

## ***EDUC 206 - Introduction to Secondary Science Teaching***

### **1) Course Information**

*Department and course number:* EDUC 206

*Credits:* 3 undergraduate credits

*This course is offered* On Demand.

*Dates and meeting times for the course:* Tuesday and Thursday, 9:00 to 10:30 am, from October 1<sup>st</sup>, 2013 through December 12<sup>th</sup>, 2013

*Course Locations:* First onsite meeting: Room 113, Education Building

This is a hybrid course, meaning it is a combination of online learning and on site meetings. The online portion will be housed on the SKC Moodle. The course also includes 10 hours of classroom observations of secondary science classrooms in the Flathead Reservation schools. Meeting sites for school visits will be announced and posted on the SKC Moodle.

### **2) Instructor Information**

*Name:* Regina Sievert

*e mail address:* [Regina\\_Sievert@skc.edu](mailto:Regina_Sievert@skc.edu)

*Office Location:* Beaverhead Building, Room 120

*Phone number:* Office phone 275-4995, Cell phone 261-7412

*Office Hours:* Monday, Wednesday, and Friday 9:00 am through 12:00 pm and 1:00 pm through 4:30 pm. Because I also supervise Student Teaching and other BSSE field experiences, please be advised that my schedule is somewhat unpredictable since I may be in the schools working with students. I recommend that you contact me if you need a firm appointment either by text, cell phone call or e mail message.

### **3) Required Materials**

- *Bridging Cultures: Indigenous and Scientific Ways of Knowing Nature.* Glen Aikenhead and Herman Mitchell, authors. Copyright 2011, Pearson Canada. ISBN – 13: 978-0-13-210557. Because it is published in Canada, this book can take extra time to obtain so please plan accordingly. The BSSE office may have copies on hand for student use.
- Rutherford, F.J., and A. Ahlgren. 1990. *Science For All Americans*. New York, NY: Oxford University Press. The entire text of this book is online at <http://www.project2061.org/tools/sfaol/sfaatoc.htm>
- National Research Council. *Next Generation Science Standards: For States, By States*. Washington, DC: The National Academies Press, 2013. The full book can be read online at <http://www.nap.edu/NGSS/> or it can be downloaded at <http://www.nextgenscience.org/next-generation-science-standards>
- National Research Council. *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. Washington, DC: The National Academies Press, 2012. The full book can be found and/or downloaded online at [http://www.nap.edu/catalog.php?record\\_id=13165#](http://www.nap.edu/catalog.php?record_id=13165#)
- Other readings and resources assigned by the instructor will be posted on the course Moodle.

#### 4) Course Description

This course provides an introduction to secondary science teaching. Major topics include the nature of science across cultures, models of effective pedagogy for science teaching, science teaching as a profession, and the interplay of science, society and science education. An imbedded practicum of 10 hours of observations in local schools will be part of the course.

This is a hybrid course, meaning that it includes online interactions (discussions with peers and the instructor, accessing course materials, assignment submission, etc.) plus on site meetings. On site meetings will include 15 hours of firsthand study of classroom instruction (10 hours of observation and 5 hours of reflections on these observations). These observations will be arranged by the instructor and conducted largely as a whole class. Schedules for the observations will be distributed via Moodle posting during the third week of October.

#### 5) Course Objectives

Through the successful completion of this course students will be able to

- A) generate a concept map that knowledgeably describes and compares the nature of science across cultures (Communication and Cultural Awareness),
- B) develop draft science lessons that effectively utilize research based pedagogy (Critical Thinking and Communication),
- C) employ learning theory to justify their positions on the use of research based pedagogy (Critical Thinking, Communication),
- D) describe the culture of teaching and the nature of the secondary science teaching profession (Cultural Awareness and Communication),
- E) explain the significance of the interaction of science and society and how it affects science education (Citizenship, Cultural Awareness and Communication) and
- F) effectively utilize technology to support their own and others' teaching and learning (Communication).

#### 6) Course Requirements and Schedule

This course consists of one classroom meeting at the college on October 1<sup>st</sup>, fifteen hours of group and individual observations in area secondary schools and written journal reflections on those observations, four online modules with discussions and assignments both formative and summative, and one final summative assignment. Details are provided below and on the course Moodle.

Module #1 – Discussions run from October 1<sup>st</sup> through October 7<sup>th</sup> – *Introduce yourself to the class*

- First course meeting October 1<sup>st</sup> at 9:00 am in Education Building, Room 113
- Post a written introduction so the class members can get to know you
- Respond to others' posts about themselves
- Post resources that reflect who you are – photos, videos, links, etc.
- Practice using the Moodle to respond on forums and to start new discussion threads
- Begin reading for future modules

Module #2 - Discussions run from October 8<sup>th</sup> through 17<sup>th</sup> – *The Nature of Science and Science Teaching*

- Assigned readings:
  - 1) The Nature of Science – *Science for All Americans* - <http://www.project2061.org/tools/sfaaol/sfaatoc.htm>
  - 2) *Bridging Cultures: Indigenous and Scientific Ways of Knowing Nature* – Please read and use the whole book for our online discussions and assignments.
  - 3) “Revising Instruction to Teach the Nature of Science” – See link in Module #1 on Moodle
- First set of online discussions on the assigned course materials
- Formative concept map due October 8th
- First summative concept map due **October 21<sup>st</sup>**

Module #3 – Discussions run from October 22<sup>nd</sup> – October 31<sup>st</sup> – *Science and Society*

- Second set of online discussions – See assigned readings and materials on Moodle.
- Second summative written assignment due **November 4<sup>th</sup>**

Module #4 – November 5<sup>th</sup> – November 21<sup>st</sup> - *Models of Effective Science Pedagogy – Inquiry and Culturally Congruent Science Instruction*

- Third set of online discussions – See assigned readings and materials on Moodle.
- Third summative written assignment due **November 25<sup>th</sup>**

**Final summative assignment due - Tuesday, December 10th - Two essays that respond to prompts posted on Moodle.**

**Classroom Observations** – October 15<sup>th</sup> through November 26<sup>th</sup>

We will spend 15 hours during this time doing a mixture of **group and individual observations** in the secondary science classrooms on the reservation. Plan on about 2 hours of observation coupled with 1 hour of debrief per day, although the schedule will ultimately depend on the classroom teachers' availability to allow us to observe. You will receive the schedule for group observations during the third week of the class and I will provide contact information for teachers to you then also. You will be required to keep a journal of your reflections on each observation. **The final signed form and journal for the observations will be due by 4:30 on Tuesday, December 3<sup>rd</sup>.**

**\*\* Note:** An approved background check is required for any SKC student to visit reservation school classrooms. If you do not have one on file in the SKC Education Department, please do so asap. You cannot pass this course without full participation in these classroom observations.

## 7) **Credit Hours**

Following the SKC Credit Hour policy, to meet the identified student learning outcomes of this hybrid course delivered over a 10 week term, each student will spend approximately

- an average of 1.5 hours per week in onsite work in the college classroom and in field work in secondary classrooms including observations and pre/post observation discussions,
- 4 hours per week in online work including participation in online discussions, accessing course resources and posting of resources for sharing with peers on the course Moodle and
- an average minimum of 5 hours each week on other course assignments to meet the course learning objectives.

## 8) Evaluation

Students enrolled in the course will receive a traditional letter grade. Students will be evaluated using multiple methods and **ALL assignments must be completed to at least a standard of proficiency as specified by the instructor in order to receive a passing grade for the course.** Since this is a hybrid course, students are required to actively participate in all online as well as on site activities. This includes a **required minimum of substantive and thoughtful postings on the course Moodle discussion at least 3 times per week and a minimum of 3 substantive and meaningful posts on every discussion forum.** All course assignments must be completed and submitted by the deadlines stated above. **Late work will be docked 25% of the total possible points for each day it is late.**

An Incomplete grade ("I") is NOT an option with the exemption of an extreme emergency or the death of a family member. In either case, the instructor must be notified within 48 hours.

Points will be awarded to students as follows:

Four on line modules, including discussions and formative assignments 5 points for Module #1, 10 points for Module #2, 10 points for Module #3, 15 points for Module #4	40 points maximum
Four summative written assignments – 9 points each	36 points maximum
On site and classroom observation activities	<u>24 points maximum</u>
<b>Total points possible</b>	100 points maximum

Grades will be awarded using the following scale:

90 to 100% = A  
80 to 89% = B  
70 to 79% = C  
60 to 69% = D  
Less than 60% = F

## 9) Attendance

- Regular and frequent participation in ALL class activities is required in order for students to have access to a rich and comprehensive learning experience. Regular participation in online activities, completion of all assignments, and full participation in field work is also required for the successful completion of the course with a passing grade.
- **Students are required to post on the course Moodle at least 3 times per week and at least 3 substantive, meaningful posts to each discussion forum are required in order to pass this course.** Moodle discussions will close to additional postings for inclusion in the course grade on midnight of the dates provided in the course outline detailed in this syllabus.
- Absences will only be excused if the student obtains prior approval from the course instructor, Regina Sievert. Opportunities for make up work will be limited and require prior approval by the instructor.

## 10)Other

### Students with disabilities

Reasonable accommodations are provided for eligible students with identified disabilities. The College complies with the Rehabilitation Act of 1973 and the Americans with Disabilities Act. Students may contact the College's Disability Officer, Stanley Fleming ([stanley\\_fleming@skc.edu](mailto:stanley_fleming@skc.edu), 406.275.4968) or consult the SKC web page for Students with Disabilities for more information.

### Academic integrity

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by Salish Kootenai College. Violations of the college's policies (including plagiarism or other forms for cheating) may result in the student failing the course.

### Behavioral expectations for students enrolled in this course

- 1) You are studying to become a teacher. Successful teachers must have a high level of self initiative and self responsibility and should be able to work constructively as part of a team. You will find both of these scenarios in this course and you are expected to be able to have a high level of function in both.
- 2) **All** course assignments, completed to the specified level of quality, are required in order to pass this course.
- 3) Your full attention is also expected during class activities. No communication technology should be visible, turned on, or in use during class unless they are directly related to a course activity – this includes cell phones, iPads, and laptops.
- 4) You are responsible for communicating directly with the instructor concerning all aspects of the course including attendance and assignments. Do not expect other to deliver messages to the instructor.
- 5) You must use your SKC student e mail account for all communication regarding the course, including communicating with the instructor. You are expected to submit your assignments through the Moodle using your Moodle account.
- 6) To successfully learn in this course, you must visit and post to the Moodle frequently. You are required to post **substantive** discussion postings at least three times per week and at least three times per discussion **forum**.

**\*\*NOTE: The faculty reserves the right to change the course syllabus or course content. Students will be provided advanced notice of changes in writing.**

## 11)Course Outline

Please refer to section #6 earlier in this syllabus, "Course Requirements and Outline".

## 12)InTASC Standards Addressed

The BSSE degree program's learning outcomes are based on the Montana Professional Educator Preparation Program Standards and InTASC Model Core Teaching Standards, developed by the Council of Chief State School Officers. These standards describe the essential skills and knowledge that every teacher should possess and practice in order to support their students in preparation for entering college or the modern workforce. Through its course content and activities, EDUC 206

addresses and strives to help students gain an introductory understanding of the following InTASC Standards.

**Standard #1 - Learner Development**

The teacher candidate understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.

**Standard #2 - Learning Differences**

The teacher candidate uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.

**Standard #3 - Learning Environments**

The teacher candidate works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.

**Standard #4 - Content Knowledge**

The teacher candidate understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content.

**Standard #5 - Application of Content**

The teacher candidate understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.

**Standard #6 - Assessment**

The teacher candidate understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.

**Standard #7 - Planning for Instruction**

The teacher candidate plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.

**Standard #8 - Instructional Strategies**

The teacher candidate understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.