

# BSSP Astronomy

2 credits

Syllabus | Spring  
2009

Instructor: Phone:  
994-7612

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**Email: Via WebCT**

**Purpose: To provide a general understanding of our solar system, our galaxy, and the universe.**

**Description: This course will build on topics presented at the 3-day summer workshop held at the Chief Dull Knife Community College in June 2008.**

**Readings:**

**The Essential Cosmic Perspective (4th Edition). Jeffrey Bennett and others. 2008. Pearson Addison Wesley.**

**Mysteries of the Sky by Shannon Willoughly and Jeff Adams. Dubuque, IA: Kendall Hunt**

**The Stars we Know by Timothy McLeary. Long Grove, IL: Waveland Press.**

**Additional Reading will be provided on WebCT or as links to webpages**

**Course Goals:** Knowledge gained from this class will:

- Help you to connect with our planet, solar system, galaxy, and Universe through a better understanding of Astronomy.
- Allow you to teach these concepts to your students.
- Help you to find connections between Native American knowledge of the sky and Astronomy.

**Module Design: This course is designed in a module format. The course consists of 6 modules. Each model corresponds with topics that we will be discussing during each face-to-face meeting. Each module consists of:**

1. **Dates:** Each module has opening and closing dates. Each module will close at 9:00 pm on the designated dates. Please pay attention to the dates, as students will be unable to enter the module once it is closed.
2. **Description:** Each module has a description of the module content and student activities.
3. **Module Sections:** Each module has four sections: two **Online Activities**, each one to be completed in one week, **Additional Resources for Your Classroom**, and **Inquiry Pedagogy**. Each module should be completed in two weeks. Your readings and activities are listed in your

syllabus and are utilized in your discussions and activities. Additional resources are also indicated in your syllabus and are generally practical resources for teaching and will also assist you in your assignments. It may be helpful for students to print out or electronically file the resources and collect them in a portfolio folder as a resource for your school and to assist you in future teaching.

4. **Discussions:** Each module contains one or several discussion sections that relate to specific readings and activities. Students are expected to:
  1. **Read the assigned readings and complete all discussion questions and activities thoughtfully and thoroughly.**
  2. **Post your response as early as possible to provide ample time for others to respond to your posting.**
  3. **Read ALL of the discussion postings, not just the discussions responding to your posting. The discussion area is your "classroom" and it is important to follow the discussion threads as they represent the ideas and contributions of everyone in the class. Lack of participation affects everyone in the class.**
  4. **Actively ENGAGE in the discussions throughout the week. Posting your discussions on one day does not constitute "active engagement" in the course. Posting your discussions "at the last minute" does not qualify as a discussion as other students, nor your professor, can or will engage in a discussion with you.**
  5. **Respond to you instructor's questions that may specifically be posed to you in the discussions.**
  6. **Use the HTML editor for spelling and grammar check, if necessary before posting your discussion.**

**Reminder:** The technology in the course allows the instructor to track each individual student's activity, including, student entry into the course or modules, number of postings and number of items read. **The modules will close at 9:00 pm on the designated dates. Students will not be able to enter them after that time.**

**Email will be available through Web CT.** Students can communicate with the instructor or other students privately. The instructor will use email to contact students individually or as a group so please check your email regularly.

**Grades:** A grading scale is contained at the end of this syllabus.

**Course Evaluations:** Students are strongly encouraged to complete a course evaluation for each course. The course evaluations are found on the menu bar or on the home page for each syllabus. The course evaluations are anonymous as they are sent to the Burns Telecommunications Center. The Burns Center compiles the data and sends it to the instructors after the course is closed and grades are submitted.

**Face-to-Face Meetings Schedule:** In the face-to-face meetings we will cover the material you completed for each online module in greater detail.

- **January 31<sup>st</sup> - February 1<sup>st</sup> (MSU Bozeman): Complete Module #1 (all readings should be completed).**
- **March 7<sup>th</sup> (TBA): Complete Module #2 & 3**
- **April 4<sup>th</sup> (TBA): Complete Module #4 & 5**
- **May 2<sup>nd</sup> (TBA): Module 6 started and completed by May 14<sup>th</sup>.**

## **Topics for Online Modules and Face-to-Face Meetings**

### **January and February**

**Native American Focus:** solar observatories, solstice and equinox

**Science Focus:**

Motion of the Earth and the Moon

The solar system: planets, asteroids, comets, and meteorites

Formation of our solar system

**Pedagogy Focus:** The four traits of inquiry

Complete Online Module 1 prior to the face-to-face meeting.

### **March**

**Native American Focus:** Knowledge of stars

**Science Focus:**

Astronomy tools: telescopes, photon detectors, interferometers.

Stellar distances and brightness

Other habitats: temperature and ecospheres for stars.

**Pedagogy Focus:** Learning cycle

Complete Online Modules 2 and 3 prior to the face-to-face meeting.

**April**

**Native American Focus:** Pictographs of the Supernova of 1054 A.D.

**Science Focus:**

Star formation and energy generation in stars

Different types of stars: binary, neutron stars and pulsars

Stellar evolution

**Pedagogy Focus:** Project-based learning

Complete Online Modules 4 and 5 prior to the face-to-face meeting

**May**

**Native American Focus:** Crow and Cheyenne stories of the Milky Way

**Science Focus**

Our galaxy: the Milky Way

Discovering galaxies

Normal and active galaxies

**Pedagogy Focus:** Learning progressions

Complete online Module 6 prior to the face-to-face meeting.

**Grading Scale of the Course:**

Posting and reading in all online Module discussion topics: 90 points

Posting and reading in all online SciPack discussion topics: 90 points

Completion of the Astronomy SCOOP: 120 points

Participation in all face-to-face-meetings: 100 points

Total points: 400 points

90 to 100% = A    70 to 79% = C    Less than 60 % = F

80 to 89% = B    60 to 69% = D