

New Course

Proposal Reference Number : 3425

PRN Alias : 11-12#381

Version No : 3

Submitted By : Ms Nancy Nelson

Edited By : Ms Nancy Nelson

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New Data					
Program Affected?	N				
Program Change Form Submitted?					
Subject/Course/Term	BIOL 596 <ul style="list-style-type: none"> one term 				
Credit Weight or CEU's	1 credits				
Course Activities	<table border="1"> <thead> <tr> <th>Schedule Type</th> <th>Hours per week</th> </tr> </thead> <tbody> <tr> <td>M - Seminar</td> <td>3</td> </tr> </tbody> </table>	Schedule Type	Hours per week	M - Seminar	3
	Schedule Type	Hours per week			
	M - Seminar	3			
Total Hours per Week : 3 Total Number of Weeks : 4					
Course Title	<table border="1"> <tbody> <tr> <td>Official Course Title :</td> <td>Advanced Experimental Design</td> </tr> <tr> <td>Course Title in Calendar :</td> <td>Advanced Experimental Design</td> </tr> </tbody> </table>	Official Course Title :	Advanced Experimental Design	Course Title in Calendar :	Advanced Experimental Design
Official Course Title :	Advanced Experimental Design				
Course Title in Calendar :	Advanced Experimental Design				
Rationale	This course is tailored to the needs of individuals who are in the midst of collecting and analyzing data, namely graduate students and honours undergraduates. This course will focus on experimental design as it relates to statistical analyses and prepare students for data collection.				
Responsible Instructor	Jon Sakata; Catherine Potvin				
Course Description	This course focuses on experimental design as it relates to statistical analyses to prepare individuals for data collection. Instructors will provide information on basic statistical principles and require students to prepare presentations about their experiments, write summaries of their research, and discuss and critique journal articles.				
Teaching Dept.	0286 : Biology				
Administering Faculty/Unit	SC : Faculty of Science				
Prerequisites	BIOL 373 or equivalent and permission of instructor. Web Registration Blocked? : N				
Corequisites					
Restrictions					
Supplementary Calendar Info					

Additional Course Charges	
Campus	Downtown
Projected Enrollment	15
Requires Resources Not Currently Available	N
Explanation for Required Resources	
Required Text/Resources Sent To Library?	
Library Consulted About Availability of Resources?	
Consultation Reports Attached?	
Effective Term of Implementation	201201
File Attachments	<ul style="list-style-type: none"> BIOL 596 Experimental Design Syllabus.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
3								Approved by Department Meeting Edited by: Nancy Nelson on: Nov 16 2011
2		Approved Nancy Nelson Meeting Date: Nov 11 2011 Approval Date: Nov 11 2011 View Comments						Approved by Department Meeting Edited by: Nancy Nelson on: Nov 11 2011
1								Submitted to Departmental Meeting for

BIOL 596 ConsultationMathStats.txt

From: Catherine Potvin, Prof.
Sent: Thursday, November 17, 2011 10:32 AM
To: Axel Hundemer; Josie D'Amico
Cc: Jacques Hurtubise; Axel Hundemer, Dr.; Jon Sakata, Dr.; Nancy Nelson, Ms.
Subject: RE: Please confirm: Consultation

Dear Axel

Thank you so much for helping us on this. I am excited about this new course, students seemed to be most happy about it.

Sincerely

Catherine

-----Original Message-----

From: Axel Hundemer [mailto:hundemer@math.mcgill.ca]
Sent: Wednesday, November 16, 2011 10:05 PM
To: Catherine Potvin, Prof.
Cc: Jacques Hurtubise; Axel Hundemer, Dr.; Jon Sakata, Dr.; Nancy Nelson, Ms.
Subject: RE: Please confirm: Consultation

Hi Catherine,

I just received word from our Stats group that they have no objections.

Best,
Axel

On Wed, 16 Nov 2011, Catherine Potvin, Prof. wrote:

> Good afternoon Axel
>
> I was wondering if you heard of the consultation report that we asked your Department to fill? I understand from Josie that our course proposal will be discussed in the next Academic Committee meeting starting at 2:30 p.m. on Tuesday, November 22nd.

> Catherine

> -----Original Message-----

> From: Axel Hundemer [mailto:hundemer@math.mcgill.ca]
> Sent: Wednesday, November 09, 2011 9:40 AM
> To: Catherine Potvin, Prof.
> Cc: Jacques Hurtubise; Axel Hundemer, Dr.; Jon Sakata, Dr.; Nancy Nelson, Ms.
> Subject: Re: Please confirm: Consultation

> Hi Catherine,

> I forwarded your e-mail to our Statistics group and asked for a response before the 14th, if possible. I can't guarantee that we can meet this deadline, however, since the initial response I received was that your proposal would have to be discussed at a meeting of the Stats group.

> Best,
> Axel

> On Wed, 9 Nov 2011, Catherine Potvin, Prof. wrote:

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>> Dear Jacques and Axel
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>> Last Friday I did send you information about a biometry course
>> proposal from Biology. I am hoping that you would fill a
>> consultation report form for it. May I ask you to confirm that you
>> have received my message? Josie D'Amico is hoping to hear back from us next
Monday November 14th.
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>> Thank you
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>> Catherine
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>> From: Catherine Potvin, Prof.
>> Sent: Friday, November 04, 2011 5:52 PM
>> To: Jacques Hurtubise; Axel Hundemer, Dr.
>> Cc: Jon Sakata, Dr.; Nancy Nelson, Ms.
>> Subject: Consultation
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>> Dear Jacques and Axel
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>> I hope this message will find you well. Biology currently has a
>> graduate course in statistics (BIO 583) that has not been given in
>> ages since the professor who taught it left McGill. A new colleague,
>> Jon Sakata and myself
>> (Biology) have decided to rework it.
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>> We propose to split the course tailoring it to the needs of
>> individuals who are in the midst of collecting data in the summer and
>> analyzing them in the fall, namely graduate students and honors
>> undergraduates. The first course (BIOL596; winter semester; 1 credit)
>> will focus on experimental design as it relates to statistical analyses and
prepare
students for data collection.
>> We will later propose a second course (BIOL XXX; fall semester; 2
>> credits) that will focus on data analysis. Laurie Hendren suggested
>> that we should proceed this way. We then plan to retire BIO 583.
>>
>>
>>
>> We are trying to get approval for this new course (1 credit) and hope
>> that it be discussed at the next meeting of the Academic committee
>> (November 22nd). We already have a line up of students who want to
>> take the course next term! I am therefore sending you the proposed
>> description, a preliminary syllabus and a consultation report form.
>> We would be grateful if you could fill the report and send it back to
>> us. Josie D'Amico hopes to get all the paper by November 14th.
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BIOL 596 ConsultationMathStats.txt

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>> So thanks in advance and do not hesitate to be in touch if you need
>> clarifications
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>> Sincerely
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>> Catherine
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Advanced Experimental Design
 BIOL 596
 1 credit
 Professors: Catherine Potvin and Jon Sakata
 Tentative Course Syllabus

This course is aimed at graduate students in the Department of Biology and at upper-level undergraduates planning for data collection. As the course title indicates, the focus is on experimental design as a key step in experimentation with, and observation of, biological systems. The course will be oriented to help the students with the specific challenges that they are facing (or will be facing) in their own research. It will consist of three blocks: (i) formal lectures, (ii) discussions of scientific papers and of model experiments, and (iii) students presentation of their own experiments including hypothesis, design and challenges.

Dates	Topics	Responsible
March 15	Introduction Principles of experimental design Randomization Confounding	Sakata/Potvin
March 17	Block designs Discussion: model experiment	Potvin/Students
March 22	Hierarchical designs Discussion: paper critique	Potvin/Students
March 24	Repeated measures designs Discussion: model experiment	Potvin/Students
March 29	Time series Discussion: paper critique	Sakata/Students
March 31	Students presentation of own design	Sakata/Students
April 5	Students presentation of own design	Sakata/Students
April 7	Students presentation of own design Wrap-up	Sakata/Students/Potvin

Proposed evaluation and time line:

March 22	1 page summary of research question and hypothesis	10%
March 17-29	Group-led students discussions	30%
March 31-April 5	Students presentation of own design	25%
April 13	Written report on own design incorporating input	25%
	Participation	10%

1 page summary of research question and hypothesis:

The first key step in developing an adequate experimental design is to (a) clearly formulate the global objective, (b) state the hypothesis and (c) define the experimental/observational systems. Students should provide a clear and concise document presenting this information as well as key references on which they will build their research.

Group-led student's discussions:

Every class will be divided in two sections with some 45 minutes devoted to formal teaching and 45 minutes to discussions. Groups of students will lead the discussions and prepare them in advance with the professors. The topics will either be a "collective" reflection on particular design issues or "critique" of published papers. Grades will be given to the group not individually.

Student's presentation of own design:

Toward the end of the course, each student will present her/his research ideas and a proposed design. The designed will be scrutinized by the class to ensure that it will meet the objectives of the research. The design proposal should include preliminary ideas on how the data might later be analyzed. The oral presentation will serve to help student explain their design and receive feed-back on them.

Written report on own design incorporating input:

The written report should integrate the learning of the course and reflect the input received during the earlier discussion. It should be written in the format of a journal in the student's relevant field.