

## SPRINTT Science: Student Research on Earth's Polar Regions and Climate Change

NSF Project SPRINTT [Student Polar Research with IPY National (and International) Teacher Training] brings cutting-edge polar science research with an Alaska Native perspective into K-12 classrooms, bridging the science and society divide while inspiring the next generation of polar explorers. Learn how to teach life, Earth and physical science content in a polar context using high-quality, standards-based curricular materials. A user-friendly interface simplifies data where students perform their own authentic polar systems research projects.

### **Course Objectives**

Participants will be able to:

- ✓ Access and interpret polar data sets.
- ✓ Teach standards-based life, Earth, and physical science content in a polar context.
- ✓ Compare and contrast Indigenous and Western science knowledge on polar science and incorporate each into classroom instruction.
- ✓ Facilitate students' use of authentic polar data in conducting formal investigations and research projects.
- ✓ Adopt inquiry and technology-based teaching and learning strategies and successfully implement them in the classroom.

### **Course Requirements**

**\*\*Please note:** To earn credit for Summer 2009, work must be submitted by either June 30<sup>th</sup> (session 1) or July 31<sup>st</sup> (session 2). You may choose the session/due date which fits your needs. If you will not meet this deadline, you will receive an Incomplete and your grade will be reversed once you finish the assignments. **\*\***

This course is a blended synchronous (live)/asynchronous (non-live) class. The live class meeting dates are indicated on the course calendar and on the schedule below. During non-synchronous weeks, participants will work on independent assignments and participate in online discussions.

## Part I: Synchronous Portion:

Class Meeting Dates:  
varies

	<b>Assignment</b>	<b>Maximum Points Value</b>
<i>Mandatory 1</i>	<i>Preparation &amp; Participation in live class sessions, including assignments and pre- and post- course surveys, reading assignments, etc.</i>	30
<i>Mandatory</i>	<i>Online Investigation and sample research paper, including</i>	20

2	<i>comments on others' papers.</i>	
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### Mandatory 2 Assignment:

Create a SPRINTT student account and choose *any* of the available investigations. Go through the entire investigation, including writing the research paper. Then create a guest username and password to view the paper, and post this information on the Discussion Board, along with a short (a few sentences) reflection on the process.

The final step is to comment on at least one classmate's paper.

### Part II: Asynchronous Portion

After the training is complete, you are now ready to begin the asynchronous portion of the course. Choose the options that will be most beneficial and interesting to you.

	<b>Assignment</b>	<b>Maximum Points Value</b>
<i>Mandatory 3</i>	<i>Student Surveys: Your students must complete the pre- and post-program surveys (electronically or on paper) in order for you to receive credit for the course.</i>	5
Option 1	Full Electronic Portfolio Assignment	30
Option 2	Participation in SPRINTT Online Student Symposium	20
Option 3	SPRINTT Student Science Research Conference	20
Option 4	Truncated Electronic Portfolio Assignment	20

#### Option 1: Full Electronic Portfolio Assignment (30 points possible)

Create an electronic portfolio to demonstrate successful program implementation. As you implement the program(s), reflect critically on how the program is helping to improve student interest, understanding, or achievement.

Follow the following steps to complete your portfolio:

1. Review the course objectives for this course.
2. As you implement, the program, collect 'artifacts' that illustrate how you have met your course objectives, and passed them on to your students. Artifacts can be in many forms including, but not limited to:

- student work samples (such as scanned student writings, posters, or journal entries; video/audio recordings of presentations; photographs of work; etc.) at the high, medium, and low proficiency level
- digital photographs of students actively engaging in activities
- lesson plans showing how you are incorporating program into your instruction
- assessments you have created based on the programs
- results of assessments
- PowerPoint presentations created by you for use during class, or by your students
- notes from parents indicating changes they have seen in their children
- letters from supervisors discussing the program implementation

*\*NOTE: Your artifacts for at least one objective must include 3 or more student research papers.*

3. Select the two artifacts that most effectively illustrate that you have met each objective.
4. Write a short (one paragraph) reflection for each artifact that describes why you selected the artifact and what it shows.
5. Write a 2-4 page reflective essay that briefly describes how you implemented the program in your classroom, and how the portfolio illustrates successful implementation. Explain how the program affected your own planning and instruction, your content knowledge, and also your students' learning and success.

Option 2: Participation in SPRINTT Online Student Symposium (20 points possible)

SPRINTT students will be invited this spring to participate in an online student symposium to share their research. Dates and more information will be supplied. To earn credit, participate in the symposium webcast with your students and write a short reflection of what students gained from the experience.

Option 3: SPRINTT Student Science Research Conference (20 points possible):

Conduct your own science research conference for your students! Organize an opportunity for students to share their research with one another. You may wish to invite parent, administrators, other faculty, and/or other students.

The format may vary, from 'poster sessions' where students stand next to laptops with their research paper, to formal presentations. To earn the credit, share at least 3 artifacts (i.e., pictures, videos, letters from parents/administrators, flyers announcing the event) and write a short reflection describing how you designed the experience for students and what they gained from it.

Option 4: Truncated Electronic Portfolio (20 points possible)

Follow instructions above but complete the portfolio for three course objectives, rather than all of them.

## Course Grading

Final Course Grade	Points Range	Performance Indicators
A	90-100	Participant demonstrates an excellent understanding of the poles in the Earth system and the importance of scientific literacy. Participant is able to successfully implement inquiry and technology-based teaching and bring polar science content into the classroom and facilitate authentic student research.
B	80-89	Participant demonstrates a good understanding of the poles in the Earth system and the importance of scientific literacy. Participant is able to successfully implement inquiry and technology-based teaching and bring polar science content into the classroom and facilitating authentic student research.
C	70-79	Participant demonstrates a satisfactory understanding of the poles in the Earth system and the importance of scientific literacy. Participant shows some success in implementing inquiry and technology-based teaching and bringing polar science content into the classroom and facilitating authentic student research.
F	<70	Participant does not meet course objectives

Minimum for graduate credit = 80 points (B-)/(95 for A)

Minimum for CEU credit = 75 points