

Submit originals and one copy and electronic copy to **Governance/Faculty Senate Office**
See <http://www.uaf.edu/uafgov/faculty/cd> for a complete description of the rules governing curriculum & course changes.

CHANGE COURSE (MAJOR) and DROP COURSE PROPOSAL

SUBMITTED BY:

Department	GEOGRAPHY	College/School	SNRAS
Prepared by	P.Heiser	Phone	7068
Email Contact	paheiser@alaska.edu	Faculty Contact	D. Mann

1. COURSE IDENTIFICATION:

Dept	GEOG	412	No. of Credits	3
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COURSE TITLE	
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2. ACTION DESIRED:

Change Course	<input checked="" type="checkbox"/>	If Change, indicate below what change.	Drop Course	<input type="checkbox"/>	
NUMBER	<input type="checkbox"/>	TITLE	<input checked="" type="checkbox"/>	DESCRIPTION	<input checked="" type="checkbox"/>
PREQUISITES	<input type="checkbox"/>	FREQUENCY OF OFFERING		<input type="checkbox"/>	
CREDITS (including credit distribution)	<input checked="" type="checkbox"/>	COURSE CLASSIFICATION		<input type="checkbox"/>	
CROSS-LISTED	<input checked="" type="checkbox"/>	Dept.	<input type="checkbox"/>	(Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)	
STACKED (400/600) Include syllabi.	<input checked="" type="checkbox"/>	Dept.	<input type="checkbox"/>	Course #	<input type="checkbox"/>
OTHER (please					

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.

COURSE FORMAT: (check all that apply)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input checked="" type="checkbox"/> 6 weeks to full semester
OTHER FORMAT (specify all that apply)						
Mode of delivery (specify lecture, field trips, labs, etc)	3 lecture hrs / week, 1 hr discussion group/ wk, 1 field trip					

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	<input type="checkbox"/>	S = Social Sciences	<input type="checkbox"/>		
Will this course be used to fulfill a requirement for the baccalaureate core?	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	
IF YES, check which core requirements it could be used to fulfill:					
O = Oral Intensive, Format 6 also submitted	<input type="checkbox"/>	W = Writing Intensive, Format 7 submitted	<input type="checkbox"/>	Natural Science, Format 8 submitted	<input type="checkbox"/>

5. COURSE REPEATABILITY:

Is this course repeatable for credit?	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	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?	<input type="checkbox"/>	CREDITS		

6. *CURRENT CATALOG DESCRIPTION AS IT APPEARS IN THE CATALOG: including dept., number, title and credits*

GEOG F412 Geography of Climate and Environmental Change

3 Credits
Offered Spring

Serves as a "synthesis" breadth course focusing on the geography of climate and environmental change. The major concepts of global climate processes and climate change will be reviewed on multiple time scales. The impacts of natural and anthropogenic environmental change will be examined through selected case studies and readings (e.g. permafrost, invasive species, sea ice, fire, urbanization). Prerequisites: BIOL F271; GEOG F401; or permission of instructor. (3+0)

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.*

~~**GEOG F412 Geography of Climate and Environmental Change**~~

GEOG/ATM/BIO/GEOS 412

Processes of Climate Change Past, Present, and Future

~~3~~ 4 Credits
~~Offered Spring~~ Fall

~~Serves as a "synthesis" breadth course focusing on the geography of climate and environmental change. The major concepts of global climate processes and climate change will be reviewed on multiple time scales. The impacts of natural and anthropogenic environmental change will be examined through selected case studies and readings (e.g. permafrost, invasive species, sea ice, fire, urbanization). Prerequisites: BIOL F271; GEOG F401; or permission of instructor. (3+0)~~

This course is a survey of climate change science extending from the paleo-record to modern climate dynamics and modeling. The class consists of two distinct but integrated topical 'modules'. The first seven weeks will explore the paleoclimatic changes that have occurred on planet Earth, using the climate events in the Past to better understand current and future climatic changes. The second half of the semester introduces first principles of climate dynamics and then applies these dynamics to predictive climate models. Prerequisites: Senior standing or permission of instructor. (4+0)

GEOG/ATM/BIO/GEOS 612

Processes of Climate Change Past, Present, and Future

~~3~~ 4 Credits
~~Offered Spring~~ Fall

This course is a survey of climate change science extending from the paleo-record to modern climate dynamics and modeling. The class consists of two distinct but integrated topical 'modules'. The first seven weeks will explore the paleoclimatic changes that have occurred on planet Earth, using the climate events in the Past to better understand current and future climatic changes. The second half of the semester introduces first principles of climate dynamics and then applies these dynamics to predictive climate models. Prerequisites: Graduate standing or permission of instructor. (4+0)

8. *IS THIS COURSE CURRENTLY CROSS-LISTED?*

YES/NO ☒

If Yes, DEPT

NUMBER

(Requires written notification of each department and dean involved. Attach

a copy of written notification.)

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

LETTER: ☒

PASS/FAIL: ☐

10. **ESTIMATED IMPACT**

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

None, the course is already being taught. Increased enrollment may require a move to a larger classroom.

11. **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.

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)*

This course will attract senior undergraduates, and graduate students interested in climate change. Students from Biology, Atmos Science, Geology or other programs may take it as an undergraduate elective or for graduate credit. Cross listing in multiple departments ensures that many students will see this course offering. NOTE: This is the first phase of a planned 2 semester, integrated Climate Change course series and we are currently investigating use of a different type of course designator.

13. **POSITIVE AND NEGATIVE IMPACTS**

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

Impacts are positive. Students from multiple programs and departments can take this course. There are unlikely to be any negative impact on other departments as students can take the course within their own program designator.

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.

This course change to GEOG 412 is the first step in the ongoing development of a 2 semester (8 credit) course sequence in on Climate Change Literacy. Faculty from multiple departments and schools are working together to develop an integrated multi-disciplinary course drawing on expertise from across campus. The two courses will comprise a capstone experience for senior BS Geography majors, and will be available as four 2 credit modules for graduate students embarking on climate change projects and needing background coursework in all or some of the course modules. We believe this course sequence will provide a world class opportunity to study climate change at America's Arctic University. Our students will become literate in the many aspects of climate change and how they relate to each other and society. We also hope and expect that this course may bring student from other universities to take advantage of this course.

In Fall 10 we wish to offer this course, cross-listed, and as 4 credits (3 lecture hrs/wk, plus 1 field trip and recitation/discussion groups). We feel that while condensed in time on the calendar (7 weeks each module), it is important to give students time to reflect and discuss course content (discussion groups =1 extra hour/wk). The difference between graduate and undergraduate expectations is outline in the syllabus.

A comprehensive course proposal for the sequence will be submitted in Nov. A prospectus for the full course sequence and course philosophy is attached here for reference.

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APPROVALS:

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

	Date	
Signature, Chair, UAF Faculty Senate Curriculum Review Committee		

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking)

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

ATTACH COMPLETE SYLLABUS (as part of this application).

Note: The guidelines are online: <http://www.uaf.edu/uafgov/faculty/cd/syllabus.html>

The department and campus wide curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course change will be denied.

SYLLABUS CHECKLIST FOR ALL UAF COURSES

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

1. Course information:

☐ Title, ☐ number, ☐ credits, ☐ prerequisites, ☐ location, ☐ meeting time (make sure that contact hours are in line with credits).

2. Instructor (and if applicable, Teaching Assistant) information:

☐ Name, ☐ office location, ☐ office hours, ☐ telephone, ☐ email address.

3. Course readings/materials:

☐ Course textbook title, ☐ author, ☐ edition/publisher.
☐ Supplementary readings (indicate whether ☐ required or ☐ recommended) and
☐ any supplies required.

4. Course description:

☐ Content of the course and how it fits into the broader curriculum;
☐ Expected proficiencies required to undertake the course, if applicable.
☐ Inclusion of catalog description is *strongly* recommended, and
☐ Description in syllabus must be consistent with catalog course description.

5. ☐ Course Goals (general), and (see #6)

6. ☐ Student Learning Outcomes (more specific)

7. Instructional methods:

☐ Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

8. Course calendar:

☐ A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

9. Course policies:

☐ Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

10. Evaluation:

☐ Specify how students will be evaluated, ☐ what factors will be included, ☐ their relative value, and
☐ how they will be tabulated into grades (on a curve, absolute scores, etc.)

11. Support Services:

☐ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

12. Disabilities Services:

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials.

☐ State that you will work with the Office of Disabilities Services (208 WHIT, 474-5655) to provide reasonable accommodation to students with disabilities."

Geography 412 /612 (ATM/BIO/GEOS)

Processes of Climate Change Past, Present, and Future

4 CREDITS

Instructor: **Dr. Daniel Mann** , Geography Program, School of Natural Resources, UAF
email: dhmann@alaska.edu

Office: Scenario Network Arctic Planning, Denali Building

phone: 474-6929

Office Hours: MWF 9:30-10:30 and by appointment

Meeting Time and Location: (TBA)

3 regular lectures hours per week + one hour discussion group/recitation

Course Description

This course is a survey of climate change science extending from the paleo-record to modern climate dynamics and modeling. The class consists of two distinct but integrated topical ‘modules’. The first seven weeks will explore the paleoclimatic changes that have occurred on planet Earth, using the climate events in the Past to better understand current and future climatic changes. The second half of the semester introduces first principles of climate dynamics and then applies these dynamics to predictive climate models.

Course Prerequisites: Senior standing in Geography or natural sciences, graduate standing, or instructor permission.

Course Objectives: This is a ‘synthesis’ course for upper division Geography and Natural Sciences undergraduates and graduate students. Students will gain a thorough understanding of Earth climate dynamics and change through the study of both past climate event and modern climate processes. Students will be trained to critically evaluate both the validity of paleoclimatic reconstructions and climate model predictions.

Instructional / Teaching Methods: This class will be a lecture course with discussion groups and one field trip. Discussion groups will require critical evaluation of assigned readings from the current scientific literature.

Student Assignments: Students will write two short papers during the course of the semester, one in each ‘module’. These papers will involve critical reviews of 2-3 related journal articles. A field trip report is also required.

Required Texts: William F. Ruddiman, Earth’s Climate Past and Future. Second Edition 2008, Dennis Hartmann, Global Physical Climatology (The International Geophysics Series, Vol 56) by Academic Press, 1994, ISBN: 012328530-5. List Price: \$83.95.

SCHEDULE OF LECTURES, EXAMINATIONS, AND ASSIGNMENTS

Subject to change.

Exams, field trip, discussion group deadlines provided on Bb.

Week 1	Introduction to Paleoclimate Reconstruction	Rudd 1-2
Week 2	Precambrian Climate	Rudd 3-4
Week 3	Mesozoic Climates (and Mass Extinctions)	Rudd 5-6
Week 4	Orbital Scale Climatic Changes	Rudd 7-9
Week 5	Pleistocene Ice Ages, Trace Gases, Feedbacks	Rudd 10-11
Week 6	LGM and Deglacial Climate Change	Rudd 12-14
Week 7	The Holocene	Rudd 15-17
Week 8	Global Energy Balance	Hart. 1, 2
Week 9	Radiative Equilibrium	Hart. 3
Week 10	Surface Energy Balance	Hart. 4
Week 11	Atmospheric General Circulation	Hart. 6
Week 12	Climate Feedbacks	Hart. 9
Week 13	Climate Modeling	Hart. 10
Week 14	Anthropogenic Climate Change	Hart. 11

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Paleoclimates Field Trip: Mandatory weekend field trip to Isabel Pass with stops at important paleo-climate sites in Interior Alaska, including loess sections, paleo-dune fields, Pleistocene and Holocene moraines, and an examination of lake sediments.

Assignments and Grading:

Paleoclimates:

Exam 1 15%
Exam 2 15%
Field Trip Participation and Report 10%
Article Review 10%

Climate Dynamics and Modeling

Exam 1 15%
Exam 2 15%
Discussion 10%
Project 10% (Summarize in 15 minute,
oral presentation).

GRADUATE vs UNDERGRAD EXPECTATIONS AND GRADING

- 1) Two tier exam structure, graduate students will have an additional take-home component and will be graded with higher expectations, different rubric.
- 2) Grad student article review will require 3-4 papers, undergrad 1-2 (with instructor guidance). Grad students will review longer and more sophisticated articles, and their reports evaluated with higher expectations.
- 3) Graduate students will give short presentations and each lead one discussion session.

Course grades will be assigned as indicated at the table below. Course %'s are for THIS course only and may vary with different instructors. Grade point values are indicated on the table as well. Please see "Academics and Regulations" section of UAF 2007-2008 Catalogue.

grade % GP

A+ 100-97 4.0	C+ 79-77 2.3
A 96-92 4.0	C 76-72 2.0
A- 91-90 3.7	C- 71-70 1.7
B+ 89-87 3.3	D+ 69-67 1.3
B 86-82 3.0	D 66-62 1.0
B- 81-80 2.7	D- 61-60 0.7

Course Grading Scale: All grades are determined on an absolute score (with no curve) according to the following scale:

A = 90-100 percent: outstanding work, mastery of topic

B = 80-89 percent: above average work, all assignments completed well

C = 70-79 percent: average, all or most assignments completed, most work satisfactory

D = 60-69 percent: pass, unsatisfactory or missing work

F = less than 60 percent: failure to meet requirements of course

Support and Disabilities Services: The UAF Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. The course instructors will work with the Office of Disabilities Services to provide reasonable accommodation to students with disabilities. Please notify the instructor of any special needs.

Plagiarism/Academic Integrity: University Standards and Policies apply (see UAF Catalog).

Extra Credit: Extra credit is not an option in this course except under unusual circumstances.

Information on Exams and Assignments: Examination format will include a mixture of multiple choice, short answer / diagram / map, and essay.

end