10 day posted

(2-Core related) 59-UCCh

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FORMAT 2

Submit originals (including syllabus) and one copy and electronic copy to the **Faculty Senate Office**
See http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/ for a complete description of the rules governing curriculum & course changes.

CHANGE COURSE (MAJOR) and DROP COURSE PROPOSAL

Attach a syllabus, except if dropping a course.

SUBMITTED BY:

Department	**Biology & Wildlife**	**College/School**	**CNSM**
Prepared by	**Richard Boone**	**Phone**	**907-474-7682**
Email Contact	**rdboone@alaska.edu**	**Faculty Contact**	**907-474-7682**

1. COURSE IDENTIFICATION: As the course now exists.

Dept	Course #	No. of Credits
BIOL	**485**	**3**

COURSE TITLE **Global Change Biology**

2. ACTION DESIRED: √ Check the changes to be made to the existing course.

Change Course	If Change, indicate below what is changing.	Drop Course
✔		

NUMBER		**TITLE**		**DESCRIPTION**	✔
PREREQUISITES*	✔			***FREQUENCY OF OFFERING***	✔

*Prerequisites will be *required* before a student is allowed to enroll in the course.

CREDITS (including credit distribution)				***COURSE CLASSIFICATION***	✔
ADD A STACKED LEVEL *(400/600)* *Include syllabi.*		Dept.		Course #	

How will the two course levels differ from each other? How will each be taught at the appropriate level?:

Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi—undergraduate and graduate versions—will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online – see URL at top of this page.

ADD NEW CROSS-LISTING		Dept. & No.		Requires approval of both departments and deans involved. Add lines at end of form for additional signatures.
STOP EXISTING CROSS-LISTING		Dept. & No.		Requires notification of other department(s) and mutual agreement. Attach copy of email or memo.
OTHER (specify)				

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 **and** the appropriate Faculty Senate curriculum committee. Furthermore, **any core course compressed to less than six weeks must be approved by the Core Review Committee.**

COURSE FORMAT: (check **all** that apply)		*1*		*2*		*3*		*4*		*5*		*6 weeks to full semester*

OTHER FORMAT (specify all that apply)	
Mode of delivery (specify lecture, field trips, labs, etc.)	

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Dean's Office
College of Natural Science & Mathematics

4. COURSE CLASSIFICATIONS: (undergraduate courses only. Use approved criteria found in Chapter 12 of the curriculum manual. If justification is needed, attach separate sheet.)

H = Humanities		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 6 also submitted		W = Writing Intensive, *Format 7 submitted	✔	X = Baccalaureate Core	

4.A *Is course content related to northern, arctic or circumpolar studies? If yes, a "snowflake" symbol will be added in the printed Catalog, and flagged in Banner.*

YES	✔	NO	

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 maximum number of credit hours that may be earned for this course?		CREDITS

6. <u>COMPLETE</u> CATALOG DESCRIPTION including dept., number, title, credits, credit distribution, cross-listings and/or stacking, clearly showing the changes you want made. (<u>Underline new wording</u> ~~strike through old wording~~ and use complete catalog format including dept., number, title, credits and cross-listed and stacked.)

Example of a <u>complete</u> description:

PS F450 Comparative ~~Aboriginal~~ <u>Indigenous</u> Rights and Policies (s)
3 Credits
Offered As Demand Warrants
~~Case study~~ <u>Comparative</u> approach ~~in assessing Aboriginal~~ <u>to analyzing Indigenous</u> rights and policies in different nation-state systems. ~~Seven Aboriginal situations~~ <u>Multiple countries and specific policy developments</u> examined for factors promoting or limiting self-determination. Prerequisites: Upper division standing or permission of instructor. (Cross-listed with ANS F450.) (3+0)

BIOL F485 Global Change Biology (a)

3 Credits
Offered Fall Odd-numbered Years

Contemporary science and policy concerns of global change that involve biological processes. Includes structural and functional responses and sensitivities of biological processes to environmental changes (such as climate and human uses of land and biological resources); implications of biological responses to global change for conservation and management of biological resources; and the social and economic consequences of biological responses to global change. Prerequisites: BIOL F371; CHEM F105X; CHEM F106X. Cross-listed with WLF F485. (3+0)

7. COMPLETE CATALOG DESCRIPTION AS IT SHOULD APPEAR AFTER ALL CHANGES ARE MADE:

BIOL F485 W Global Change Biology (a)

3 Credits
Offered Fall ~~Odd-numbered Years~~

~~Contemporary science and policy concerns of global change that involve biological processes. Includes structural and functional responses and sensitivities of biological processes to environmental changes (such as climate and human uses of land and biological resources); implications of biological responses to global change for conservation and management of biological resources; and the social and economic consequences of biological responses to global change.~~ Causes of climate change, the climate record, and the effects of past and forecast climate change on biophysical systems. Consideration of impacts on plants, animals, ice, and people with an emphasis on Alaska and the Arctic. Prerequisites: BIOL F371; CHEM F105X; CHEM F106X, ENGL 111X; ENGL 211X or ENGL 213X or permission of instructor. ~~.~~ Cross-listed with WLF F485. (3+0)

8. GRADING SYSTEM: ***Specify only one.***

LETTER:	✔	PASS/FAIL:	

9. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

The course will be part of a faulty member's workload and will require a classroom.

10. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (kljensen@alaska.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.

No	✔	Yes		**The course changes do not include any change in the library services required. All articles for the course are available electronically through the library.**

11. 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)

None

12. POSITIVE AND NEGATIVE IMPACTS

*Please specify **positive and negative** impacts on other courses, programs and departments resulting from the proposed action.*

No negative impacts are anticipated. The addition of a W course to the Biology & Wildlife department, which has a modest number of W courses, should be positive for Biology & Wildlife majors.

13. 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.

Climate change arguably will have greater effect on biophysical systems than any other factor during the 21st century. Most affected will be coastal regions, the subtropics, and the Arctic. Alaska will experience changes in drought stress, permafrost coverage, plant and animal ranges, and fish and wildlife populations.

The course description is changed to reflect the course content. Previously other types of global change (land-use change and non-climate driven changes in biodiversity) were given light treatment. The focus on climate change and its biophysical impacts reflects the extent of the subject.

The increase in frequency from alternate years to yearly reflects the importance of the subject for biologists. No other UAF course considers how climate change affects biological systems.

The change of the course to a Writing Intensive (W) course reflects the emphasis on writing in the course. The majority of the assessment is based on two article critiques, a major poster project, and exams that are short-answer, essay style. Students' writing skills at the start of the course will be evaluated via an ungraded writing assignment. The instructor will meet with each student at the start of the term, after the writing diagnostic assignment, and after writing assignments to provide guidance and feedback.

APPROVALS: (Additional signature blocks may be added as necessary.)

(Diane Wagner)		Date	8/9/2013
Signature, Chair, Program/Department of:	Biology + Wildlife		
Thomas K. Swee		Date	10-30-2013
Signature, Chair, College/School Curriculum Council for:	CNSM		
for Paul W. Layer		Date	Oct 30, 2013
Signature, Dean, College/School of:			
Offerings above the level of approved programs must be approved in advance by the Provost:			
		Date	
Signature of Provost (if applicable)			

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

		Date	
Signature, Chair Faculty Senate Review Committee: ___Curriculum Review ___GAAC ___Core Review ___SADAC			

ADDITIONAL SIGNATURES: ***(As needed for cross-listing and/or stacking; add more blocks as necessary.)***

	Date		
Signature, Chair, Program/Department of:			
	Date		
Signature, Chair, College/School Curriculum Council for:			
	Date		
Signature, Dean, College/School of:			

Note: If removing a cross-listing, attach copy of email or memo to indicate mutual agreement of this action by the affected department(s). If degree programs are affected, a Format 5 program change form must also be submitted.

GLOBAL CHANGE BIOLOGY
BIOL/WLF F485
Fall 2009

Mon-Wed-Fri 11:45A-12:45P Irving 201

Instructor

Richard Boone, Professor of Ecosystem Ecology
Department of Biology & Wildlife, and
Institute of Arctic Biology
122 Arctic Health Research Building
474-7682 (Office) / rdboone@alaska.edu

Course Description

Students will be introduced to global changes that have occurred during the distant and recent past and their effect on biological systems. Topics will include climate change, biodiversity, and human population dynamics. We will examine the degree to which humans are causing global and biological changes and how the degree of impact is influenced by technology and lifestyles. Relatively well-understood global changes from the recent and distant past will be compared with comparable events underway now.

Course Goals

Major changes in climate, biogeochemical cycles, and biotic resources are among the greatest challenges that will face humankind in the 21st Century. The goal of this course is provide students with (1) good understanding of the major changes in the Earth's climate, biogeochemical cycles, and biotic resources; (2) the factors that promote those changes; (3) interactions among those factors; and (4) skills to critically evaluate the quality of global change information. It is my hope that through this course you will become both a better biologist and a more informed citizen.

Readings

There is no textbook for the course. Readings will come from primary papers, the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, the Arctic Climate Impact Assessment (ACIA), and the web. Readings will be given out in class and/or posted on Blackboard.

Instructional Methods

The course will include a variety of instructional approaches including lectures, discussions, and group and individual learning activities.

Grading

Grades will be weighted as follows: 20% midterm exam, 25% critiques, 25% poster project, 5% class participation, and 25% final exam. The critique grade will be based on a written evaluation of two articles, one from the popular press and one from the scientific literature. Posters will be judged on the basis of content and presentation. Final course grades will be based on the following scheme:

90-100%	A	60-69%	D
80-89%	B	<60%	F
70-79%	C		

I will not use plus/minus grades in assignment of final course grades. Grading rubrics will be provided for the critique and poster assignments.

Poster Assignment
You will become an expert on an ecoregion (an assemblage of plant and animal communities that is geographically distinct), including evolution of the ecoregion, current conditions, and how it may respond to pressures anticipated for the ecoregion (e.g., land-use alteration, exotic species, climate change). The ecoregion concept increasingly is being used by conservation organizations and federal and local resource management agencies for management and planning purposes. Students also will present an oral summary of their poster at a class poster session.

Reading Expectations
You are expected to do the readings before they are covered in class. Come prepared with questions, discussion points, and criticisms. Also use the class period as a chance to share any relevant information obtained independently from other sources.

Critiques (2)
You will write a critique (3-4 pages double-spaced) of (1) a newspaper or magazine article that focuses on some aspect of global change biology, and (2) a paper from the peer-reviewed literature. I will give some example publications. The purpose of your critique of the popular article is to evaluate the writer's objectivity, the quality of their information, and whether opposing views (if appropriate to the story) are presented. You should also evaluate the effectiveness of any graphs or illustrations. A major challenge, given the high volume of information in the popular literature on global change, is to discern quality information from conjecture, speculation, jargon, and simple sensationalism. Your critique of the article from the peer-reviewed literature should evaluate the overall quality of the science, the quality of the presentation, and the degree to which the author integrated findings into a larger scientific context.

Exams
The mid-term and final exams will focus more on conceptual understanding (your ability to explain concepts or to make well-reasoned predictions based on what you know) rather than factual knowledge. You will need to know key facts, but the exams not uncommonly will require you to apply that knowledge.

Plagiarism
Plagiarism is a serious violation of academic ethics and the UAF Student Code of Conduct. This issue has become a greater problem with the availability of information on the web. Any assignments with plagiarized material will receive an "F". More serious penalties apply if there are repeated cases of plagiarism. An excellent definition of plagiarism is found at www.uaf.edu/library/instruction/handouts/Plagiarism.html. If you have any doubts about what constitutes plagiarism contact me.

Disability Services
The UAF Office of Disability Services implements the Americans with Disabilities Act (ADA) and ensures that UAF have equal access to the campus and campus materials. I will work with the Office of Disabilities Services (x7043) to provide reasonable accommodation to students with disabilities.

Blackboard
I will use the UAF Blackboard site (http://classes.uaf.edu/) extensively to post announcements, readings, and other global change resources in the literature and on the web.

SCHEDULE
GLOBAL CHANGE BIOLOGY
BIOLOGY 485
FALL 2009

SECTION I: Introduction

September		Topic	
4	F	Introduction	
9	W	Sources of information & assessing information quality	

SECTION I: Human Population and Societies as Drivers of Global Change

11	F	History of human population changes	
14	M	Causes of human population growth	
16	W	Human population projections	
18	F	Ecological footprint	

SECTION II: Climate Change

21	M	Sources of climate data (direct observations and proxy data)	
23	W	Temperature and precipitation trends	
25	F	Circumpolar and Alaska temperatures	
28	M	Milankovich cycles	
30	W	Human and natural drivers of recent climate change	
October			
2	F	Carbon dioxide	
5	M	Methane and nitrous oxide	***Critique #1 Due***
7	W	Clouds, aerosols, and global dimming	
9	F	Clouds, aerosols, and global dimming (cont.)	
12	M	Snowball Earth	
14	W	Ocean currents and thermohaline circulation	
16	F	**Midterm Exam**	
19	M	Projections of future climate change	
21	W	Global circulation models (GCMs) – how do they work?	
23	F	Evidence of abrupt climate change	
26	M	Evidence of abrupt climate change (cont.)	
28	W	Processes that cause abrupt climate change	
30	F	Contrarian views of climate change (skeptical environmentalist)	

SECTION III: Biophysical Impacts of Climate Change

November			
2	M	Indigenous perspectives	
4	W	Indigenous perspectives (cont.)	
6	F	Sea ice	
9	M	Snow cover, glaciers, and permafrost	
11	W	Animals – physiological responses	
13	F	Marine mammals - Polar bears, ringed seals, and walruses	
16	M	Marine mammals and fish	
18	W	Plant growth responses	***Critique #2 Due***
20	F	Plant distribution responses	

23	M	Plant distribution responses
25	W	Forecasts for forestry and agriculture
27	F	No class (Thanksgiving break)
30	M	Human health

SECTION IV: Human Impacts (non-climate)

December

2	W	Land-use land-cover changes
4	F	The greening of New England
7	M	Invasive species – Planet of the Weeds?
9	W	Biodiversity
11	F	The UN Millennium Assessment: What does the future hold?
12	W	**Poster presentations**
14	F	**Poster presentations (cont.)**
16	W	**Final Exam (10:15A-12:15P)**

Note: This Schedule is subject to change