“Our entire society rests upon—and is dependent upon—our water, our forests, and our minerals. How we use these resources influences our health, security, economy, and well-being.”

John F. Kennedy, Message on National Resources to Congress, 2/23/61

“We are living on this planet as if we had another one to go to.”

Terri Swearingen, US environmental activist

Matter is just energy waiting to happen

Walter Bishop, Character in FRINGE

Should you find yourself in a chronically leaking boat, energy devoted to changing vessels is likely to be more productive than energy devoted to patching leaks.

Warren Buffett

Energy can neither be created or destroyed, merely changed from one form to another.

Albert Einstein

Instructors, Offices & Contact Info:

Dr. Rodney Rice (Classroom: CB 205E), Section 1 Leader, CB 317 (Phone: 394-1244; E-mail: rodney.rice@sdsmt.edu)

Dr. Colin Paterson (Classroom: CB 205W), Course Coordinator, Section 2 Leader, MI 314 (Phone: 394-5114; E-mail: colin.paterson@sdsmt.edu (web page: http://speedy.sdsmt.edu/~cpaterson)

Dr. Kathy Antonen (Classroom: CB 206E), Section 3 Leader, CB 313 (Phone: 394-1252; E-mail: kathy.antonen@sdsmt.edu)

Dr. Justin Meyer (Classroom: CB 309), Section 4 Leader, Chem 122 (Phone: 394-2431; E-mail: justin.meyer@sdsmt.edu)

Professor John Lofberg (Classroom: CB 328), Section 5 Leader, McLaury 316A, (Phone: 394-2448; E-mail: john.lofberg@sdsmt.edu)

Office Hours (subject to change):

Dr. Paterson (M, 1:00-2; TWF, 11:00-12)

Dr. Antonen (MWF, 10-11:00)

Dr. Meyer (MWF, 1-2:30)

Dr. Rice (TTh, 9-11:00)

Professor Lofberg (MWF, 10-11:00)

REQUIRED TEXTS:

Opposing viewpoints series, Energy Alternatives, Greenhaven Press, © 2010

CLASS WEB SITE: https://d2l.sdbor.edu/

COURSE DESCRIPTION:

IS 110 will provide a theme-based interdisciplinary approach to studying the relationships between science and society. The course will consist of lectures, student-led activities, and field work, complemented by visiting lecturers and opportunities to gain regional, national, and global perspectives through organized trips. In Fall 2010, the topic chosen is Conventional and Alternative Energy Sources: What is the Future?

This course is designed for first-time freshman science majors; as such, an important component is to become introduced to various aspects of college academics and life. This mentoring activity is an aid to your success in your college program, and will include SDSMT traditions, dealing with relationships and conflict, study skills and test taking, professional courtesy, taking notes, financial planning and personal management, pre-registration and WebAdvisor, avoiding plagiarism by documenting source material.
COURSE GOALS AND OBJECTIVES:
IS 110 uses a multi-disciplinary approach for evaluating topical scientific issues of societal relevance. To that end, students will:

- Recognize that the practice of science can be a multi-disciplinary activity
- Understand that science has an important role in socio-economic issues on a variety of scales from local to global
- Analyze scientific issues from multiple perspectives (critical thinking)
- Use teams to explore important scientific problems
- Develop skills in communication, both oral and written
- Use computer technology to collect, analyze, and present data
- Participate in mentoring activities.

GLOBAL AWARENESS ASPECT OF THE COURSE:
This course satisfies the Board of Regents requirements for General Education content in the area of globalization and global issues. Specifically, students will identify and analyze global issues from multiple scientific perspectives and explore how the science disciplines are involved in societal discourse on select issues.

Student competency in the area of globalization and global issues will be assessed as part of the 7-8 exercises and short writing assignments, the written report and presentation, and in-class discussions (see section on grading below). Student achievement of competency in the area of globalization and global issues will be reflected in the final course grade.

COURSE POLICIES:

Attendance: Active course participation is a must. Multiple absences will result in point deductions (3 pts per absence) on your final grade. If you are absent for more than 3 class periods, you will receive a grade of “F” for the course. If you come to class regularly, stay alert, behave courteously, and keep focused during discussions and workshops, the course will be better for all participants.

Course prerequisites and technology skills: No prerequisites. However, students must have a moderate level of computer literacy and be capable of producing documents such as MS Word, navigating the Web, and using e-mail. The online course management system D2L is an integral part of this course. Students unfamiliar with D2L will be given training during the first week of classes. Furthermore, because IS 110 is designated as a Tablet PC Class, students will be expected to develop expertise in using this computer and its various applications during the semester.

Electronic devices policy: This is a tablet PC class so you are expected to bring your tablet to class each time we meet (fully charged). Turn off your cell phone before class starts. No text messaging in class. No headphones. No other use of any other electronic/computer media is allowed during class without instructor approval. If you are observed accessing non-course related websites – e.g., facebook, email, ESPN, playing games, etc. - you will be removed from the classroom, and will receive a reduced letter grade for the COURSE.

Grading: Grades will be based on attendance and participation, assignments, and presentations. If you are not clear about material in lectures, ask questions. Outside of lecture times, consult other sources, and if further clarification is needed, talk to your instructor, preferably during office hours. Although your instructors will furnish you with more detailed guidance on each assignment as we get further into the course, here is a summary of how points will be awarded:

- A set of 7-8 exercises and short writing assignments (30%)
- A written report and an oral presentation (30%)
- Attendance and participation (40%)

Deadlines: Hand in all your assignments on time. In the professional workplaces you are preparing to enter, deadlines are rarely arbitrary or unimportant, and they aren't in this class either. However, if an unforeseen emergency arises—death in the family, serious illness, hospitalization, etc.—or if you will be absent for an official university-sponsored event when a project is due, contact your section instructor immediately to make appropriate arrangements for hand-in times and makeup work. Note that all of your graded writing assignments will be submitted to your section instructor. Don’t wait until the last minute to submit your work! If you do miss a deadline for submitting work, you may submit it to your instructor, but you will forfeit 50% of the assignment points if you turn it in less than 72 hours after the class time and date it was due. If you submit your assignment over 72 hours late, you will receive an automatic zero! You must complete all assignments to pass the course.
Plagiarism: Plagiarism is assuming ownership and use of work which is not your own and it is dishonest. There are two forms of plagiarism. One is unintentional, as when you use others' words and ideas as though they were your own because of unfamiliarity with the conventions of documentation. If you commit this kind of plagiarism, we will ask you to rewrite part or all of your paper so that your sources are properly acknowledged. Only then can you receive credit for the work. The second form of plagiarism is outright cheating—turning in someone else’s work and claiming it as your own or copying (or downloading) material without proper documentation. Note that SDSM&T grants instructors the right to fail students who plagiarize. Note that according to the “Policy Governing Academic Integrity” in the SDSMT Undergraduate Catalogue, your professor has discretion on how acts of academic dishonesty are penalized, subject to the appeal process, and that “penalties may range from requiring the student to repeat the work in question to failure in the course.”

Freedom in learning: Under Board of Regents and University policy student academic performance may be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards. Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled. Students who believe that an academic evaluation reflects prejudiced or capricious consideration of student opinions or conduct unrelated to academic standards should contact the Provost and Vice-President of Academic Affairs, Dr. Duane Hrncir (394-2256) to initiate a review of the evaluation.

Special Needs: Students with special needs or requiring special accommodations should contact the course coordinator, Prof. John Lofberg, or the course section leader, and/or the campus ADA coordinator, Dr Jolie McCoy (394-1924) at the earliest opportunity.

Tentative Schedule
(may be modified as needed)
Refer to D2L web site for current schedule, links, and assignments

<table>
<thead>
<tr>
<th>Date</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 31</td>
<td>2 pm <strong>Individual sections</strong> - faculty and student introductions; peer advisors, discuss syllabus, class policies, tablet PCs, and D2L software. 2.30 pm Quad - Picnic/pizza, Vice President of Academic Affairs, Dr Hrncir, Tech Traditions (Lukasz Dubaj and peer advisors).</td>
</tr>
<tr>
<td>Sept 7</td>
<td><strong>CB204W: INTRODUCTION:</strong> Complete survey. Basic principles of energy (Dr. Corey??), critical thinking (Dr Paterson), Penn and Teller video (5 mins) <strong>Individual sections</strong>, registration and WebAdvisor – peer advisors, discuss the scientific method with example (section leader), 3.35 pm: meetings with major freshman advisor in CB classrooms. Assign Spring registration exercise, due on Tuesday Sept. 21st. Reading for next week Ch 1.1, 1.2, 2.1 &amp; 2.2.</td>
</tr>
<tr>
<td>Sept 14</td>
<td>**CB204W: Mentoring – Ms. Jolie McCoy (Student Services) discusses “Study Skills and Test Taking” Colin Paterson, “Fossil Fuels” 3.30 <strong>Individual sections</strong> Reading for next week -- Geothermal Handout.</td>
</tr>
<tr>
<td>Sept 21</td>
<td>**CB204W: Mentoring – Mr. Scott Wiley “Dealing with Relationships and Conflict”, Dr. Paterson; “Geothermal, hydroelectric, and uranium” 3.30 <strong>Individual sections</strong> Reading for next week – Nuclear Energy Handout.</td>
</tr>
<tr>
<td>Sept 28</td>
<td>**CB204W: Mentoring –John Lofberg - “Financial planning and personal management” Power Generation topics…Electricity, internal combustion, nuclear fission/fusion Dr. Bob Corey, Cabot-Ann Christofferson 3.30 <strong>Individual sections</strong> Reading for next week – section 2.5 &amp;2.6</td>
</tr>
<tr>
<td>Oct 5</td>
<td>**CB204W: History of energy consumption / demand / sources Dr. Colin Paterson 2.30 <strong>Individual sections</strong> Individual sections – complete data exercise. Due Oct 8, @ noon</td>
</tr>
</tbody>
</table>
| Oct 12 | CB204W: Critical thinking using the data analysis  
2.30 Individual sections Discuss issues – Supply/environmental/political etc. as a precursor to the class/group project. Reading for next week – Solar Energy Handout. |
| Oct 19 | CB204W: SolarEnergy EE/ChE  
3.00 Individual sections Discuss solar presentation, questions Form small groups and discuss final projects Reading for next week – Wind Energy Handout. |
| Oct 26 | CB204W: Wind energy – Dr. Lance Roberts.  
3.00 Individual sections – discuss plagiarism, documenting source material. Field trip to wind turbine on the hill. Reading for next week – Chapter 3 (all) |
| Nov 2  | CB204W: Energy from Biomass,  
3.00 Individual sections – Discuss Biomass. Select final project Reading for next week – Hydrogen Energy Handout |
| Nov 9  | CB204W: Hydrogen fuel cells, Battery energy storage Dr. Corey  
3.00 Individual sections Discuss hydrogen and work on project Reading for next week – Chapter 4.1, 4.2, 4.5 & 4.6 |
| Nov 16 | CB 204W Politics of Energy – Dr. John Dreyer, Q and A from large group. Rachel and Alaina give example presentation from last year. Small groups, work on projects. Draft report due on the 19th at noon |
| Nov 23 | CB 204W Energy and cultural impacts, Dr. Jim McReynolds, Q&A  
2.45 Individual sections Workshop peer review projects and prepare presentations. Draft oral presentation due on 24th at noon |
| Nov 30 | Individual sections – small group project presentations (“Explorations Idol” Semifinals). Final version of report due Dec 3rd at 12 noon. Complete exit survey and course evaluations before leaving classroom. |
| Dec 7  | Small group project presentations (one selected from each section on Nov 30)(“Explorations Idol” Finale); award prizes to finalists; attend course pizza party. |
| Dec 13 | FINALS WEEK |

### Important Dates

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Date Given</th>
<th>Date Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey (entrance)</td>
<td>9/7</td>
<td>9/7</td>
</tr>
<tr>
<td>Registration</td>
<td>9/7/10</td>
<td>9/21/10</td>
</tr>
<tr>
<td>Data</td>
<td>10/5</td>
<td>10/8 @ noon</td>
</tr>
<tr>
<td>Written Draft</td>
<td></td>
<td>11/19 @ noon</td>
</tr>
<tr>
<td>Oral Draft</td>
<td></td>
<td>11/24 @ noon</td>
</tr>
<tr>
<td>Survey (Exit)</td>
<td>11/30</td>
<td>11/30</td>
</tr>
<tr>
<td>Oral Presentation</td>
<td></td>
<td>11/30</td>
</tr>
<tr>
<td>Final Written Report</td>
<td></td>
<td>12/3 @ noon</td>
</tr>
</tbody>
</table>