

UNIVERSITY OF MAINE SYSTEM
STATEMENT OF INTENT TO PLAN

Graduate _____
Two-Year _____
Four-Year X

University of Maine

- 1. Title: Climate Change and Culture**
Degree: B.S. or B.A.
Area: Anthropology and Earth Sciences

2. People Responsible for Planning

Name: Dr. Kristin Sobolik **Department:** Anthropology
Address: South Stevens Hall **Telephone Number:** 581-1893
 University of Maine,
 Orono, Maine 04469

Name: Dr. Joseph Kelley **Department:** Earth Sciences
Address: Bryand Global Sciences **Telephone Number:** 581-2162
 University of Maine,
 Orono, Maine 04469

3. General Objective of Proposal

Climate Change is one of the leading environmental and human problems facing the world today. Solutions to this problem can only be found with an understanding of the processes that govern both climate *and* human culture. Successful policy decisions to mitigate climate change will be based on solid science and social science related to culture. It is our goal to create a degree program that produces students capable of rising to the challenge of the climate change issue.

UMaine is already widely known for the research conducted by its Climate Change Institute. Institute faculty are jointly appointed and affiliated in academic units, most significantly Earth Sciences and Anthropology. We propose that UMaine capitalize on the faculty, facilities, research, and graduate program currently in place by offering undergraduate B.S. and B.A. degrees in Climate Change and Culture that draws on the existing faculty and infrastructure of the Departments of Anthropology and Earth Sciences.

This proposal promises to become a signature program for UMaine because: 1) it would be based in an existing program of excellence, 2) the faculty, courses, and infrastructure are already in place, and 3) no other such program exists in the nation.

By creating an exciting degree program revolving around climate change, we will provide students with a thorough grounding in what is likely to become the most important environmental issue in their lives. Because the program will be unique, moreover, it should attract students both from within and from out-of-state and offer them opportunities to work with faculty on exciting scientific questions in research areas all over the world. It promises also to transform UMaine into the first choice school of many students who would not otherwise apply here.

Curricula for the B.S. and B.A. in Climate Change and Culture are found in Appendix I.

4. Documented Evidence of Need

Climate change is a global problem that has the potential to change life as we know it. Shifting temperature and moisture patterns and the responses of plant and animal communities to these changes are one side of the issue. Melting glaciers and rising ocean with landward-moving shorelines add to the dilemma. The other side of the problem is the human dimension, both with regards to impact and response. Humans contribute to global warming and environmental degradation, and humans alone can provide solutions to these problems through successful policy initiatives at local and global scales.

The Climate Change Institute, in large part through its faculty in Anthropology and Earth Sciences, has investigated both sides of these issues in an interdisciplinary framework for more than 37 years through research associated with graduate student training. This new degree program will transform the issue of climate change and cultural adaptation into an opportunity for UMaine to attract new undergraduate students interested in learning about and tackling these important global problems.

This proposal aligns well with the University's Strategic Goals to:

- 1) *be a first choice institution for highly qualified and diverse students* (Strategic Goal 1). Our proposed program is unique in the nation and likely to draw exceptional students with interests in climate change.
- 2) *increase research opportunities for undergraduate students, drawing on our strengths as a research university* (Strategic Goal 1.1.1). The undergraduates we attract will share opportunities to conduct research with our graduate students, who will serve as co-mentors with faculty on funded projects in Maine and around the world.
- 3) *increase the number and visibility of interdisciplinary programs* (Strategic Goal 1.1.2). This proposed union of Earth Sciences and Anthropology involves faculty and

units that already collaborate successfully with each other and with joint graduate students through the Climate Change Institute.

- 4) *develop new programs that maximize existing strengths* (Strategic Goal 1.1.2). The proposed new undergraduate program draws on faculty, facilities, and collaborations already in place in one of the most successful, signature graduate programs at UMaine: the Climate Change Institute.

5. A. Which campuses, agencies, organizations, institutions or individuals have you involved in the program?

<u>Name</u>	<u>Address</u>	<u>Individual Contact</u>	<u>Title</u>
Department of Anthropology	UMaine	Kristin Sobolik	Chair
Department of Earth Sciences	UMaine	Joseph Kelley	Chair
Climate Change Institute	UMaine	Paul Mayewski	Director

B. Which campuses, agencies, organizations, institutions or individuals do you plan to involve in the program?

<u>Name</u>	<u>Address</u>	<u>Individual Contact</u>	<u>Title</u>
Department of Anthropology	UMaine	Kristin Sobolik	Chair
Department of Earth Sciences	UMaine	Joseph Kelley	Chair
Climate Change Institute	UMaine	Paul Mayewski	Director

C. How?

Many faculty in the Departments of Anthropology and Earth Sciences are jointly appointed or are Cooperating Professors in the Climate Change Institute. As such, these faculty have been and currently are conducting research, and training, mentoring, and advising graduate students in this joint/interdisciplinary framework. A joint undergraduate degree program will not be a novel idea within this group.

6. What type and/or extent of support is presently available?

A. Personnel

At this time, we need no additional personnel. The entire program is essentially already in place. It consists of a group of internationally recognized faculty, extremely active in research and publication in international journals and presses and in securing prestigious grants and scholarships. There are nine Earth Sciences faculty and eight Anthropology faculty in the Climate Change Institute, and several other members of both units already teach courses that will be required by the new program. In addition, we plan to use existing, related courses in the School of Marine Sciences and the School of Biology and Ecology.

B. Facilities

At this time the program does not require additional laboratory space. All of the courses that define the program currently exist. If student demand increases, and we expect that it will, some changes may be necessary. Some of the courses needed for this program are currently taught on a semi-annual basis and if need warrants they can be taught on an annual basis instead.

C. Equipment

Equipment needs for this program are either in place or can be acquired through normal grant channels. The Department of Earth Sciences recently obtained Unified Fees support to purchase a windmill, solar panels, and river and well monitoring equipment that will be used in classes. The data from these pieces of equipment will be displayed in the Bryand Global Science Center and be used in classes in the new program. Other needs that develop will be addressed in a similar fashion.

Students currently have access to state-of-the-art instrumentation, including marine geophysical mapping profilers, ground-penetrating radar, land and under-sea coring equipment, ICP-MS, SEM, Electron Micro-probe, Stable Isotope Lab as well as chemical facilities in the ECL in Sawyer Environmental. This equipment was acquired through NSF-Major Research Instrumentation grants and future large equipment needs will be similarly obtained. Undergraduates are regularly trained to use this equipment as part of their research projects.

D. Funding Sources

The Departments of Anthropology and Earth Sciences have been highly successful in obtaining grants to support their research activities. Over the past 5 years, members of both departments have attracted over \$14 million in support of research, travel, fellowships, student assistance, and equipment.

E. Library Resources

Library holdings are generally adequate in climate change, anthropology, and earth sciences. Depending on the precise directions taken in the future, some new journals and books will be required, though we anticipate that part of this upgrading will also benefit other departments on campus.

F. Other

The University of Maine is well positioned to mount this distinctive program because of the presence of the internationally recognized Climate Change Institute with which most of the faculty teaching the Climate Change and Culture courses are affiliated. This network of 37 years of proven interaction demonstrates that the interdisciplinary

research and teaching required of the proposed program is not just an idea, but a proven reality.

G. What additional new costs are required in any or all of the above categories?

No additional costs are required to implement the program. A critical issue, however, will be recruitment. Both the Departments of Earth Sciences and Anthropology have developed new web sites which should become major recruitment platforms for this program. The Honor's College has also expressed interest in attracting students interested in climate change, and we will work with them to recruit high quality students.

7 Briefly describe preliminary plans for regular program evaluations, formative and summative.

UMaine requires new programs to be evaluated after two years. After this initial evaluation, the program will be evaluated in the same time frame as other UMaine programs, 7-10 years.

8 Time Frame

Estimated Planning Time: < 3 months

Estimated Implementation Time: 2010

Estimate of Program Lifetime: Indefinite

9 COMPLETE FOR GRADUATE PROGRAM ONLY: On what other campus, if any, will this program be available? What plans are there to insure transferability from other campuses into this program or to deliver this program to other campuses?

N/A

10 Other Pertinent Data and/or Information

11. Submitted By:

Kristin Sobolik 10-1-09

Joseph Kelley 10-1-09

Approved By:

College of Liberal Arts and Sciences	Date
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College of Natural Sciences, Forestry, and Agriculture	Date
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Undergraduate Program Curriculum Committee	Date
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Provost	Date
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President	Date
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Office of the Vice Chancellor for Academic Affairs	Date
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APPENDIX I
Climate Change and Culture Curriculum
B.S. and B.A. Degrees

Entering cohorts will be introduced to inquiry-based research in the First Year Seminar including discussion and field and laboratory experiences culminating in student presentations. The First Year Seminar will involve vertical integration with seniors in the program interacting with first year students. Until our first cohort are seniors, vertical integration will be provided by graduate students in the Climate Change Institute. The programs will center on core courses in anthropology and earth sciences and will culminate in the Capstone research experience in the field and/or lab and to include a research paper and presentation.

The programs will be overseen by a committee to include the department chairs and instructors of the required courses.

Required Courses: (35 credit hours)

First Year Seminar:

ANT 107 Climate Change and Culture First Year Seminar (1 sch, first semester)

ERS 107 Climate Change and Culture First Year Seminar (1 sch, second semester)

ANT 101 Introduction to Anthropology: Human Origins and Prehistory

ANT 102 Introduction to Anthropology: Diversity of Cultures

ANT 250 Conservation Anthropology: The Socio-Cultural Dimensions of Environmental Issues

ANT 390 Seminar in Anthropology and Climate Change (currently ANT 490)

ANT 420 Human Impacts on Ancient Environments

One 100 level ERS course from this list:

ERS 102 Environmental Geology of Maine

ERS 103 Dynamic Earth

ERS 108 Beaches and Coasts

ERS 140 The Atmosphere

ERS 121 Humans and Global Change

ERS 201 Global Environmental Change

ERS 369 Energy Resources and Climate Change

ERS 441 Glaciers and our Landscape

Capstone Research and/or Laboratory Experience

ANT 492 or ERS 499 (3 sch)

4 other courses from the list below, or other appropriate course upon approval of the undergraduate committee: (12 credit hours)

ANT 207 Introduction to World Archaeology
ANT 210 Physical Anthropology
ANT 270 Environmental Justice Movements in the US
ANT 300 Basic Theory in Cultural Anthropology
ANT 317 Fundamentals of Archaeology
ANT 372 North American Prehistory
ANT 450 Hunter-gatherers
ANT 464 Ecological Anthropology
ANT 465 Political Anthropology
ANT 466 Economic Anthropology
ANT 477 Field Research in Archaeology
ANT 497 Laboratory Techniques in Prehistoric Archaeology
ERS 200 Earth Systems
ERS 312 Geochemistry
ERS 315 Principles of Sedimentology and Stratigraphy
ERS 317 Geophysics
ERS 323 Severe and Hazardous Weather
ERS 350 Fresh-water Systems
ERS 408 Coastal Processes and Coastal Zone Management
ERS 420 Computation in Earth Science
BIO 476 Paleoecology
SMS 402 Oceans and Climate Change

B.S. Degree Additional Courses: (30-32 credit hours)

2 biology courses
2 physics courses
2 chemistry courses
2 calculus courses

B.A. Degree Additional Courses: (17-18 credit hours)

1 biology course
1 physics course
1 chemistry course
1 GIS course

TOTAL CREDIT HOURS

B.S. Degree = 77-79 credit hours

B.A. Degree = 64-65 credit hours