existing courses in Geography. As far as Jeanne Paquette and I can tell, the only potential apparent overlap might be with GEOG272, as the new course will include one lab on the relationship between bedrock composition and structure with landforms. I see this as a potentially beneficial link, rather than a problematic overlap, for students who might take both courses.

I would welcome any comments or suggestions.

Thanks,
Christie

Christie Rowe
Asst. Prof & Wares Faculty Scholar
Earth & Planetary Sciences, McGill University