### CHANGE COURSE (MAJOR) and DROP COURSE PROPOSAL

**SUBMITTED BY:**

<table>
<thead>
<tr>
<th>Department</th>
<th>College/School</th>
<th>CNSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology and Wildlife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diane Wagner</td>
<td></td>
<td>474-5227</td>
</tr>
<tr>
<td><a href="mailto:ffdw1@uaf.edu">ffdw1@uaf.edu</a></td>
<td></td>
<td>Diane Wagner,</td>
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<td><a href="mailto:ffdw1@uaf.edu">ffdw1@uaf.edu</a></td>
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**1. COURSE IDENTIFICATION:**

- Dept: **BIOL**  
- Course #: **271**  
- No. of Credits: **4**

**COURSE TITLE:**  
Principles of Ecology

**2. ACTION DESIRED:**

- Drop Course

**3. COURSE FORMAT**

**NOTE:** Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

<table>
<thead>
<tr>
<th>COURSE FORMAT:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>x</th>
<th>6 weeks to full semester</th>
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- Other Format (specify):
  - Mode of delivery (specify lecture, field trips, labs, etc)

**4. COURSE CLASSIFICATIONS:** (undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

- H = Humanities
- N = Natural Science
- S = Social Sciences

Will this course be used to fulfill a requirement for the baccalaureate core?  
YES [ ] NO [ ]

IF YES, check which core requirements it could be used to fulfill:
- O = Oral Intensive, Format
- W = Writing Intensive, Format
- Natural Science, Format

**5. COURSE REPEATABILITY:**

- Is this course repeatable for credit?  
  - YES [ ] NO [ ]

- Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

- How many times may the course be repeated for credit?  
  - TIMES

- If the course can be repeated with variable credit, what is the CREDITS
6. CURRENT CATALOG DESCRIPTION AS IT APPEARS IN THE CATALOG: including dept., number, title and credits

BIOL F271 Principles of Ecology (n)

4 Credits  Offered Fall

Basic principles in physiological, ecosystem, population and community ecology. Environmental factors and their influence on plants and animals. Structure, growth and regulation of populations. The ecosystem concept, biogeochemical cycles, and the structure and function of major terrestrial biomes. Special fees apply. Prerequisites: BIOL F115X; BIOL F116X. (3+3)

7. COMPLETE CATALOG DESCRIPTION AS IT WILL APPEAR WITH THESE CHANGES: (Underline new wording strike-through-old-wording and use complete catalog format including dept., number, title, credits and cross-listed and stacked.) PLEASE SUBMIT NEW COURSE SYLLABUS. For stacked courses the syllabus must clearly indicate differences in required work and evaluation for students at different levels.

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8. IS THIS COURSE CURRENTLY CROSS-LISTED?
   YES/NO  No  IF YES, DEPT  [   ]  NUMBER  [   ]
   (Requires written notification of each department and dean involved. Attach a copy of written notification.)

9. GRADING SYSTEM:
   LETTER:  x  PASS/FAIL:  [   ]
10. **ESTIMATED IMPACT**
WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

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<tr>
<th>No</th>
<th>Yes</th>
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11. **LIBRARY COLLECTIONS**
Have you contacted the library collection development officer (ffklj@uaf.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

12. **IMPACTS ON PROGRAMS/DEPTS:**
What programs/departments will be affected by this proposed action?
Include information on the Programs/Departments contacted (e.g., email, memo)

Including LS 100/101 as a prerequisite for BIOL 271 should not change the enrollments of LS 100 or 101; it will simply encourage students to complete the library science requirement early in their degree program.

13. **POSITIVE AND NEGATIVE IMPACTS**
Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.

We anticipate only positive impacts. Students frequently put off taking LS 100/101; making it a requirement for BIOL 271 will encourage biology students to complete the library science requirement earlier in their degree program.

**JUSTIFICATION FOR ACTION REQUESTED**
The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. If you ask for a change in # of credits, explain why; are you increasing the amount of material covered in the class? If you drop a prerequisite, is it because the material is covered elsewhere? If course is changing to stacked (400/600), explain higher level of effort and performance required on part of students earning graduate credit. Use as much space as needed to fully justify the proposed change and explain what has been done to ensure that the quality of the course is not compromised as a result.

BIOL 271 assignments require use of library resources to search literature databases and identify source material for written assignments. The instructors (Boone and Wagner) want to ensure that students entering the course have had some basic instruction in using library resources. More broadly, we have found that many students put the LS requirement off. Making LS a prerequisite for a 200-level course will encourage biology students to complete the LS requirement early in their degree program.
| Signature, Chair, Program/Department of: | Richard D. Boone, Biology & Wildlife |
| Date | 4/3/09 |
| Signature, Chair, College/School Curriculum Council for: | Diane Wagner, CNSM |
| Date | 4/6/09 |
| Signature, Dean, College/School of: | Paul Layser, CNSM |
| Date | 4/13/09 |

Signature of Provost (if applicable)

Offerings above the level of approved programs must be approved in advance by the Provost.

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE.

| Signature, Chair, UAF Faculty Senate Curriculum Review Committee |
| Date |
PRINCIPLES OF ECOLOGY
BIOL 271, Spring 2010

Meets
Lecture Tues & Thurs 9:45-11:15, Schaibel Auditorium
Labs:
  F01 - Wed 9:15-12:15, 402 Bunnell
  F02 - Wed 2:15-5:15, 402 Bunnell
  F03 – Thu 2:00-5:00, 408 Bunnell

Instructor
Prof. Diane Wagner
diane.wagner@uaf.edu
Telephone for course-related issues 474-5622
http://mercury.bio.uaf.edu/~diane_wagner/
Office hours Tues 11:30 – 1 or by appointment in 403 Bunnell

TAs
***

TA office hours and locations will be posted on the website

Description
Basic principles in physiological, ecosystem, population, and community ecology. Environmental factors and their influence on plants and animals. Structure, growth, and regulation of populations. The ecosystem concept, biogeochemical cycles, and the structure and function of major biomes.

Required Text

Website
The course website is administered through Blackboard at classes.uaf.edu. Please log on to Blackboard and confirm that you are can access course materials during the first week of class.

Your textbook provides an Online Learning Center at www.sinauer.com/ecology. On this website you will find learning aids and practice quizzes.

Prerequisites
Biology 115X (or 106X); BIOL 116X (or 105X); LS 100 or LS 101 or successful completion of library skills competency test; or permission of instructor

Instructional Methods
Instructional methods include lectures, group discussion, and laboratory work. Students should read the assigned portion of the text book before lecture. During most lectures, we will break for a short period to engage in problem solving activities in smaller groups.

Prior knowledge expected
When you begin the course, you are expected to be familiar with the following:
  - Basic chemical concepts (atomic and molecular structure, stoichiometry, acid-base)
  - Elemental composition, basic structure, and function of proteins, carbohydrates, lipids and nucleic acids
  - Osmosis and diffusion
  - Cell structure and function
  - Mechanisms of cellular respiration and fermentation
  - Mechanism of photosynthesis
- Mendelian genetics, mutation
- Domains and kingdoms; major taxonomic groups of plants and animals
- Interpretation of phylogenetic trees
- Sexual and asexual reproduction
- Plant and animal structure and function, including homeostasis
- Basic math skills (percents, averages, unit conversions, probability, logarithms, algebra)
- Use of the library’s online indexes and resources to locate source material; the difference between a primary and secondary source of information
- The structure and format of a scientific paper, and how to write a lab report in that format

Course Goals and Learning Outcomes
The goal of BIOL 271 is to provide students with (a) an understanding of the basic patterns, mechanisms and concepts central to ecology and (b) the ability to design and implement simple ecological experiments using the scientific method, and communicate the results clearly and effectively.

More specifically, students completing the course should able to explain clearly or apply the following:
- Mechanisms that produce variation in climate on Earth at global and regional scales, and how climate affects soils, nutrient cycling, and patterns of vegetation
- Major environmental challenges faced by organisms on land and in water
- Physiological and behavioral mechanisms by which animals and plants deal with environmental challenges
- Mechanisms of evolutionary change and the ecological conditions under which they act on populations
- Patterns of variation in the life history traits of plants and animals and tradeoffs among traits
- Techniques to measure the abundance, density, and dispersion of plant and animal populations
- Basic demography and life table interpretation
- Exponential, geometric, and logistic mathematical models of population growth
- The role of density in determining how populations change over time
- The structure and dynamics of natural communities
- Global carbon, nitrogen, and phosphorus cycles and how they interact
- Human influences on biogeochemical cycles and climate

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Midterm 1</th>
<th>15%</th>
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<tbody>
<tr>
<td></td>
<td>Midterm 2</td>
<td>15%</td>
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<tr>
<td></td>
<td>Final exam</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Lab assignments</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Participation</td>
<td>5%</td>
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Exams
Exams emphasize reasoning, problem-solving, and clarity of expression. The format will include short-answer, essay, and math problems. The final exam will emphasize material presented since the last midterm, but will also incorporate earlier material.

*Missing exams* - If you need to miss an exam for a scheduled activity (e.g. sports event), you must schedule a makeup at least one week before the exam. If you are ill on the day of the exam, you must a) contact the instructor by email or phone before the exam begins, b) take a makeup exam within 48 hours, and c) bring to the makeup exam a note from a medical professional explaining your absence. If you miss the first exam and do not take a makeup within 2 days, you will be dropped from the class.
Labs

Labs will illustrate concepts from lecture and allow you the opportunity to pursue your own questions about ecology by designing and implementing experiments. Lab attendance is required.

There are graded assignments associated with each lab exercise. Full lab reports, written in the format of a scientific paper, are required for 3 of the labs. Detailed instructions about how to write an effective lab report will be given in a separate handout. Less demanding worksheets are required for the remainder of the lab exercises. Due dates are listed on the schedule.

**Missing labs** - If you need to miss a lab, you should arrange to attend another lab that week. Contact both your own TA and the TA of the lab section you wish to attend. Sometimes, make-up labs can be arranged; other labs cannot be recreated. If you miss a lab entirely, you may receive zero points for any associated assignments or papers. Please keep in mind that many of the lab exercises will be carried out in teams. If you do not attend lab, you will place your team members at a disadvantage.

Homework

There will be 3 homework assignments. Each is due the week before an exam (see schedule). Homework assignments will be posted on Blackboard on Monday and are due Thursday at 5pm of the same week. Homework assignments will cover some of the material that will be covered on the next exam and are intended to help you study effectively.

Participation

You are expected to be an active participant at all class meetings, both lecture and lab. Lectures will frequently incorporate short problem-solving activities, and effective participation in these activities is tracked. At the end of the course, the instructor will work with TAs to evaluate your participation in the course.

Grading

Grades will be assigned based on the percentage of points you earn in class. Grades will not be assigned on a curve. No extra credit assignments are available.

<table>
<thead>
<tr>
<th>Grade</th>
<th>% of Total Points</th>
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<tbody>
<tr>
<td>A</td>
<td>90 - 100</td>
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<tr>
<td>B</td>
<td>80 - 89</td>
</tr>
<tr>
<td>C</td>
<td>70 - 79</td>
</tr>
<tr>
<td>D</td>
<td>60 - 69</td>
</tr>
<tr>
<td>F</td>
<td>0 - 59</td>
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Academic dishonesty

Acts of academic dishonesty include cheating on exams, helping others to cheat, plagiarizing (see the next paragraph), feigning illness to obtain an extension, turning in work that was written for another class without permission, and receiving credit for a group project to which you did not contribute. Please read the UAF Student Code of Conduct in the UAF Catalog. Students who behave dishonestly will receive an F for the class and the case will be presented to the University Disciplinary and Honor Code Committee for review.

Plagiarism means presenting someone else’s ideas or text — published or unpublished — as if they were your own. Instances of plagiarism include failing to cite your sources properly and copying *even a portion* of someone else’s work. Please note that making small alterations to someone else’s text to obscure the resemblance still
constitutes plagiarism. Students are welcome to work in groups to complete lab assignments and homework, but unless otherwise specified, each student must prepare his or her own assignment.

**Student Support Services**

**Writing Center** - Students are encouraged to take advantage of the Writing Center on campus in 801 Gruening, 474-5314.

**Student Support Services Program** – Tutors, laptops, and calculator checkout services are available to eligible low-income and first-generation students, as well as those with disabilities. [http://www.uaf.edu/sssp](http://www.uaf.edu/sssp), 512 Gruening, 474-6884.

**Academic Advising Center** – The Academic Advising Center offers free workshops on how to succeed in college. [http://www.uaf.edu/advising/student](http://www.uaf.edu/advising/student), 509 Gruening, 474-6396, advising@uaf.edu.

**Disabilities**

The Office of Disability Services implements the Americans with Disabilities Act and insures that UAF students have equal access to the campus and course materials. The instructor will work with the Office of Disabilities Services (203 Whitaker Bldg, 474-7043) to provide accommodation to students with disabilities. If you have a physical or learning disability, please inform the instructor in the first 2 weeks of class.
Principles of Ecology, BIOL 271
Spring 2009 Course Schedule

Week 1
R Jan 22 No class
   No labs

Week 2
T Jan 27 Introduction
R Jan 29 Physical Environment
   LAB: Eutrophication Experiment - Begin
   DUE IN LAB: nothing

Week 3
T Feb  3 Physical Environment and Biomes
R Feb  5 Biomes
   LAB: Allelopathy Experiment – Begin; Data Analysis Instruction
   DUE IN LAB: nothing

Week 4
T Feb 10 Temperature & Water
R Feb 12 Energy Relations
   LAB: Allelopathy Experiment – End; Lab Report Expectations
   DUE IN LAB: Nothing

Week 5
T Feb 17 Evolution
R Feb 19 Life History
   HOMEWORK: Due on website Thursday 5pm
   LAB: Greenhouse Experiment - Ecological Determinants of Plant Growth –
   Begin (meet in IAB greenhouse)
   DUE IN LAB: Nothing

Week 6
T Feb 24 Exam 1
R Feb 26 Population Distribution & Abundance
   LAB: Population Abundance & Dispersion
   DUE IN LAB: Population Abundance & Dispersion Worksheet

Week 7
T Mar  3 Population Growth & Regulation
R Mar  5 Population Dynamics
   LAB: Accessing the Ecological Literature
   (meet in computer lab, 4th floor Bunnell)
   DUE IN LAB: Allelopathy Lab Report

Week 8 – Spring Break
Week 9
T  Mar  17  Competition  Ch 11
R  Mar  19  Predation  Ch 12
LAB:  Eutrophication Experiment - End  
DUE IN LAB:  Ecological Literature Assignment

Week 10
T  Mar  24  Herbivory  Ch 12
R  Mar  26  Mutualism  Ch 14
LAB:  Population Growth Computer Lab  
DUE IN LAB:  Nothing

Week 11
T  Mar  31  Community Structure and Succession  Ch 15 & 16
R  Apr  2  Biogeography  Ch 17
HOMEWORK:  Due on website Thursday 5pm  
LAB:  Greenhouse Experiment – End  
(meet in IAB greenhouse)  
DUE IN LAB:  Population Growth Worksheet

Week 12
T  Apr  7  Exam 2
R  Apr  9  Species Diversity  Ch 18
LAB:  Greenhouse Experiment – Data Analysis  
(bring your data to lab!)  
DUE IN LAB:  Eutrophication Lab Report

Week 13
T  Apr  14  Production  Ch 19
R  Apr  16  Energy & Ecosystems  Ch 20
LAB:  Overwintering Ecology  
DUE IN LAB:  Overwintering Ecology Worksheet

Week 14
T  Apr  21  Nutrient Cycling  Ch 21 & 24 (pp 526-530)
R  Apr  23  Nutrient Cycling  Ch 21 & 24 (pp 526-530)
LAB:  Forest ecology  
DUE IN LAB:  Ecological Determinants of Plant Growth (Greenhouse) Lab Report

Week 15
T  Apr  28  Human Influences on Ecosystems  Ch 24 (PP 534-551)
R  Apr  30  Human Influences - Discussion  Handouts
HOMEWORK:  Due on website Thursday 5pm  
LAB:  Permafrost tunnel  
DUE IN LAB:  Forest ecology worksheet

Final exam – Sat., 9 May, 8-10am, Schaibel Auditorium