1. Will this new course affect a current program?  
   Yes ☐  No ☐  
   If “yes”, has a Program Revision Form been submitted concurrently?  
   Yes ☐  No ☐

2. Teaching Department:  Biology  

3. Administering Faculty/Unit:  Science  

4. Campus  
   (Downtown, Macdonald, Off Campus, Distance Ed, Other – specify)  
   Downtown  200701

5. Effective Term of Implementation  
   (Ex. Sept. 2004 = 200409)  
   Term:  200701

6. Responsible Instructor:  Dr. Brian McGill  

7. Course Title (Limit 30 Characters) - required for all courses:  Large-scale Ecology

8. Course Number(s)  
   Indicate course number & the number of terms spanned:  
   (tick all that apply)  
   Subject/course number:  BIOL 310  
   Course(s) Span:  
   ☑ 1 term  
   ☐ 2 consecutive terms (D1, D2)  
   ☐ 2 non-consecutive terms (N1, N2)  
   ☐ 3 consecutive terms (J1, J2, J3)

9. Course Title to Appear in the Calendar (optional)  
   (Limit 59 characters):  
   Note: This can ONLY be an expansion of word(s) abbreviated in the 30 character course title above.

10. Credit Weight  
    (or CEU's for non-credit CE courses):  3

11. Rationale for new course

   Ecology is too large a field to be covered in a single semester at a level for students focusing on organismal biology. Yet, a broad foundation in all aspects of ecology is essential for such students. The current course Biology 308 covers one major subdiscipline of ecology (Population and community dynamics) at this level. The proposed course would cover another major section of ecology at a level appropriate for introducing students focusing on organismal biology. The topics covered would be of special relevance and interest to students with interest in environmental issues.

   This course is a good follow on course to Biology 308 for students pursuing advanced ecology courses, or an alternative to 308 for students not planning to pursue advanced courses in the biology department.

12. Course Description  
   (as it will appear in the Calendar [maximum 50 words]):  
   (N.B. Faculty of Medicine must append complete course outline)

   Ecology of spaces larger than a population or community, including exploration of the variation in life between regions (biomes), the effect of human destruction of habitat (landscapes), patterns across many species and of biodiversity (macroecology), and of changes in biodiversity and climate over time (including global warming).

13. Supplementary information to appear in the Calendar in addition to the course description.  
   Such as: equivalent course(s), contact hours, enrolment limitations, language of instruction etc.  
   Please enter the information as it should appear in the calendar notes.
14. Schedule Types(s):
(Enter all that apply – see course guidelines for a complete list.)
(i.e. Lecture, Labs, Tutorial)

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Hours per Week</th>
<th>Total Hours per Week</th>
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Total Number of Weeks: 13

15. Projected Enrolment:
75

16. Required text and/or preliminary reading list sent to library?
X Yes  No

17. Prerequisite(s) (Courses or Tests)
Specify course number(s) or name(s) of test(s):

- BIOL 215; or ENVR 200 and ENVR 202 and MATH 112
- or equivalent

If the student does not have a prerequisite should web registration be blocked?
☐ Yes  ☐ No

If “Yes” complete A and B:

A. Indicate minimum grade or test score(s) the student must attain in prerequisite course(s) or test(s):

B. Can the prerequisite course(s) or test(s) be taken in the same term as this course?
☐ Yes  ☐ No

18. Corequisite(s) Course Number(s):
Specify course number(s) and title(s):

If the student does not register for the corequisite in the same term should web registration be blocked?
☐ Yes  ☐ No

19. Restriction(s):

20. Consultation Reports Attached
X Yes  ☐ N/A

21. Additional Course Charges (must be approved by the Fee Policy Committee)

<table>
<thead>
<tr>
<th>Description of Fee (e.g. screening fee)</th>
<th>Amount</th>
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22. Requires Teaching, Physical, or Financial Resources
Not Currently Available (attach explanation)
☐ Yes  ☐ No
<table>
<thead>
<tr>
<th>Slot Course:</th>
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<th>No</th>
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<tbody>
<tr>
<td>Thesis Component:</td>
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<td>No</td>
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23. Approvals:

<table>
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<tr>
<th>Routing Sequence</th>
<th>Departmental Meeting</th>
<th>Departmental Chair</th>
<th>Other Faculty</th>
<th>Curric/Academic Committee</th>
<th>Faculty</th>
<th>SCTP</th>
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Departmental Contact Person (name/phone/email): Susan Gabe/ 7045/ susan.gabe@mcgill.ca
Draft syllabus

Lecture course with laboratory sessions. Midterm 20%, Final 30%, Paper 20%, Lab 30%. The lab will consist of a series of studies that will be written up. Some labs will analyze pre-existing data on a computer while others will involve trips into the field to collect data.

Week 1 (½ wk) – What is scale? Why is study of large scales important? Why is study of large scales relatively new?
Weeks 1-3 (2 wks) – Landscape ecology – The extent of habitat fragmentation. The effects on organisms. Landscape fragmentation metrics. Amelioration of fragmentation (corridors, etc.)
Weeks 3-4 (1 ½ wks)- Species ranges. Why aren’t species found everywhere. How do species ranges vary? What causes them?
Weeks 4-6 (2 wks) - Macroecology – interrelationships between abundance, body size, range size, occupancy and other variables. What are the patterns? What are the mechanisms?
Weeks 6-8 (2 wks) – Patterns and processes in biodiversity at different scales. What controls how many species there are?
Weeks 8 & 9 (1 ½ wks) – Why are there different climates across the earth? How climate controls the life that lives there (physiological mechanisms). What are the biomes that result. How does climate affect productivity.
Weeks 10 & 11 (1 ½ wks) – What happened to life during the ice ages? How do organisms respond to changing climate?
Week 11 & 12 (1 wk) – Life through the ages – starting from earliest multicellular life to today, what have been the patterns in biodiversity? (Note not a review of the evolution of life)
Weeks 12 & 13 (1 ½ wks) – Global change; What causes it? How will the climate change? How will life be impacted?