Texas A&M University

Departmental Request for a New Course
Undergraduate • Graduate • Professional

Submit original form and attach a course syllabus.

1. This request is submitted by the Department of
   College of Geosciences

2. Course prefix, number and complete title of course:
   GEOS 601 Polar Regions of the Earth: Science, Society, and Discovery

3. Catalog Course description (not to exceed 50 words):
   Disciplines and topics that define modern polar science in the north and south; includes history of the Polar Regions, polar geosciences, major polar scientific projects, and special topics; participate as individuals and teams in education, outreach and science projects.

4. Prerequisite(s):
   Graduate classification

   Cross-listed with:

   Cross-listed courses require the signature of both department heads.

5. Is this a variable credit course? □ Yes   ■ No

   If yes, from _______ to _______

6. Is this a repeatable course? □ Yes   ■ No

   If yes, this course may be taken ______ times.

   Will this course be repeated within the same semester? □ Yes   ■ No

7. Has this course been taught as a 489/689? □ Yes   ■ No

   If yes, how many times? ____________

   Indicate the number of students enrolled for each academic period it was taught. 2008C-3 and 2007C-11 as International Polar Year

8. This course will be:
   a. required for students enrolled in the following degree programs(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

   M.S. and Ph.D. within the College of Geosciences

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments.
   Attach approval letters.

10. Prefix | Course # | Title (excluding punctuation) |

   GEOS 601 | POLAR REGIONS EARTH |

   Lect. Lab SCH CIP and Fund Code | Admin. Unit | Acad. Year | FICE Code |
   0 3 0 0 0 3 | 4 0 0 6 0 1 0 0 2 | 1 3 2 0 1 0 - 1 1 | 0 0 3 6 3 2 |

   Approval/recommended by:

   Department Head - Type Name & Sign    Date

   Chair, College Review Committee - Type Name & Sign    Date

   Dean of College - Type Name & Sign    Date

   Submitted to Coordinating Board by:

   Associate Director, Curricular Services    Date

   Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 12/08
GEOS 601 – Polar Regions of the Earth: Science, Society, and Discovery

Instructor: Mahlon C. Kennicutt II
Contact Information: Email: m-kennicutt@tamu.edu, Voice: 979-458-4345; Office: Rm. 608 Oceanography and Meteorology Building
Office Hours: To be determined
Meeting Time and Location: To be determined

Course Description: This course will educate graduate students about the latest polar science and research. The Polar Regions are an international focus for science, research, and technological development. Polar research is conducted in both Polar Regions including investigations of linkages to the Earth system. Polar research by its nature is multi- and interdisciplinary in scope and international in participation. Knowledge of and exploration in the Polar Regions will be used to educate and excite the next generation of engineers, scientists, and leaders. Polar research spans a wide range of scientific disciplines across the physical sciences, social sciences and engineering. The role and importance of the Polar Regions in the earth system, and their interactions with human systems, will be emphasized.

This course provides a broad overview of the relevant disciplines and topics that define modern polar science with perspectives from the north and the south. The course is primarily lecture in style. The course presentations include invited lectures by renowned polar scientists drawn from across the nation and from within Texas A&M University faculty and researchers. Extensive web based activities and resources will be used to enhance the in-class experience. The course will include a series of lectures on the history of the Polar Regions (including International Polar Years), basic polar geosciences (oceanography, atmospheric sciences, geography, geology, and geophysics), major Arctic and Antarctic science projects, and special topics usually determined by the guest lecturers (see Appendix 1). Students will participate in two individual projects producing a written report and a team project producing a written report and a class presentation (see Appendix 2.)

Learning Objectives/Outcomes

- to comprehend that the earth is a co-dependent system of systems,
- to recognize the importance of the polar regions in the earth system,
- to analyze the conflicting evidence of global change and its ramifications,
- to write an analysis of written materials in your own words,
- to integrate multiple sources of information,
- to assess and judge the conclusions of others, and
- to determine the role of humans in earth system change.

Prerequisites
Student must have a graduate classification.

Class website - Updates to the syllabus as well as other course materials will be made available on the course website.

Textbooks and Readings - There is no lecture text associated with this course. There are extensive reading lists associated with each topic that are provided at the course website.

Class Attendance - The university views class attendance as an individual student responsibility. The rules covering class attendance and excused absences can be found at http://student-rules.tamu.edu/search/rule7.htm. There are additional rules covering the

**Cellular Telephones** - As a courtesy to the instructor and other students please turn off all cellular telephones and two-way pagers before the class begins. It extremely impolite to interrupt the class with a cellular telephone call.

**Email** - All Texas A&M students should use their email accounts when emailing the instructor. Class announcements will be distributed via the email system. It is your responsibility to regularly check your email account. See [Student Rule 61 governing the use of Texas A&M University email accounts](http://dof.tamu.edu/faculty/policies/religiousobservance.php). All written reports are to be provided by the due date by email to the instructor at m-kennicutt@tamu.edu.

**Grading** - Your grade in this class will be based on class projects as described below:

- There are no in-class or final exams.
- There are two individual projects that will account for 25% each of your grade for a total of 50%.
  - Written report and interactions with a polar education and public outreach activity - 25%
  - Written report and interactions with a polar science program - 25%
- There is one Team Project that will account for 50% of your grade.
  - Participation in a graduate student lead team project - 50%.

The grading for this course follows Texas A&M University Student Rule 10 - Grading.

- A – Excellent
- B – Good
- C – Satisfactory
- D – Passing
- F – Failing

Typical grading schemes follow these cutoffs: 90% A, 80-89% B, 70-79% C, 60-69% D, <60% F; an average performance will earn a satisfactory grade. There is no "curving" utilized in grading.

**The ADA Statement** - "The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall. The phone number is 845-1637." For additional information see [http://disability.tamu.edu/](http://disability.tamu.edu/)

**Scholastic Dishonesty and Copyright Policy** - Texas A&M has a *Scholastic Dishonesty* policy to which both students and faculty must comply. If you have any questions about the University's Scholastic Dishonesty policy please review the Student Rules or see me. The Aggie Honor program is the new program that will handle all cases of academic dishonesty. [http://www.tamu.edu/aggiehonor](http://www.tamu.edu/aggiehonor)

All materials used in this class are copyrighted. These materials include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless permission is expressly granted."
As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even is you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, http://student-rules.tamu.edu, under the section “Scholastic Dishonesty.”

“Aggies don’t lie, cheat, or steal, nor tolerate those that do”

**Release of student grades** - Grades cannot be released by phone or e-mail, neither can they be circulated in class or posted with any part of the student’s UIN as an identifier. The Family Educational Rights and Privacy Act (FERPA) protects a student’s University Identification Number (UIN). Additional information on FERPA is available at: http://admissions.tamu.edu/Registrar/General/FERPA.aspx

**Student Support** - The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services in Room B118 of Cain Hall. The phone number is 845-1637.” For additional information see http://disability.tamu.edu/. There are numerous other student support organizations on campus including:

- Center for Academic Excellence and Academic Assistance Clearinghouse; 525 Blocker, 845-2724, http://www.tamu.edu/cae

- Student Counseling Service - Henderson Hall, 845-4427, www.scs.tamu.edu, Helpline 5:00pm-8:00am: 845-2700
# Appendix 1. Tentative Course Schedule*

<table>
<thead>
<tr>
<th>Lecture Topic</th>
<th>Schedule</th>
<th>Lecture Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HISTORICAL PERSPECTIVE</strong></td>
<td></td>
<td>Syllabus and Class Assignments</td>
</tr>
<tr>
<td>History of the IPY</td>
<td>Week 1/Lecture 1</td>
<td>History of the IPY/Course Framework Setting</td>
</tr>
<tr>
<td>The History of the Polar Regions - I</td>
<td>Week 1/Lecture 2</td>
<td>History of the Arctic</td>
</tr>
<tr>
<td>The History of the Polar Regions - II</td>
<td>Week 2/Lecture 1</td>
<td>History of Antarctica</td>
</tr>
<tr>
<td>Governance of Polar Regions</td>
<td>Week 2/Lecture 2</td>
<td>The Antarctic Treaty System/The Arctic Council</td>
</tr>
<tr>
<td><strong>POLAR GEOSCIENCES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography - I</td>
<td>Week 3/Lecture 1</td>
<td>General Geography of the Arctic</td>
</tr>
<tr>
<td>Geography - II</td>
<td>Week 3/Lecture 2</td>
<td>General Geography of Antarctica</td>
</tr>
<tr>
<td>Cryosphere - I</td>
<td>Week 4/Lecture 1</td>
<td>General Introduction to the Cryosphere</td>
</tr>
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<td>Cryosphere - II</td>
<td>Week 4/Lecture 2</td>
<td>Sea Ice at the Poles</td>
</tr>
<tr>
<td>Cryoshpere - III</td>
<td>Week 5/Lecture 1</td>
<td>Ice cores and Climate Records</td>
</tr>
<tr>
<td>Cryosphere - IV</td>
<td>Week 5/Lecture 2</td>
<td>Antarctic Ice Sheets</td>
</tr>
<tr>
<td>Oceanography - I</td>
<td>Week 6/Lecture 1</td>
<td>General Oceanography of the Southern Ocean</td>
</tr>
<tr>
<td>Oceanography - II</td>
<td>Week 6/Lecture 2</td>
<td>General Oceanography of the Arctic Ocean</td>
</tr>
<tr>
<td>Geology and Geophysics - I</td>
<td>Week 7/Lecture 1</td>
<td>General Geology of Antarctica</td>
</tr>
<tr>
<td>Geology and Geophysics - II</td>
<td>Week 7/Lecture 2</td>
<td>General Geology of the Arctic Basin</td>
</tr>
<tr>
<td>Atmospheric Science - I</td>
<td>Week 8/Lecture 1</td>
<td>Polar Meteorology and Climatology</td>
</tr>
<tr>
<td>Atmospheric Science - II</td>
<td>Week 8/Lecture 2</td>
<td>Polar Atmospheric Chemistry</td>
</tr>
<tr>
<td>Biology and Ecology - I</td>
<td>Week 9/Lecture 1</td>
<td>The Ecology of Arctic Estuaries in a Changing Climate</td>
</tr>
<tr>
<td>Biology and Ecology - II</td>
<td>Week 9/Lecture 2</td>
<td>Antarctic Food Webs and Ecology</td>
</tr>
<tr>
<td>Human Dimensions - I</td>
<td>Week 10/Lecture 1</td>
<td>Alaska Native Worldview: Traditional Knowledge</td>
</tr>
<tr>
<td>Human Dimensions - II</td>
<td>Week 10/Lecture 2</td>
<td>The Changing Tundra Environment</td>
</tr>
<tr>
<td><strong>SPECIAL TOPICS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biogeochemistry of the Arctic Ocean</td>
<td>Week 11/Lecture 1</td>
<td>Arctic Mid-Ocean Ridge Expedition</td>
</tr>
</tbody>
</table>
Human Disturbance of Polar Regions

Week 12/Lecture 2
Localized Disturbances due to Human Activities

Ocean Ecology

Week 12/Lecture 2
The Ecology of Northern Polar Seas

Human Disturbance of Polar Regions

Week 13/Lecture 1
Global Transport of Contaminants

Project/Reading Day

Week 13/Lecture 1
Project/Reading Day

Life in Extreme Environments

Week 13/Lecture 2
Sub-ice Life

In-Class Presentations

Week 14/Lecture 1
Team Comparison Projects

Class Summary and Discussions

Week 14/Lecture 2
Final Discussion and Summary

Reading Day

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Reading Day

*Changes may be made to the syllabus at any time. The course schedule is kept flexible to be able to accommodate the schedules of guest lecturers*
Appendix 2. Course Projects

Project #1 – Polar Education and/or Public Outreach Project - The report on this project will account for 25% of your grade. Public interest in the Polar Regions presents a unique opportunity to educate a wide range of audiences. To engage and immerse course participants in these activities, each student is to locate and research an educational and/or public outreach (EPO) project based on the Polar Regions. EPO projects can be located by searching the web. Examples are provided on the course website and your instructor can assist you in locating an appropriate EPO project.

Preliminary Report #1 (1-page maximum length): By the assigned due date, identify an EPO project and provide a 1-page description of the project and your plans for learning from or participating in the activity. This preliminary report should be an abbreviated version of the final report described below. Over the term of the course keep a log of your interactions with the EPO project. Include any observations about the activities as they occur and/or interactions with the EPO project (such as emailing team members questions)

Final Report #1 (2-page maximum length): Describe the EPO project you monitored, your level of participation, what you learned from being involved in the project, how other participants benefited from the project, and what would you have done differently to improve or enhance the outcomes of the project. In addition, your final report should include:

- Name of the Activity
- The Principle Investigators or Lead Organizers and Affiliations
- The URL for the activities home site
- Describe what the activity entails
- What was the target audience – i.e., K-12 students, teachers, college students, the public, etc.?
- What were the expected outcomes?
- What were the activities, methodologies and/or processes employed to accomplish the project?
- What role did you play – participant, spectator?
- How did you fulfill your role?

Project #2 - Polar Science Project - The report on this project will account for 25% of your grade. Research in the Polar Regions brings researchers together from around the world. To engage and immerse course participants in polar research, each student is to identify a science project, research its activities, correspond with the project, and report your interactions with the project. These projects can be located by searching the web. Examples are provided on the course website and your instructor can assist in locating an appropriate project.

Preliminary Report #2 (1-page maximum length): Locate a science project and provide a 1-page description of the project and your plans for monitoring the project over the term of the course. This preliminary report should be an abbreviated version of the final report described below. Over the term of the course keep a log of your interactions with the project. Include any observations about the activities as they occur and/or interactions with the science project.

Final Report #2 (2 page maximum length): Describe the project you monitored, your level of participation, what you learned from the project, and what would you have done differently to improve or enhance the outcomes of the project. Please prepare a project report that includes:

- Name of the Project
- The Principle Investigators and Affiliations
• The URL for the project’s home site
• Describe what the project entails
• What are the expected outcomes
• What are the activities, methodologies and/or processes employed to accomplish the project
• What role did you play, if any, in the project?
• How did you fulfill your role?

Project #3 - That Was Then, This is Now: IGY/IPY 2007-2008 Comparisons - The IPY 2007-2008 celebrated the 50th anniversary of the IGY. The IGY in many ways represents the beginnings of earth and space science as we know it today. This Team project is intended to illustrate the advances that have occurred in the last 50 years in polar science and technology and develop an appreciation for the pace of change in the modern world. To engage and immerse course participants in polar science, a Team of 4 to 8 students, lead by a graduate student, will locate and research a science project, science or technology area, or other topic that was part of the International Geophysical Year 1957-1958 and has in some form or another been repeated or advanced by a project in the IPY 2007-2008. These projects can be located by searching the web. Examples are provided on the course website and your instructor can assist in locating an appropriate project.

Preliminary Report #3 (1-page maximum length): Teams will be assigned and a graduate student leader named. Identify a project or topic that is represented in the IGY and the IPY 2007-2008. The graduate student Team Leader will oversee the project, develop a plan for the activities needed to accomplish the project, and assign responsibilities to team member to collectively accomplish the project. The Team Leader is responsible for scheduling meetings outside of class to make sure the project is making progress during the term of the class and organize the final report. Provide a 1-page preliminary description of the comparison projects and your plans for assessing how the science has advanced in the last 50 years.

Final Report #3 (2-page maximum length): Describe the projects you monitored, what you learned from the project, and what would you have done differently to improve or enhance the outcomes of the project. Provide a projection of how you believe the subject you studied will have changed by the next IYP, fifty years from now based on the changes you identified over the past 50 years. The final report is to include the following information for the comparison projects:

• Name of the Project
• The Principle Investigators and Affiliations
• The URL for the projects home site of the IPY project
• Describe what the projects entail
• What are the activities, methodologies and/or processes you employed to compare the two projects

Translate your report into a 20-25 minute oral presentation that will be given to the rest of the class. Team participation in the class presentation is encouraged. Presentations will be scheduled in the final quarter of the course.

If desired, you may insert your syllabus (Word document) to this section. Simply delete this paragraph and either cut and paste the contents of the file, or use the menu bar to insert the file.
GEOS 401 – Earth’s Polar Regions: Science, Society, and Discovery

Instructor: Mahlon C. Kennicutt II, m-kennicutt@tamu.edu, Office Phone No.: 979-458-4345, Office Location: Rm. 608 Oceanography and Meteorology Building. Office hours by appointment
Meeting Time and Location: To be determined

Prerequisites: None.

Course Description: This course will educate undergraduate and graduate students about “cutting-edge” polar science and research. The Polar Regions are an international focus for science, research, and technological development. Polar research is conducted in both Polar Regions including investigations of linkages to the Earth system. Polar research by its nature is multi- and inter-disciplinary in scope and international in participation. Knowledge of and exploration in the Polar Regions will be used to educate and excite the next generation of engineers, scientists, and leaders. Polar research spans a wide range of scientific disciplines across the physical sciences, social sciences and engineering. The role and importance of the Polar Regions in the earth system, and their interactions with human systems, will be emphasized.

This course provides a broad overview of the relevant disciplines and topics that define modern polar science with perspectives from the north and the south. The course is primarily lecture in style. The course presentations include invited lectures by renowned polar scientists drawn from across the nation and from within Texas A&M University faculty and researchers. Extensive web based activities and resources will be used to enhance the in-class experience. The course will include a series of lectures on the history of the Polar Regions (including International Polar Years), basic polar geosciences (oceanography, atmospheric sciences, geography, geology, and geophysics), major Arctic and Antarctic science projects, and special topics usually determined by the guest lecturers (see Appendix 1). Students will participate in two individual projects producing a written report and a team project producing a written report and a class presentation (see Appendix 2.)

Note: GEOS 401, Section 200 Honors Credit - Honors students' written assignments will be expected to be more comprehensive and in-depth than non-honors undergraduate reports. Honors students' reports will be graded more stringent on content, clarity, scope, and accuracy. Honor students will be matched with Graduate students to assist in organizing and supervising the team project. Honors students are expected to actively participate in the in-class presentation. Honors students' team project grading will take into account the quality of the organization and participation in the team project.

Learning Objectives/Outcomes

- to comprehend that the earth is a co-dependent system of systems,
- to recognize the importance of the polar regions in the earth system,
- to analyze the conflicting evidence of global change and its ramifications,
- to write an analysis of written materials in your own words,
- to integrate multiple sources of information,
- to assess and judge the conclusions of others, and
- to determine the role of humans in earth system change.
Class web site - Updates to the syllabus as well as other course materials will be made available on the course website. For an example see: http://psp.tamu.edu/education/ge0science-489-689-internationalpolar-year-2007-2008-directed-study-course.html

Textbooks and Readings - There is no lecture text associated with this course. There are extensive reading lists associated with each topic.

Class Attendance - Class attendance as an individual student responsibility: however students are expected to attend class and to complete all assignments. The instructor will give adequate notice of the dates on which assignments will be due. This information is provided in the course syllabus that is distributed at the first class meeting.

There are University Rules Regarding Attendance, approved absences, etc. Please obey these rules and read about them. See http://student-rules.tamu.edu/rule7.htm for policies and a link to absence forms. In addition, be aware there are rules and regulations regarding religious observances which can be found at http://dof.tamu.edu/faculty/policies/religiousobservance.php. To summarize, attendance is your responsibility, but you are expected to attend class and laboratories. My experience is that failure to attend class, especially labs, is a major cause of poor performance and low grades.

Cellular Telephones - As a courtesy to the instructor and other students please turn off all cellular telephones and two-way pagers before the class begins. It extremely impolite interrupt the class with a cellular telephone call.

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Grading - Your grade in this class will be based on class projects as described below:

1. There are no in-class or final exams.
2. There are two individual projects that will account for 25% each of your grade for a total of 50%.
   - Written report and interactions with a polar education and public outreach activity - 25%
   - Written report and interactions with a polar science program - 25%
3. There is one Team Project that will account for 50% of your grade.
   - Participation in a graduate student lead team project - 50%

The grading for this course follows Texas A&M University Student Rule 10 - Grading.

   o A – Excellent
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Typical grading schemes follow these cutoffs: 90% A, 80-89% B, 70-79% C, 60-69% D, <60% F; an average performance will earn a satisfactory grade. There is no "curving" utilized in grading.
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Academic Integrity Statement and Policy.
"An Aggie does not lie, cheat, or steal, or tolerate those who do." Print the following on assignments and exams, “On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.” For further information see [http://www.tamu.edu/aggiehonor.](http://www.tamu.edu/aggiehonor)

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Grades cannot be released by phone or e-mail, neither can they be circulated in class or posted with any part of the student’s UIN as an identifier. The Family Educational Rights and Privacy Act (FERPA) protects a student’s University Identification Number (UIN). Additional information on FERPA is available at [http://admissions.tamu.edu/Registrar/General/FERPA.aspx](http://admissions.tamu.edu/Registrar/General/FERPA.aspx)

Student Support
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- [Services for Students with Disabilities](http://www.tamu.edu/services/)
- Center for Academic Excellence and Academic Assistance Clearinghouse, 525 Blocker, 845-2724, [http://slc.tamu.edu/](http://slc.tamu.edu/)
- **Student Counseling Service** - Please do not hesitate to ask your instructor if you have any problems or if you are having any trouble in the class before it becomes a problem.
- Racial and Ethnic Harassment is discrimination based on race, color, or national origin and involves behavior that is so severe and pervasive and objectively offensive so as to interfere with or limit the ability of a student to participate in or benefit from the services, activities or privileges provided by Texas A&M University. See [Student Rule 31 - Racial and Ethnic Harassment](http://www.tamu.edu/services/).
# Appendix 1. An Example Course Lecture Schedule

<table>
<thead>
<tr>
<th>Lecture Topic</th>
<th>Schedule</th>
<th>Lecture Title</th>
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<tr>
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<td><strong>HISTORICAL PERSPECTIVE</strong></td>
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<td>Week 6/Lecture 1</td>
<td>General Oceanography of the Southern Ocean</td>
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<td>Week 6/Lecture 2</td>
<td>General Oceanography of the Arctic Ocean</td>
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<td>Week 7/Lecture 1</td>
<td>General Geology of Antarctica</td>
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<td>Polar Meteorology and Climatology</td>
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<td>Polar Atmospheric Chemistry</td>
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<td>Week 9/Lecture 1</td>
<td>The Ecology of Arctic Estuaries in a Changing Climate</td>
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<td>Biology and Ecology - II</td>
<td>Week 9/Lecture 2</td>
<td>Antarctic Food Webs and Ecology</td>
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<td>Week 10/Lecture 1</td>
<td>Alaska Native Worldview: Traditional Knowledge</td>
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<td>Human Dimensions - II</td>
<td>Week 10/Lecture 2</td>
<td>The Changing Tundra Environment</td>
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<td>Week 11/lecture 1</td>
<td>Arctic Mid-Ocean Ridge Expedition</td>
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<td>Human Disturbance of Polar Regions</td>
<td>Week 11/Lecture 2</td>
<td>Localized Disturbances due to Human Activities</td>
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<td>Ocean Ecology</td>
<td>Week 12/Lecture 1</td>
<td>The Ecology of Northern Polar Seas</td>
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<td>Week 12/Lecture 2</td>
<td>Global Transport of Contaminants</td>
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<td>Project/Reading Day</td>
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<td>In-Class Presentations</td>
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<td>Class Summary and Discussions</td>
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<td>Final Discussion and Summary</td>
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<td>Reading Day</td>
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Appendix 2. A Description of Course Projects

1.A Project #1 – Polar Education and/or Public Outreach Project - The report on this project will account for 25% of your grade. Public interest in the Polar Regions presents a unique opportunity to educate a wide range of audiences. To engage and immerse course participants in these activities, each student is to locate and research an educational and/or public outreach (EPO) project based on the Polar Regions. EPO projects can be located by searching the web. Examples are provided on the course website and your instructor can assist you in locating an appropriate EPO project.

Preliminary Report #1 (1-page maximum length): By the assigned due date, identify an EPO project and provide a 1-page description of the project and your plans for learning from or participating in the activity. This preliminary report should be an abbreviated version of the final report described below. Over the term of the course keep a log of your interactions with the EPO project. Include any observations about the activities as they occur and/or interactions with the EPO project (such as emailing team members questions)

Final Report #1 (2-page maximum length): Describe the EPO project you monitored, your level of participation, what you learned from being involved in the project, how other participants benefited from the project, and what would you have done differently to improve or enhance the outcomes of the project. In addition, your final report should include:

- Name of the Activity
- The Principle Investigators or Lead Organizers and Affiliations
- The URL for the activities home site
- Describe what the activity entails
- What was the target audience – i.e., K-12 students, teachers, college students, the public, etc.?
- What were the expected outcomes?
- What were the activities, methodologies and/or processes employed to accomplish the project?
- What role did you play – participant, spectator?
- How did you fulfill your role?

1.B Project #2 - Polar Science Project - The report on this project will account for 25% of your grade. Research in the Polar Regions brings researchers together from around the world. To engage and immerse course participants in polar research, each student is to identify a science project, research its activities, correspond with the project, and report your interactions with the project. These projects can be located by searching the web. Examples are provided on the course website and your instructor can assist in locating an appropriate project.

Preliminary Report #2 (1-page maximum length): Locate a science project and provide a 1-page description of the project and your plans for monitoring the project over the
term of the course. This preliminary report should be an abbreviated version of the final report described below. Over the term of the course keep a log of your interactions with the project. Include any observations about the activities as they occur and/or interactions with the science project.

**Final Report #2** (2 page maximum length): Describe the project you monitored, your level of participation, what you learned from the project, and what would you have done differently to improve or enhance the outcomes of the project. Please prepare a project report that includes:

- Name of the Project
- The Principle Investigators and Affiliations
- The URL for the project’s home site
- Describe what the project entails
- What are the expected outcomes
- What are the activities, methodologies and/or processes employed to accomplish the project
- What role did you play, if any, in the project?
- How did you fulfill your role?

**1.C Project #3 - That Was Then, This is Now: IGY/IPY2007-2008 Comparisons** - The IPY 2007-2008 celebrated the 50\(^{th}\) anniversary of the IGY. The IGY in many ways represents the beginnings of earth and space science as we know it today. This Team project is intended to illustrate the advances that have occurred in the last 50 years in polar science and technology and develop an appreciation for the pace of change in the modern world. To engage and immerse course participants in polar science, a Team of 4 to 8 students, lead by a graduate student, will locate and research a science project, science or technology area, or other topic that was part of the International Geophysical Year 1957-1958 and has in some form or another been repeated or advanced by a project in the IPY 2007-2008. These projects can be located by searching the web. Examples are provided on the course website and your instructor can assist in locating an appropriate project.

**Preliminary Report #3** (1-page maximum length): Teams will be assigned and a graduate student leader named. Identify a project or topic that is represented in the IGY and the IPY 2007-2008. The graduate student Team Leader will oversee the project, develop a plan for the activities needed to accomplish the project, and assign responsibilities to team member to collectively accomplish the project. The Team Leader is responsible for scheduling meetings outside of class to make sure the project is making progress during the term of the class and organize the final report. Provide a 1-page preliminary description of the comparison projects and your plans for assessing how the science has advanced in the last 50 years.

**Final Report #3** (2-page maximum length): Describe the projects you monitored, what you learned from the project, and what would you have done differently to improve or enhance the outcomes of the project. Provide a projection of how you believe the subject
you studied will have changed by the next IYP, fifty years from now based on the
changes you identified over the past 50 years. The final report is to include the following
information for the comparison projects:

- Name of the Project
- The Principle Investigators and Affiliations
- The URL for the projects home site of the IPY project
- Describe what the projects entail
- What are the activities, methodologies and/or processes you employed to compare
the two projects

Translate your report into a 20-25 minute oral presentation that will be given to the rest of
the class. Team participation in the class presentation is encouraged. Presentations will be
scheduled in the final quarter of the course.