**Ihanktonwan Community College**

**Integrated Sciences II Physical Sciences**

**Spring 2016 SC 201 Tuesdays 5-9pm**

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**Course Description**

This course should deepen your understanding of the physical science concepts needed to teach standards-based curricula at the K-8 level. It will increase your content knowledge about the physical science topics of energy and sound. You will learn methods and metacognitive strategies for learning and teaching science, including scientific reasoning, prediction, and abstract and critical thinking to optimize your science teaching experiences.

The course will be introduction to the natural laws governing the physical world, with an emphasis upon the discovery and development of these laws and their effect upon man

**Teaching Philosophy/teaching methods**

I believe the fundamental goal of teaching is to foster learning. Learning takes place in many different circumstances and contexts. Although everyone is capable of learning, a student's desire to learn is a vital pre-condition to effectively mastering new concepts and skills. Humans have multiple learning styles: some learn best in lecture atmospheres, some are motivated by discussion, and others absorb best when they read and reflect on what they have read. The classroom setting can encourage or inhibit learning depending on the dominant learning style of each student. Accommodating different learning styles creates an atmosphere that is conducive to learning. Students take many of their learning habits from the instructor. If the instructor doesn't show interest in the subject and a passion for learning, students are less likely to put forth the effort to learn in that class. An instructor must convince students of his or her knowledge and expertise before they will show a willingness to learn.

My job, as an instructor, is to create an atmosphere that fosters learning. I am an instructor because I have a passion for guiding students through the learning process, in addition to a passion for the material I present. One of the best ways to foster learning is to demonstrate those feelings to my students. I encourage learning by creating a relaxed environment for students, stimulating conversation about concepts being presented and organizing material in a way that makes it easiest to understand. I treat subject matter as interconnected, emphasizing that everything students are learning fits together into a holistic understanding of the world, from which they develop their personal worldview. I believe this is best accomplished when I am demonstrating general research methodology. I demonstrate that learning how to find information applies to all areas of life and I use topics and examples that are multidisciplinary. Finally, I believe that respect for my students is one of the most important things I can show - not only to encourage their openness to the material I am presenting, but also to inspire them to respect each other and all other humans.

One of the most important concepts I hope to impart to students is that learning is a process that never ends. For me, the learning process includes improving myself professionally. I want to read more about formal learning theories to expand my understanding of how learning takes place. As I continue to instruct classes, I also aim to enhance my ease and confidence in front of classrooms and audiences. Finally, I plan to experiment with different methods and means of presenting information to classes in order to improve the learning atmosphere I create for students.

**Course Objectives**

-learn about physical science topics and relate them to the world around us

-learn about these scientific topics and be able to present them in a hands-on explorative manner to children

-analyze basics and applied concepts of work and energy with energy transformations

-analyze basics and applied concepts of simple machines including efficiency

-analyze basics and applied concepts of temperature, thermal energy, heat, and thermal conductivity

-analyze basics and applied concepts of sound and harmonic convergence with math concepts

-analyze basics and applied concepts of music

-analyze properties of water, the forces in water, and how they apply to the world

-analyze Newton’s laws and apply them to the real world

-investigate properties of optics

-analyze the electromagnetic spectrum in relation to visible light

-analyze eye anatomy and how it detects light and color

-compute basic math problems as they relate to physical science and the phenomena in our world

**Course Policies:**

All policies found in the student handbook will be followed. Students are required to familiarize themselves with the policy and procedures.

**Instructional Methods:**

Students will learn the subject through class lectures, discussions, class activities, reflection, writing, comparative analysis, and general class participation.

S**tudent Expectations**

Students are expected to be in class on time, prepared, participating in discussion, complete assignments when they are due, and exhibit those qualities and character of a professional teacher.

**Assessment Methods Test**

Students will be evaluated using mid term, final exam OR lessons taught to class (depending on major) chapter tests, attendance, class participation, and students may be required to take a chapter test following each session.

**Attendance**

Attendance will be assessed in this course. The student will develop attendance characteristics and behaviors necessary for success in college work, and everyday settings. Employers have high expectations of educators in the area of punctuality and attendance. Two reasons why people fail to keep a job are being late for work and missing days from work, which are the same for failing a class.

**Books**

1.Stop Faking It! Finally Understand Science So You Can Teach It-Sound

Author-William C. Robertson, Ph.D. 2003

2.Stop Faking It! Finally Understand Science So You Can Teach It-Energy

Author-William C. Robertson, Ph.D. 2003

3.Stop Faking It! Force and Motion

Author-William C. Robertson, Ph.D. 2002

4.Stop Faking It! Light

Author-William C. Robertson, Ph.D. 2003

**Schedule:**

**Sound**

1/19 chapter 1 and 2 basics and application of sound

1/26 chapter 4 and chapter 4 transferring sound/harmonic convergence

2/2 chapter 5 applying math and waves/ waves chapter 6 and chapter 7 basics and application of music

2/9 teach lessons/take written tests over sound/chapter 1 energy

**Energy**

2/16 chapter 2 energy and movement/ chapter 3 simple machines

2/23 chapter 4 temperature and thermal energy/chapter 5 heat and thermal conductivity

3/1 chapter 6 energy transformation/teach lessons or written tests over energy

**Force and Motion**

3/8 chapter 1 Newton’s First One/chapter 2 in which we describe motion then change it

3/15 spring break

3/22 chapter 3 Newton’s 2nd one/chapter 4 there’s no such thing as gravity-Earth sucks

3/29 Chapter 5 Newton’s third/chapter 7 to the moon

4/5 teach lessons/take written tests over fore and motion/chapter 1 light-the early years

Light

4/12 no class

4/19 chapter 2 colorful waves/chapter 3 focus people

4/26 chapter 4 not-so cheap sunglasses/chapter 5 when light waves collide/chapter 6 all about eyeballs

5/3 teach lessons or written test over light

**Points:**

**Attendance**-25 points Daily

**Chapter tests**-20-25 points

**Lesson presentations(education majors)**-50 (one from each book)

**Written tests (non education majors)-**50 points

**Lesson presentations**

A lesson will be presented from each book. The lesson will include the lesson plan formats you have used throughout the semester. You will teach us as you would teach your own class. I will expect you to accommodate at least three different learning styles for these lessons. (For example, the audio, visual, spatial….)I will be going over and handing out a rubric for your lessons prior to their due dates.

**Grading Scale:**

100-90 A

89-80 B

79-70 C

69-60 D

Below 60 F

**Student Responsibilities**

1. **Attendance**-The attendance policies stated in the Ihanktonwan Community College Student Handbook will be strictly adhered to. **Successful completion** of this course is contingent upon attendance, participation, and completion of all course requirements, complied in a portfolio in a timely matter.
2. **Accountability**-All readings, presentations, and assignments must be ready when due in order to earn the maximum number of points allowed. The instructor reserves the right to deduct points for late work. After one week, a failing grade for that assignment may be given. Work handed in must be professional quality. A final grade will not be given unless a completed portfolio is handed in**. MOST IMPORTANTLY STUDENTS MUST UNDERSTAND THAT THEY ARE ULTIMATELY RESPONSIBLE FOR THEIR OWN LEARNING**
3. **CELL PHONE POLICY** Cell phone usage disrupts the learning process. All cell phones must be turned off and put away during class time. You may check your messages and/or make necessary phone calls during class breaks or after class is over. Thanks for your cooperation.
4. **DISABILITY STATEMENT** ICC strives to assist students with declared disabilities that may impact their learning. Please advise your instructor or academic advisor prior to the beginning of the class if you have special needs.

**Portfolio-Start Building it Now Education Majors!!!**

Students will create and maintain a professional portfolio. Portfolios offer a means to promote better teaching and to document teaching achievement. Portfolios often give a clear picture of learners and the products they create. Organize portfolio in a logical and consistent matter. Keep in mind that you are building a comprehensive picture of yourself and your accomplishments through these materials. They should work together as a cohesive unit, each adding an essential element to the whole.

You should think of the portfolio as a work in progress and plan to continue to develop it throughout your teaching career. Keep in mind that your portfolio should speak for you as a teacher in your absence.

**Possible portfolio components**

-introduction/personal information

-resume/professional organizations/employment history

-philosophy

-awards/grants

-certification information

-classroom activities/pictures

-evidence artifacts-standard-based activities

-technology

-professional development

-training activities/presentations

-=scrapbook

References

**Cover Page**

-name/contact information

-current position

-subject area specialties

-professional goals, both short and long

-this could even be a letter from you-welcoming the viewer and sharing your beliefs as a teacher with a photograph of yourself as an option

**Philosophy of teaching statement**

**Resume of professional experience to include the following:**

-grades and school where you have taught

-list and description of courses taught

-leadership positions held

**List of professional development activities**

These are a list of activities that have developed your expertise.

-workshops attended/given

-college courses taken

-conferences attended

-conference presentations

-grant-funded projects you have been involved with

-memberships in professional teaching organizations

-any efforts you have made to develop your teaching skills

**Evidence/Artifacts**

The prime material in your portfolio is the evidence that you present ot support your resume. Package and present these materials in a neat and organized manner. When helpful, provide a written narrative to describe the material, what it was used for, and how it demonstrates your capabilities. This section might be divided into “Teacher Tools” and “Student Products”. The evidence should include but is not limited to:

-sample lesson plans

-sample student work and projects

-sample remediation plans

-course material developed/power point presentations/videotapes with parental permission

-professional growth plans

-teaching certificates

-evaluations and observations

-awards and other recognitions

-newspapers, magazine articles about you or your class

**Assembly**

Most teachers use three ring binders for their portfolios with page protectors to hold their pages. Different sections of your portfolio should be defined and divided.

**Extended time will not be granted past finals week unless arrangements are made ahead of time with a valid reason.**

**Grade changes will not be granted without a class completion contract that is approved by me and the college administration.**

**I reserve the right to adjust this schedule as I deem necessary.**