



<http://www.csuci.edu/ira/index.htm>

Application
Instructionally Related Activities Funds Request
2010-2011 Academic Year
DEADLINE: Fall and Academic Year 3/31/10
Spring TBD

Applications must first be sent to the appropriate program chair. Chairs will recommend and route them to the Dean's Office for review and authorization. The Dean's Office will then forward them to the IRA Committee for consideration.

Activity Title: Climate Change and the Arctic National Wildlife Refuge

Project Sponsor/Staff (Name/Phone): Amy Denton (8458) and Scott Frisch (2770)

Activity/Event Date(s): 06/02/11 through 06/12/11

Date Funding Needed By: 1 January 2011

Please check if any of the following apply to your IRA:

- | | |
|---|---|
| <input type="checkbox"/> Equipment Purchase | <input checked="" type="checkbox"/> Field Trip |
| <input type="checkbox"/> Event | <input type="checkbox"/> Participant data collection for public dissemination, i.e. interviews/surveys that result is a journal/poster session/newsletter |
| <input type="checkbox"/> IT Requirements | <input type="checkbox"/> Risk Management Consultation |
| <input type="checkbox"/> International Travel | <input type="checkbox"/> Late Submission |
| <input type="checkbox"/> Space/OPC Requirements | |
| <input type="checkbox"/> Infrastructure/Remodel | |
| <input type="checkbox"/> Other _____ | |

Previously Funded: XYES NO Yes, Request # 284

Does your proposal require IRB (Institutional Review Board) approval: Yes No

Assessment submitted for previously Funded Activity: XYES NO

Academic Program or Center Name and Budget Code: 720-Biology (Denton), 769-Political Science (Frisch)

Date of Submission: 31 March 2010

Amount Requested: \$31,050
(Should match item 2. E. on page 4)

Estimated Number of Students Participating: 6

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Conditions and Considerations

Equipment Purchase-If requesting large equipment, Project Sponsor must show proof of correspondence with OPC Administration. In addition, all other purchases must follow Procurement Guidelines

Events-Attach copy of Events and Facilities Use Request Form (Public Folders-Events & Facilities folder) Consider time frame for set-up and take down.

Participant Data Collection for Public Dissemination-If Project Sponsor proposes to conduct research with human participants then it may be subject to IRB (Institutional Review Board for the Protection of Human Subjects) review. It is the Project Sponsor's responsibility to inquire with the IRB prior to IRA application submission to determine if the project is exempt from IRB review so that funding is not delayed. Please indicate on the cover page if your project is exempt from IRB review.

Field Trip-If approved, Identified Risks of Participation and Release Agreement must be submitted for each student to the Program Office (Public Folders-HR Forms).

IT Requirements-Requires proof of correspondence and approval from IT Administration

International Travel-Requires International Travel application be submitted to Center for International Affairs.

Risk Management Consultation-Requires proof of correspondence with Risk Management.

Space/OPC Requirements, Infrastructure/Remodel-Requires proof of correspondence with OPC Administration.

Late Submission - Requires explanation for emergency funding.

Fiscal Management: Project Sponsor's program will be responsible for all costs incurred over and above what is funded through the IRA award and will be responsible for seeing that any revenue that is intended to offset the amount of the IRA award is transferred accordingly.

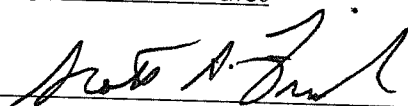
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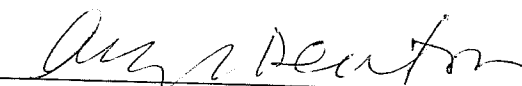
Requirements and Signatures

Please provide the following in your application:

1. **Brief Activity Description.** Describe the activity and its relationship to the educational objectives of the students' program or major.
2. **Relation to IRA to Course Offerings.** All IRAs must be integrally related to the formal instructional offerings of the University and must be associated with scheduled credit courses. Please list all classes that relate to the program proposed.
3. **Activity Assessment.** Describe the assessment process and measures that the program will use to determine if it has attained its educational goals. **Please note a report will be due at the end of the semester.**
4. **Activity Budget.** Please enclose a complete detailed budget of the entire Activity **bold** specific items of requested IRA funding. (Page 4)
5. **Sources of Activity Support.** Please list the other sources of funding, and additional support for the activity.
7. **Acknowledgment.** Project Sponsor and Program Chair acknowledge that they have reviewed and accepted the Conditions and Considerations detailed on page 2.

Signatures and Dates


Project Sponsor _____ 3/29/10
Date


Program Chair/Director _____ 2/20/10
Date


Dean of the Faculty _____ 4/7/10
Date

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ACTIVITY BUDGET FOR 2010-2011

1. Operating Expense Budget	See itemized budget in application
A. Supplies	_____
B. Vendor Printing	_____
C. In-State Travel	_____
D. Out-of-State Travel	_____
E. Equipment Rental	_____
F. Equipment Purchase	_____
G. Contracts/Independent Contractors	_____
H. Honorarium	_____
I. OPC Chargeback	_____
J. Copier Chargeback	_____
K. Other (Please Specify)	_____
TOTAL Expenses	_____
2. Revenue	
A. Course Fees	_____
B. Ticket Sales	_____
C. Out of Pocket Student Fees (exclusive of course fees)	_____
D. Additional Sources of funding (Please specify And indicate source)	_____
Total Revenue	_____
E. Total Requested from IRA	\$31,050

We are requesting IRA support to partially fund a trip to the Alaskan arctic as an intensive field study component of **Climate Change and the Arctic National Wildlife Refuge**, a proposed section of UNIV 391 (United States Travel-Study Experience), during Spring 2011. This course was offered for the first time in Spring 2009 as ESRM 492-03 because at the time there was no UNIV course designated for domestic travel. Please see Appendices B and C for details of the 2009 course.

Relation to CSUCI course offerings:

Science & Public Policy (BIOL/POLS 345) is an interdisciplinary, GE course that examines the relationship between science, politics and public policy and prepares students to make informed decisions concerning the societal implications of many rapidly advancing avenues of scientific research. Development of this course was the direct outcome of an award from the Center for Integrative Studies. We co-taught Science & Public Policy in Spring 2006 and 2007, covering the basics of U.S. policy-making, the scientific method, and in-depth case studies of climate change, embryonic stem cell research, genetically modified food crops, endangered species, and the creation of the Channel Islands National Park. Student evaluations of the course have been consistently good, but many comments express the desire for more in-depth coverage of specific issues, especially those currently in the news. In response to students' input, the Spring 2009 BIOL/POLS 345 course focused on the science behind, and policy matters surrounding, climate change in the United States. We offered the Arctic Refuge field trip as an optional high-impact, hands-on experience component to the class, recognizing that due to the expense, rigor, and necessary mid-June timing of visiting the Alaskan arctic, the trip would appeal to a subset of the enrolled students. For Spring 2011, we would like to offer Climate Change and the Arctic National Wildlife Refuge as an independent, three-unit course, using the UNIV 391 designation. Weekly meetings during the semester will cover topics including the scientific basis of climate change and its environmental and economic impacts, climate change policy, the history and establishment of the Arctic Refuge and its relationship to oil and gas development, the indigenous cultures of Alaska, a primer on environmental writing and journaling, and a pre-trip orientation. The trip will take place in early June. This course will fulfill the cross-disciplinary course requirement for Biology majors in the Evolution, Ecology, and Organismal emphasis. Political Science students will be allowed to substitute this course for three units of the required fifteen units of upper division elective coursework required for the degree.

Course Rationale:

Alaska has current political and scientific relevance because of its unique situation as our nation's only arctic state and the site of our largest petroleum reserves, and it makes an excellent choice for an interdisciplinary study of climate change. For example, in May 2008 the United States Fish and Wildlife Service recommended listing the polar bear as threatened under the Endangered Species Act. This decision was made based on evidence that the polar bear's primary habitat, sea ice, is rapidly diminishing in response to warming arctic temperatures caused in part by fossil fuel consumption. In an

unprecedented response, the former Secretary of the Interior announced that the listing decision would be accompanied by a special rule that prohibits regulation of any activities that occur outside of Alaska that may threaten the polar bear, meaning that the ESA prohibitions against take do not apply to greenhouse gas emitters operating outside the polar bear's range despite their contribution to the climate change that is responsible for the polar bear's decline. The current administration recently declined to rescind the special rule. This case illustrates the multiple intersections of science (polar bear biology, anthropogenic climate change) and public policy (Endangered Species Act, energy policy) in Alaska.

Over the past twenty years temperatures in the arctic have increased at more than twice the rate as those anywhere else on earth. This accelerated warming has worldwide consequences because melting arctic ice affects global sea levels, ocean currents and weather patterns, and carbon dioxide accumulation due to melting permafrost. Although the impacts of climate change on the environments and economies of California, the United States, and the world have been well-studied and documented, climate legislation has stalled in Congress and according to a January 2010 study by the Pew Research Center, the percentage of U.S. citizens who feel that addressing global warming should be a top priority has fallen 10 points since 2007. The changing perception of climate change as an issue of critical national importance is most likely due to a general lack of awareness among Americans of the effects of ongoing global climate lability. The Alaskan arctic is a perfect natural laboratory in which to explore concepts related to climate change and the major reason for proposing a field course in this region is to give CSUCI students the opportunity to experience the physical, biological, economic, political, and cultural environment of the arctic firsthand, allowing them to enrich and broaden their perspectives on important current national and global issues.

Description of itinerary and educational objectives:

Days 1-2: North Slope Communities and Oil Production.

1. We will fly into the community of Deadhorse, a small town on the Arctic Ocean established to support drilling operations in nearby Prudhoe Bay, a restricted-access industrial complex where oil extraction, processing, and transport to the Trans-Alaska pipeline occurs. We will take a guided tour of the oil fields and drilling facilities, and talk with oil field employees and service workers, whose livelihood depends on continued fossil fuel extraction.
2. Spend one day in Kaktovik, an Inupiat village of approximately 300 on Barter Island. Residents of Kaktovik have a subsistence culture and economy, hunting for caribou in the refuge and for bowhead whales in the Arctic Ocean. Most residents of Kaktovik favor oil exploration in the Refuge and students will have the opportunity to interact with villagers to understand better their unique perspective on drilling. We will also hike along the coastal cliffs that have been experiencing severe erosion due to climate warming and view recently exposed ancient permafrost.

Days 3-8: Arctic National Wildlife Refuge. Eight million acres of the refuge are designated wilderness and this single protected area encompasses a vast region of linked arctic ecosystems, free from human interference. The Arctic Refuge is home to 45 species of mammals, 36 species of fish, and 180 species of birds. It is also the traditional homeland of Inupiat Eskimos. Because of potential oil reserves within the refuge, proponents of drilling have been fighting to open up the Refuge to oil exploration as part of a national energy policy. Arctic ecosystems are extremely sensitive and under a grave threat from global climate change. Evidence of environmental impact is evident throughout the refuge.

1. Fly into the Arctic Refuge and set up tundra base camp (refuge rules and travel logistics require us to use an arctic outfitter to arrange this part of the trip – details in budget justification). We will spend 5 days on the arctic coastal plain. Students will experience arctic summer (where the sun never sets and the mosquitoes are always thirsty), remote wilderness camping, and daily hikes to observe vegetation, wildlife (including migrating caribou herds), and tundra geology important in the ongoing science and policy debates over climate change, energy, and conservation.
2. Leaving the Refuge, we will fly by bush plane across the Brooks Range to Arctic Village, a Gwich'in Athabascan community of approximately 150 dependent on the Porcupine caribou herd. Students will talk with local residents about how climate change is having an impact on their way of life.

Days 9-11: Fairbanks, Alaska. Fairbanks is the second largest city in Alaska (population ~40,000) and home to the University of Alaska Fairbanks (UAF). It is the regional supply center for Alaska's interior and was one of the major support stations during the construction of the Trans-Alaska pipeline. Because it is subarctic and built on intermittent permafrost, the effects of climate change are easily visible.

1. We will visit the laboratories of faculty in the Department of Biology and Wildlife and the Institute of Arctic Biology at UAF to discuss current research in global climate modeling and the impact of climate change on arctic ecology, fire ecology, arctic bird and animal species (*e.g.*, polar bears, caribou, muskoxen, wolves, moose), arctic vegetation, and human health. At UAF students will also have the opportunity to interact with UAF undergraduates and graduate students.
2. Examine evidence of climate change. Topics: melting permafrost (including a visit to the United States Army Cold Region Research Engineering Laboratory's Permafrost Tunnel), impacts on boreal forest vegetation and soil (boreal forest is currently one of the earth's largest carbon sinks), impacts on muskoxen and caribou (visit to the Robert G. White Large Animal Research Station).
3. Explore the history and politics of oil and gas production in Alaska, including a visit to the Alaska Political Archives at UAF's Elmer E. Rasmuson Library and trip along the Trans-Alaska Pipeline.
4. Review the biology, geology, and diverse cultures of the arctic at the University of Alaska Museum of the North.

Student Participation and Assessment:

If funded, details of the course and trip will be disseminated to all CSUCI students before the first day of the Spring 2011 semester. Costs, the psychologically and physically demanding nature of the travel, and trip timing will affect the number of students who are interested in a field course, however, restrictions imposed by refuge group camping capacities and small-plane weight regulations limit the maximum number of student participants to six. Interested students will complete an application prior to or during the first week of class, and will be evaluated on their grade-point averages, faculty recommendations, and two short essays in which they describe their motivations and expectations and demonstrate their understanding of potentially difficult conditions they may encounter on the trip (see Appendix A). If more than six students submit acceptable applications, participants will be chosen by lottery and a list of alternates generated. Applications from students in all majors will be encouraged.

The Alaskan arctic is not accessible during spring break, and not hospitable for camping and hiking until early June, so by necessity, this trip must take place after the end of the Spring 2011 semester. The neutral "RP" (Report in Progress) designation will be assigned to students as a temporary grade, then changed immediately upon return and completion of course requirements. This procedure was used in 2009 and did not affect transcript and diploma processing for the graduating seniors in the class. Course assessment will consist of weekly brief quizzes and a final project on a topic of the students' choice, developed from an idea or theme introduced in the weekly sessions. Following the trip each student will be responsible for preparing an annotated PowerPoint presentation, poster, or video based on this topic and expanded using images and experiences gained on the trip. These multimedia creations will be posted on the course website, linked to the Biology and Political Science program pages, and used as teaching materials in future BIOL/POLS 345 sections. Students may also use the course web page to publish pictures from the trip as well as their personal reflections (using the blog feature). The website for the Spring 2009 trip may be viewed at <http://faculty.csuci.edu/amy.denton/arctic/>.

Activity Budget and Justification:

The following are approximate costs per student.

<u>Costs associated with course fee</u>	
Roundtrip airfare LAX-Deadhorse; Fairbanks-LAX	\$1500
Roadrunner shuttle service to/from LAX	\$50
Travel insurance	\$75
Hotel accommodations in Deadhorse	\$200
Dormitory accommodations in Fairbanks	\$200
Refuge trip, arranged by outfitter (see below)	\$4200
Transportation in Fairbanks (van rental)	\$100
Tours, museum fees, cultural activities	\$100
Instructor travel	\$500
	<u>\$6925</u>
SUB-TOTAL	\$6925

<u>Out-of-pocket expenses</u>	
Meals in Deadhorse, Kaktovik, and Fairbanks	\$500
Gear rental	\$200
Gratuity for Arctic Refuge guide	\$100
	<u>SUB-TOTAL</u>
	\$800
TOTAL	\$7725

IRA funding requested to subsidize two-thirds of the total costs to students, or \$5175 per student (\$31,050 total). Travel to and accommodations within Alaska during the summer months are very expensive. The Arctic National Wildlife Refuge is a remote, limited-access location. Travel to and within the Refuge from cities accessible by commercial air carriers is possible only via contracting an arctic travel outfitter. An outfitter's services include small-plane transportation to and from the campsite, campsite choice and set-up, food, guide services, first aid, bear safety, some camping gear, communications (satellite phone), arranging interviews with local residents, and park fees/permits. A cost-inclusive estimate was obtained from Equinox Expeditions, the arctic outfitter chosen for our 2009 trip because of their excellent reputation and safety standards, reasonable cost, and commitment to sustainable travel. Some shared costs for instructor travel are requested because contributions of both instructors are critical: this is a truly interdisciplinary course. Denton was an Assistant Professor in the Dept. of Biology and Wildlife at the University of Alaska Fairbanks from 2000-2003 and has arranged the participation of UAF faculty and students. In addition, she spent two summers conducting biological fieldwork in arctic Alaska and is familiar with the terrain, conditions, flora, fauna, and Inupiat culture. Frisch provides expertise in public policy and the history of environmental policy-making in the U.S. He has written about environmental policy and politics during the Carter administration, and is working on a project analyzing the influence of President Carter on passage of the Alaska National Interest Lands Conservation Act. Both Denton and Frisch will donate all teaching time required for UNIV 391 and will not charge weighted teaching units to their program budgets.

The proposed field trip supports the University's mission in several ways. Energy conservation and environmental stewardship are core principles of our Strategic Initiative on Sustainability. This course will raise awareness of sustainability by offering students a unique view of fossil fuel extraction and its attendant environmental and human impacts. Climate change has immediate relevance to the interface between politics and scientific research, but is also a global issue bringing together perspectives from many disciplines. Participating students will have a rare opportunity to explore a remote national treasure and encounter indigenous Inupiat and Athabascan people, things most Americans will never experience. The arctic is a beautiful and fragile place, we would love the chance to share it with CSUCI students in 2011.

APPENDIX A: 2009 COURSE APPLICATION
APPLICATION TO ENROLL: ANWR and Arctic Climate Change

Please answer all questions in the space provided. You may attach ONE additional sheet. Print clearly or type. This form may be hand-delivered or submitted electronically to amy.denton@csuci.edu OR scott.frisch@csuci.edu. **DUE BY Monday Jan 26th 2009**

Name: _____ Student ID: _____

Major: _____ Graduation Date: _____

CSUCI GPA: _____ Will you be over 18 on 6/1/2009 (Y/N): _____

CSUCI email: _____

1) PLEASE READ THE FOLLOWING DESCRIPTION CAREFULLY, THEN ANSWER THE QUESTIONS, HONESTLY, YES OR NO. This trip involves travel by small, single-engine aircraft to remote locations in arctic Alaska. While tent camping in ANWR, there will be no toilets, showers, internet or cell phone coverage, and no electricity to charge items such as iPods or laptops. Temperatures in early June are typically in the 40s and 50s, but may be warmer or much colder. It may rain or even snow while we are there, and the sun will be up 24 hours a day. Our trip is timed to avoid the worst of the mosquito season, but they may still be bothersome. We will be very fortunate to observe brown (grizzly) bears in their natural habitat, but there is always potential danger from bears and other wildlife. We will be accompanied by a professional guide trained in the use of the emergency medical kit, emergency signaling devices (VHF radio or SAT phone), and group bear protection (bear spray or firearm), however, we will be far from any emergency medical facility. The communities of Deadhorse, Kaktovik and Arctic Village are dry, meaning the importation, sale, or possession of alcoholic beverages is illegal. Natives of Kaktovik and Arctic Village pursue subsistence lifestyles of fishing, whaling, and the hunting of seal, walrus, bear, moose, and caribou, and you may encounter rather graphic evidence of these practices (*e.g.*, butchered carcasses).

Are you COMFORTABLE WITH and PREPARED TO:

- a. Share a small two-person tent with a classmate for 4-5 nights? Y or N
- b. Live without showering for 5-6 days? Y or N
- c. Be without conveniences such as iPods, cell phones, internet, etc.? Y or N
- d. Be flexible and adaptable in the event of schedule changes? Y or N
- e. Be sensitive to cultural practices such as hunting and whaling and respectful in your interactions with Native Alaskans? Y or N
- f. Abide by course conduct rules and local laws (*e.g.*, dry village alcohol prohibitions)? Y or N

2) Describe any experience you have had traveling to remote areas and/or wilderness camping. Include the location, duration, primary purpose of your visit (study, work, travel), and the type of accommodations (wilderness camping, campground, tents, cabins, etc.).

3) This class includes travel to native communities and wilderness areas in arctic Alaska for about 10 days in early June. Why do you want to go to the arctic? Is there a specific reason you want to study in arctic Alaska as opposed to other places?

4) List the names and phone numbers of at least two CSUCI instructors that we may contact as references.

5) Participation on this trip requires enrollment in ESRM 392-03 and payment of the course fee of approximately \$1000. Are you prepared to pay the course fee upon notification of your admission to this course?

APPENDIX B: COURSE SYLLABUS 2009

ESRM 492-03: Arctic National Wildlife Refuge and Climate Change Course and Travel Information

CSUCI Faculty: Amy Denton, 437-8458, Aliso 201, amy.denton@csuci.edu
Scott Frisch, 437-2770, Sage 215, scott.frisch@csuci.edu
Faculty Support Coordinator: Mary Devins, 437-3253

Meeting Time: To be arranged. We will meet at least four times before the trip departure for a minimum of two hours per meeting. Dr. Simone Aloisio will talk about climate change, and Dr. Brad Monsma will discuss environmental writing and journaling. The first meeting will be Thursday 19 February. Please bring your CA driver's licenses and completed medical and travel waiver forms (available on Blackboard).

Blackboard: Required course readings, forms, and trip information will be posted on Blackboard. Please check frequently.

Assessment: Upon return, students will be required to prepare a 1000 word essay, PowerPoint, or video presentation on some aspect of the trip. Specific topics to be developed in the arctic. These will be posted on the course web page. In addition, we would like you to use the course web page to publish pictures from the trip as well as your personal reflections (using the blog feature).

Trip Itinerary:

4 June:	Alaska Airlines 477	Dep. LAX 6:30 am	Arr. Seattle 9:15 am
	Alaska Airlines 87	Dep. Seattle 10:00 am	Arr. Anchorage 12:25 pm
	Alaska Airlines 53	Dep. Anchorage 1:52 pm	Arr. Deadhorse 3:38 pm

We will take a Roadrunner Shuttle from campus to LAX. The departure time is not yet set, but we anticipate it being *very early* (~4:00 am).

Note local Alaska Daylight Time is one hour earlier than Pacific Daylight Time.

Stay overnight at the **Arctic Caribou Inn**, Deadhorse/Prudhoe Bay, AK. Tel: 907-659-2368.

5 June: 8 - 10 a.m. Tour oil fields of Prudhoe Bay.

Frontier Flying Svc. Dep. Deadhorse 1:30 pm to Barter Island
(**Kaktovik**).

The City of Kaktovik is located on Barter Island, along the Arctic Ocean, adjacent to the Arctic National Wildlife Refuge. Barter Island is 88% Inupiat Eskimo. In 2005, 58 voting age residents out of 98 registered voters of Kaktovik signed a petition against leasing the surrounding area of the Arctic National Wildlife Refuge for industrial oil and gas development. The Inupiat people of Barter Island depend culturally and

economically on subsistence hunting from the Arctic Refuge and bowhead whaling from the Arctic Ocean. They also produce arts, crafts and clothing from native baleen, ivory, wood, caribou, wolf, seal, wolverine and other furs.

While on Barter Island, we will meet with one or more of the following:
Walt Audi, owner of Waldo Arms and Alaska Flyers, a local charter air service, Jane Thompson, Inupiat, born in Kaktovik, daughter of community leader and President of the City of Kaktovik; Isaac and Mary Akootchook, one of the most respected families in the arctic; Mayor of the City of Kaktovik, Freddy C. Aishanna. After meeting with Kaktovik community members, we will head to the airfield, walking along the coastal cliffs that have been experiencing severe erosion due to climate warming. We will be able to view exposed permafrost on these cliffs. We can also walk out to the bowhead whale boneyard, where Inupiat whalers bring fresh carcasses to keep polar bears away from the village during hunting season.

Wright Air Svc. Dep. Barter Island and fly into Arctic National Wildlife Refuge. Five nights camping in Refuge. All Arctic Refuge arrangements handled by **Equinox Wilderness Expeditions**, 2440 E. Tudor Rd, Anchorage AK 99507. 604-222-1219

The Arctic Refuge is one of the last intact ecological systems in the world and is under considerable political pressure for development. In 1980, eight million acres of the original Arctic National Wildlife Range was officially designated a refuge, but 1.5-million acres of the coastal plain, nesting grounds to over 130 species of migrating birds, and calving grounds for the Porcupine Caribou Herd, was set aside for study. To date, efforts to designate the refuge as wilderness have been rejected outright and there is an ongoing effort to open the refuge to energy development. Arctic ecosystems are also extremely sensitive and under a grave threat from anthropogenic climate change. Evidence of these changes will be visible throughout the Refuge.

6-9 June: Daily hikes and activities around Caribou Pass to explore evidence of the environmental impacts of warming and studying the vegetation, wildlife, and geology of the Arctic National Wildlife Refuge from a remote wilderness base camp as the Porcupine Herd caribou migration begins.

10 June: Leave Arctic Refuge, fly into **Arctic Village**, AK, then fly to **Fairbanks**, AK in late afternoon. *Delays due to weather are common, it is possible that we may arrive in Fairbanks up to two days later than planned.* The departure times and afternoon activity plan will be adhered to as much as possible, but delays due to unforeseen circumstances may alter the schedule.

In the Gwich'in Athabascan community of Arctic Village, we will be met at the airfield by Sarah James, Gwich'in activist. We will have 2-4 hours to visit the village, depending on flight timing.

In Fairbanks, stay two nights in residence halls at the **University of Alaska Fairbanks**.
Contact info: UAF Conference Services, 907-474-6769.

11-12 June: In and around Fairbanks and the University, specific itinerary to be determined. We will visit laboratories at the UAF Institute of Arctic Biology, the UAF Museum of the North, the Robert G. White Large Animal Research Station to learn about the effects of climate change on large arctic mammals (caribou and muskoxen), hike boreal forest – the earth’s largest carbon sink – where the evidence of melting permafrost is abundant.

13 June: Alaska Airlines 128 Dep. Fairbanks *1:30 am* Arr. Seattle 6:00 am
Alaska Airlines 272 Dep. Seattle 7:00 am Arr. LAX 9:40 am

We will take a Roadrunner Shuttle from LAX to campus. Anticipated arrival around noon.

APPENDIX C: 2009 COURSE STUDENT BLOG ON PATAGONIA WEBSITE

patagonia



The Cleanest Line

Weblog for the employees, friends and customers of the outdoor clothing company Patagonia. Visit Patagonia.com to see what we do.

About

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Bryan on Patagonia's Factory List

Jonathan DeRouchie on One Man's Road to Patagonia

Kid Riemer on One Man's Road to Patagonia

josh on Resoling Now Available for Patagonia Footwear

John Edward Harris on Stand Up for Your Favorite

the dirtbag on One Man's

Small World

Today's post is from Lisa Myers, of Patagonia's [Environmental Team](#). As one of the folks responsible for finding ways to support nonprofit environmental groups, work with like-minded businesses, and educate others on our environmental initiatives, she works hard to stay informed. In an effort to better understand the work being done on climate-change issues, Lisa enrolled in a focused, on-the-ground course in Alaska's remote Arctic National Wildlife Refuge (ANWR) through [California State University Channel Islands](#). Here, she reflects on this recent experience.



I am a morning person, but setting my alarm clock for 2:00 a.m. crossed the line. When the noise jolted me from sleep, I switched from unconscious to conscious fairly quickly as I registered that soon I'd be boarding a plane headed to the Arctic National Wildlife Refuge (as part of a class offered at [California State University Channel Islands](#) where I am a student) My classmates and I were about to

Road to Patagonia

a.lee on Phase One of Save The Waves' Chile Earthquake/Tsunami Relief Efforts Complete; Donations Still Needed

Twitter

Fly Fishing: Our Newest Online-only Catalog http://www.thecleanestline.com/fishing-our-newest-online-only-catalogue-.html 1 day ago

luck! RT @elephantjournal 2 launch indie media biz model in 1 week, wish us luck http://bit.ly/cg9k9j will begin 2 pay 4 quality journalism 1 day ago

Congrats @patagonia ambassador Arne Backstrom for winning 2010 McConkey Cup overall leader Freeskiing World Tour http://tinyurl.com/yfahhal 2 days ago

Freshly tied - our new online Fishing catalog will lure you away from work for a bit: http://bit.ly/aBdDcv 2 days ago

High Country News article looks for middle ground in wolf protection debate: http://bit.ly/9YayDC 2 days ago

Categories

- Environmental Activism
- Footprint Chronicles
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- Soul of the Sport
- Uncommon Culture

Archives

March 2010

Search

Google Search

Island where I am a student). My classmates and I were about to spend six days exploring the impacts of climate change.

From the plane, a few short hours after waking, I watched the world transform beneath me. Familiar mountains covered in chaparral disappeared and the view shifted to much larger features like Mt. Shasta, Mt. Olympus, Denali and long stretches of valleys filled with verdant rivers, lakes and streams without any homes, roads or even one bright neon backpacking tent dotting the landscape.

[Flying over the Alaska National Wildlife Refuge on the way to Barter Island. Photo: Lisa Myers.]

Over the past 50 years, Alaska has warmed at more than twice the rate of the rest of the United States. Global warming's impacts in this area are numerous. Villages are being relocated due to sea-level rise, glaciers are melting, and insect outbreaks and wildfires are increasing. Climate change is pushing many species in Alaska toward extinction – including Alaska spruce, polar bears, arctic fox, caribou, beluga whales, and numerous migrating bird species.



After spending one night in Deadhorse, we boarded another plane for Barter Island - located just off the north coast. Barter Island is four miles long and two miles wide at its widest point. As its name suggests, the island was used as a trading center for the native Inupiat people until the

nineteenth century. During the Cold War, the U.S. military built an airstrip and a listening and communications station here, remnants of which are still in place. Several families established homes near the airstrip and in 1971 the city of Kaktovik was incorporated.

Once we landed on the small airstrip, we caught a ride to the famous Waldo Arms Hotel. Waldo Arms is the best (and only) hotel in Kaktovik; Walt and Merlyn are a classic Alaskan couple who own and run the place. They are kind, warm, and welcoming –yet you

couldn't help but get the feeling that they were as tough as the environment that surrounds them.

Our hungry group of six college students and two professors were happy to find their little kitchen was open and taking orders. As we ate our sandwiches, Merlyn warmly offered little bits of information about the changes she has noted over the last fourteen years that she had called Kaktovik home, including the excitement over a new glacier that was recently discovered on the island. Scientists have been using the Waldo Arms Hotel as a home base to study receding glaciers in the Arctic for the last several years. Just last year a storm exposed an unknown glacier. Scientists believe that this ancient ice, exposed for the first time in thousands of years, might foreshadow a period of extreme loss of land along Alaska's northern coast due to warming temperatures. The rate of erosion along Alaska's northeastern coastline has doubled over the past 50 years.



I knew that Merlyn was a wealth of information, and as our group prepared to head back out to the airport to make one last flight to our final camp in the Refuge, I quickly tried to figure the one best question I could ask her before

we departed.

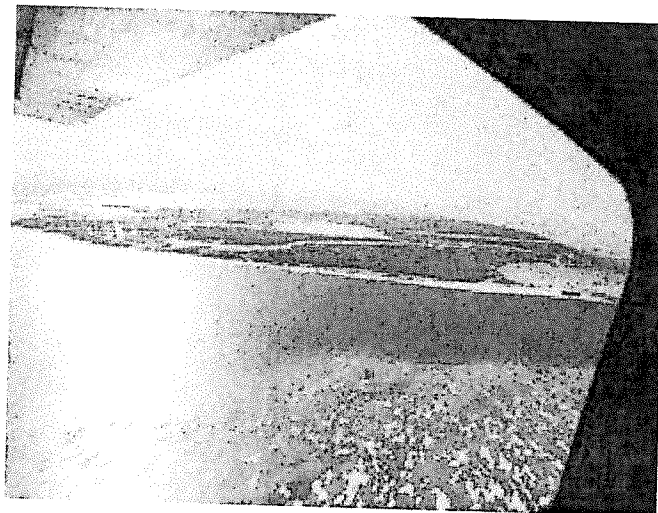
"Merlyn," I asked, "if there was one thing that you wished that visitors here would learn here in Kaktovik, what would it be?"

After thinking a bit, she said that she hoped visitors would realize that if they truly want to protect this place, they needed to change the way they live back home.

I find it ironic that after spending the previous day-and-a-half in awe, flying over an expansive wilderness that seemed to have no end, the world suddenly felt very tiny. I was on an isolated island in the remote Arctic Ocean, and yet I knew then that this place is tightly connected to the decisions and habits of people all over the world.

It is difficult to limit our impact in today's society. The planes that take us to these beautiful destinations take their toll as they emit tons of CO2 into our atmosphere. Our daily lives are filled with all kinds of small environmental dilemmas – how to travel to work and school, how far the groceries that we buy have to travel in order to get to our tables, and what bag to use to take those groceries home. Each of these decisions can be connected to the black gold that lies up in the Arctic Refuge – and the people that live there.

For me, climate change now has a face. The days spent in the Arctic that followed meeting Merlyn were filled with other encounters – porcupine caribou, grizzlies, ptarmigan and arctic tern. I spent time in the remote Arctic Village



with members of the Gwich'in Nation, whose very culture is sustained by the migrating porcupine caribou herd. But Merlyn's answer to my question stayed with me. While I still find it hard to make the right decisions on a daily basis, I now have an extra incentive. I have a clear image of Merlyn and this delicate and wondrous place that I know is hanging in the balance.

[Above - Class photo. Photo: Amy Denton. Middle - The author takes shelter under melting river ice. Photo: Amy Denton. Bottom - Barter Island. Photo: Lisa Myers]

Technorati Tags: Alaska, ANWR, California State University Channel Islands, caribou, climate change, global warming, grizzly, Gwich'in Nation, wolves

Posted by localcrew on September 21, 2009 in [Environmental Activism](#), [Freedom to Roam](#), [Hiking & Trekking](#), [Uncommon Culture](#) | [Permalink](#) | [del.icio.us](#) | [Digg it](#)

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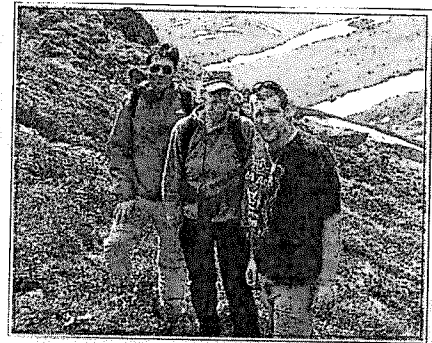
Climate Change and the Arctic National Wildlife Refuge



▲ Standing on the frozen Arctic Ocean, L to R- Scott Frisch, Amy Denton, Mackenzie Douglass, Ryane Cox, Tim Moran, Steve Harrison, Aaron Newton



▲ Students Lisa Myers and Ryane Cox photograph the bowhead whale boneyard in Kaktovik, Alaska



▲ (L to R) Scott Frisch, Amy Denton, and Mackenzie Douglass climbing Demarcation Dome in the Arctic National Wildlife Refuge

By Amy Denton, Associate Professor of Biology

To most inhabitants of sunny Ventura County, the Alaskan arctic may seem an inhospitable snow-covered wasteland, but this seldom-visited region is a perfect natural laboratory in which to study the science behind, and policy issues surrounding, climate change.

In June 2009, we (Professor of Political Science Scott Frisch, Associate Professor of Biology Amy Denton, and adventurous CI undergraduates Ryane Cox, Mackenzie Douglass, Steve Harrison, Tim Moran, Lisa Myers, and Aaron Newton) traveled to Alaska as part of a study experience for a Science and Public Policy course (Biol/Pols 345) to take advantage of its unique situation as our nation's only arctic state and the site of our largest petroleum reserves.

During our intensive nine-day field study experience, we observed the environmental, cultural, political, and economic impacts of fossil fuel extraction and consumption in arctic regions, and examined the relationship between these factors and climate change.

After a long day of travelling to 70 degrees north latitude and a hearty meal of reindeer stew and blueberry pie, we spent our first night under the midnight sun exploring the community

of Deadhorse, a town built entirely of prefabricated modules established to support the drilling operations in nearby Prudhoe Bay.

Following a tour of the oil fields and processing facilities, as well as a visit to the still-frozen Arctic Ocean, we boarded a Cessna Caravan and flew to Kaktovik, a small Inupiat village where residents maintain a subsistence hunting culture and economy. Here, we had a chance to talk to local residents about the effects of the changing climate, but the whine of bush plane engines overhead signaled that it was time for us to leave civilization behind.

A breathtaking flight over the coastal plain brought us into the Arctic National Wildlife Refuge. Eight million acres of the Refuge are designated wilderness and this single protected area of linked arctic ecosystems is home to hundreds of species of mammals, fish, and migrating birds, many of which are being pushed toward extinction by warming temperatures.

We spent the next five days hiking across the tussocky tundra studying vegetation, wildlife, and geology in the Refuge as the annual migration of the Porcupine caribou herd began. In

our remote camp on the banks of the Kongakut River, we slept in tents amid the willow scrub, shared cooking and chores, and marveled at the vast but fragile beauty of our surroundings. We spotted numerous caribou, ptarmigan, arctic terns, moose and a large brown bear. We were surprised to find so many colorful tundra flowers in bloom, perhaps another sign of a changing climate.

We flew out of the Refuge and over the Brooks Range in a dense, low fog. Conditions were challenging for our pilots, and Lisa, Tim and Ryane were fortunate to stop in the indigenous community of Arctic Village, where they were treated to an afternoon of conversation and fry bread with Gwich'in activist Sarah James.

Our adventure came to a close at the University of Alaska Fairbanks, where we hiked in the boreal forest and reflected on the rare opportunity we had to experience the Arctic National Wildlife Refuge. ◀◀

**Instructional Related Activities
Report Form**

SPONSOR	DEPARTMENT
Amy Denton Scott Frisch	Biology Political Science

ACTIVITY TITLE	DATE (S) OF ACTIVITY
ESRM 492-03: Arctic National Wildlife Refuge and Climate Change	6/4/2009 – 6/13/2009

PLEASE EXPLAIN (1) DESCRIPTION OF ACTIVITY; (2) HOW DID THE ACTIVITY RELATE TO A COURSE(S); AND (3) WHAT YOU LEARNED FROM THE PROCESS.

Arctic ecosystems are extremely sensitive and under a grave threat from anthropogenic climate change. Alaska has current political and scientific relevance because of its unique situation as our nation's only arctic state and the site of our largest petroleum reserves, and it makes an excellent natural laboratory for an interdisciplinary study of climate change. In June 2009, Amy Denton, Scott Frisch, and six CSUCI students (two Biology majors, three ESRM majors, one Political Science major) traveled to the Alaskan arctic for an optional intensive field study experience as part of Science & Public Policy (BIOL/POLS 345), an interdisciplinary course examining the relationship between science, politics, and public policy. This IRA-funded field course was offered in Spring 2009 as ESRM 492-03 because at the time there was no UNIV course designated for domestic travel. Our class spent six days exploring evidence of the environmental impacts of warming and studying the vegetation, wildlife, and geology of the Arctic National Wildlife Refuge from a remote wilderness base camp on the Kongakut River as the annual migration of the Porcupine Herd of caribou began. We also toured the Prudhoe Bay oil drilling and processing facilities on Alaska's north slope, talked with residents of the Gwich'in Athabascan community of Arctic Village and the Inupiat village of Kaktovik on the Beaufort Sea, hiked in the boreal forest (the Earth's largest carbon sink) and spent two days learning about ongoing climate change research at the University of Alaska Fairbanks.

We learned several things from this experience, and hope to incorporate them into future course offerings. First, we learned what a large and enduring impact this first-hand experience had on our students (see students' emailed comments, attached). Students were deeply moved by all that they saw and learned about climate change, fossil fuels, arctic ecosystems, and indigenous Alaskan culture, and several intend to pursue these topics in post-graduate study. We also learned how well our students rise to rigorous physical and mental challenges they do not typically experience in on-campus classroom courses. We found that our students could be tough, adaptable, curious, adventurous and sensitive to cultural practices (e.g., whaling) not found in southern California. Finally, we learned that students would get even more out of this field experience with additional pre-trip preparation. To this end, we would like to offer future sections of the Arctic National Wildlife Refuge and Climate Change as an

independent, three-unit course, using the new UNIV 391 (United States Travel-Study Experience) designation. Weekly meetings during the semester will cover topics including the scientific basis of climate change and its environmental and economic impacts, climate change policy, the history and establishment of the Arctic Refuge and its relationship to oil and gas development, the indigenous cultures of Alaska, a primer on environmental writing and journaling, better preparing students for specific experiences they may have in the field.

Student comments are attached to this form. In addition, the website for the Spring 2009 trip may be viewed at <http://faculty.csuci.edu/amy.denton/arctic/>.

Channel Islands Class Roster

Spring 2009 Regular Academic Session

ESRM 492 SERVICE LEARNING/INTERNSHIP Section 03 #3105 Independent Study

Time/Day

Room
By Arrangement

Instructor
Denton,Amy L
Frisch,Scott A

Total Enrolled Students 6
Enrollment Capacity 6

Enrolled Students

ID	Name	Grade Basis	Units	Program and Plan	Academic Level
1 000462528	Cox,Ryane Elizabeth	Crd/No Crd	3.00	Undergraduate - BS: Biology, Ecology emp	Junior
2 000541568	Douglass,Bruce Mackenzie	Crd/No Crd	3.00	Undergraduate - BA: Political Science	Junior
3 000408604	Harrison,Steven Alan	Crd/No Crd	3.00	Undergraduate - BS: ESRM, Environmental Sci	Senior
4 000310337	Moran,Timothy Ryan	Crd/No Crd	3.00	Undergraduate - BS: ESRM, Resource Management	Junior
5 000538240	Myers,Lisa	Crd/No Crd	3.00	Undergraduate - BS: Biology	Senior
6 000501060	Newton,Aaron Scott	Crd/No Crd	3.00	Undergraduate - BS: ESRM, Resource Management	Senior

CANCEL

Wednesday, April 14, 2010 8:28 AM

Subject: FW: Arctic Trip Help
Date: Monday, April 12, 2010 4:11 PM
From: Amy Denton <amy.denton@csuci.edu>

From: Lisa Myers <Lisa_Myers@patagonia.com>
Date: Mon, 12 Apr 2010 06:04:00 -0700
To: Amy Denton <amy.denton@csuci.edu>
Subject: RE: Arctic Trip Help

Hi Amy,

After having taken several biology classes at CI, my time in Alaska brought the things I learned in the classroom to life. My experience in the Arctic put a face on climate change. Learning about the impacts that climate change is having on the Arctic, and falling in love with this wild, remote place at the same time, made an impact that will forever influence my career.

My time spent in the Arctic were filled with encounters of porcupine caribou, grizzlies, ptarmigan and Arctic Tern. I spent time in the remote Arctic Village with members of the Gwich'in tribe, whose very culture is sustained by the migrating porcupine caribou herd and the rich biodiversity that Arctic provides for them. I have just a few classes left at CI, and my clear image of a delicate, wondrous, yet threatened place offers me extra incentive to excel in my biology career.

I hope this is helpful in solidifying the next Arctic trip! Thanks again for everything you did to make the first trip possible.

See you in lab,

Lisa

Subject: FW: Arctic Trip Help
Date: Monday, April 12, 2010 4:12 PM
From: Amy Denton <amy.denton@csuci.edu>

From: Tim Moran <timothy.moran703@dolphin.csuci.edu>
Date: Sun, 11 Apr 2010 12:34:29 -0700
To: Amy Denton <amy.denton@csuci.edu>
Subject: RE: Arctic Trip Help

Dear Amy,

you took the words right out of my mouth with that quote, so feel free to use that one, but here are some others just in case you need more: Basically this trip was one of if not the most meaningful and profound experiences of my college career. This trip not only allowed me to experience firsthand what i learn in the classroom but it also made me feel more connected to the university. By experiencing such an intense learning environment with both students and professors it allowed me to feel like i was a bigger part of my own education. The importance of simply having gone to ANWR and the oil fields cannot be understated. It is one of the biggest topics of discussion and debate in the majority of my classes and I have such a huge advantage over my fellow classmates. Currently in my environmental law class we are having a big final group project in the form of debates. I was placed in a group that will be debating the prospects of drilling in ANWR. I am the only one in the class and 1 of only 6 students in the entire university who can say that i visited ANWR, I saw it with my own eyes, I talked to the natives and heard personally from them how they feel about drilling and global warming, and i saw the effects of global warming firsthand. In this current political environment in which we live, the benefit of removing the filter of the media and individual political agendas cannot be underestimated. If funding for trips like these are cut then future students will not only miss out on an important educational experience, but they will also miss out on what could be one of the great experiences in their lives. The Alaska trip ignited my passion for the environmental sciences in a way that no ordinary class ever could have.

So their you go! I hope you can use some of that. Scott told me that you guys put in the paperwork for another arctic trip. I really hope that goes through because i meant everything i said above and i hope that more students get this opportunity. Anyways Scott and i also briefly discussed watching the ANWR videos he took over some beer and pizza, so i think you should talk to him and we should make that happen!

-Tim Moran

Wednesday, April 14, 2010 8:30 AM

Subject: FW: predoc attachment
Date: Wednesday, April 14, 2010 8:30 AM
From: Denton, Amy <amy.denton@csuci.edu>

From: Ryane Cox <ryane.cox822@dolphin.csuci.edu>
Date: Mon, 15 Mar 2010 14:44:58 -0700
To: Amy Denton <amy.denton@csuci.edu>
Subject: predoc attachment

Amy,

This past summer two professors, and six students, including myself, went to Alaska to study the effects of climate change. One of the major effects we learned about was erosion. Due to longer and warmer summers, the top layers of permafrost are melting, causing erosion in many areas. This erosion not only affects the flora and fauna of Alaska, but also many people. This has by far been one of the most influential experiences regarding my determination to succeed in a doctoral program. Sitting on top of "hole in the rock", a name we gave a foothill on our last hike in Arctic National Wildlife Refuge, and gazing out upon the untouched lands of the arctic reinforced the love I have for this earth and the determination to conserve it. Talking to indigenous Inupiat people and learning about erosion and oil spills has helped to prepare me for the many challenges I might face in this field, and has also given me the determination to persevere.

Ryane

Subject: FW: Arctic Trip Help
Date: Monday, April 12, 2010 4:10 PM
From: Amy Denton <amy.denton@csuci.edu>

From: Aaron Newton <anewton_10@yahoo.com>
Date: Mon, 12 Apr 2010 10:14:41 -0700 (PDT)
To: Amy Denton <amy.denton@csuci.edu>
Subject: Re: Arctic Trip Help

here is some little pieces i put together

As one of the six students chosen to the ESRM 492 ANWR and Arctic Climate Change trip I felt it was not only a great way to bond with students and teachers but also learn first hand about climate change how our actions are affecting others. While visiting small, remote native villages in Alaska and talking to the native Inupiat about not only there way of depending of wildlife for sustainable hunting but how there villages and way of life are being affected and may be lost due to coastal erosion. While in the refuge we were able to explore the variety of vegetation and wildlife such as Porcupine Caribou, Moose, Tarmigan, and Brown Bear that made up the pristine and untouched land at the base of the Brooks Range. It was amazing to be in such a place were so few people have ever been and not only to visit but camp in what some consider the final frontier.

This trip provided an amazing opportunity to not only talk but interact with people that are being affected first hand and see a such unspoiled landscape which could not be told through reading a book or sitting in a classroom.

It provided an amazing chance to see a piece of the world that I would not normally be able to see without the opportunity provided by this class.

let me know if you need anything else and feel free to re-edit things if needed.
thanks again for the once in a lifetime opportunity!

-Aaron Newton

Subject: FW: Need arctic input!
Date: Monday, April 12, 2010 4:25 PM
From: Amy Denton <amy.denton@csuci.edu>

From: Mac Douglass <spartan00054@yahoo.com>
Date: Mon, 5 Apr 2010 16:28:49 -0700 (PDT)
To: Amy Denton <amy.denton@csuci.edu>
Subject: Re: Need arctic input!

Amy,

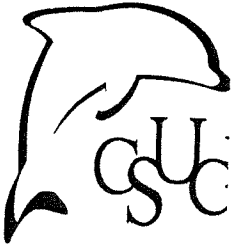
I am glad to do whatever I can to help. Let me start with some lines I hope are poster worthy:

"It was an odyssey that was at once fantastically empowering, and deeply humbling."

"ANWR taught me what freedom feels like - and made me understand my responsibility to preserve it."

"You step out of your tent in the morning, the sun never having set, and you feel like you're on the moon, yet able to breathe. Yeah, that cool."

"It was a journey that took us from the most miserable of soul-stealing mires of human irresponsibility to a place so pristine and untouched that it touched my heart, and never let go."



**Instructionally Related Activities Funds (IRA)
2010-2011 Academic Year**

Budget Request & Program Set-Up

Date: August 24, 2010
To: Accounting & Budget
From: Mary Devins
Subject: IRA Funding Transfer Request # 366

IRA Approved Campus contact: Amy Denton, Scott Frisch
 Faculty Support Coordinator: Mary Devins

Program Set-Up	
Name of Program (limit to 30 characters)	Climate Change and ANWR

IRA Funding Source				
Account	Fund	Dept	Program	Monetary Amount
660003	TK910	827	90317	\$31,050

Fiscal Year for Budgeting and Spending:	2010/2011
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*** Program codes will become inactive at the end of the Budgeted/Spending Fiscal Year ***

Mary Devins 8-24-2010
 IRA Committee Representative Date

Gracy Cole 8/25/10
 Accounting Department Date

Attached: Applications for Approval Signed by University President or Representative Provost/Dean.
 Please return copy of completed/signed form to Mary Devins, Academic Affairs.

Budget Office Use

Program Set-Up:	PS Finance Chartfield	Notification	Update PubChartfield
Budget Set-Up:	Budget Journal Entry	Journal Entry #	Completed Date