CASPER COLLEGE COURSE SYLLABUS
EXTR 1500 sec. 1
GEOLOGY OF EXTRACTIVE RESOURCES

Semester/Year:  Fall 2006

Lecture Hours:  3    Lab Hours:    Credit Hours:  3

Class Time:  6:00pm – 8:50pm  Days: Thursday  Room: TM123

Instructor's Name:  Dr. Kent Sundell

Instructor’s Contact:  Office Phone: 268-2498  Office #: TM 103
                      Home Phone: 473-2299
                      Email: ksundell@caspercollege.edu
                      Office Hours: MWF 8-9 am & 3-4 pm

Course Description:
The study of the basic concepts associated with understanding the geology of the occurrence of oil, gas, oil shale, coal, coal bed methane, uranium, trona, bentonite, industrial minerals, and precious minerals in Wyoming.

Statement of Prerequisites:
None

Goal:
Upon completion of this course, the student will:

• Demonstrate knowledge of a wide variety of extractive resources produced in Wyoming

• Understand basic geologic principles applied to resource extraction

• Demonstrate knowledge of the value of extractive industries to Wyoming

Outcomes:
The student will:
1. Explain the basic concepts of geology.
2. Explain the basic concepts of oil and gas exploration
3. Explain the basic concepts of coal and coal bed methane deposits
4. Explain the basic concepts of uranium accumulations
5. Explain the basic concepts of trona, bentonite and other industrial minerals
6. Explain the basic concepts of diamonds, gold, and precious mineral deposits
7. Explain the relative cost and value of producing energy minerals in Wyoming
8. Explain the methods of drilling and producing oil, gas, and coal bed methane
9. Explain the methods used to mine coal, trona, bentonite, oil shale, industrial minerals, and precious minerals
10. Explain the economic value of extractive resources within the state of Wyoming
Methodology:
Lecture will present information necessary for the student to understand the reading assignments. Field trips may be used when discussing certain topics about the petroleum industry.

Evaluation Criteria:
There will be three hours of lecture per week. Students will be tested on the reading assignments periodically. Test equal 100% of the course grade.

Required Text, Readings, and Materials:
Hartman, Howard & Mutmansky, Jan. Introductory Mining Engineering

Class Policies:
Last Date to Change to Audit Status or to Withdraw with a W Grade:

Student Rights and Responsibilities:
Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student

Chain of command:
If you have any problems with this class, you should first contact the instructor in order to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take your problem through the appropriate chain of command starting with the department head, then the division chair, and lastly the vice president for academic affairs

Academic Dishonesty:
Cheating & Plagiarism: Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct.

ADA Accommodations Policy:
It is the policy of Casper College to provide appropriate accommodations to any student with a documented disability. If you have a need for accommodation in this course, please make an appointment to see me at your earliest convenience

Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics / Readings S=Selley H=Hartman</th>
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<tbody>
<tr>
<td>1</td>
<td>Aug.31 Introduction to Geology, minerals, and rocks/Notes</td>
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<tr>
<td>2</td>
<td>Sep. 7 Stratigraphy and Structural Geology/Notes</td>
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<tr>
<td>3</td>
<td>Sep. 14 Subsurface environment (temps., pressures, and fluids)/S ch. 4</td>
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<tr>
<td>4</td>
<td>Sep. 21 Physical and chemical properties of hydrocarbons (oil, coal, gas)/S ch. 2 Test #1</td>
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<tr>
<td>Date</td>
<td>Topic</td>
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<tr>
<td>Sep. 28</td>
<td>Petroleum generation, migration and exploration</td>
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<tr>
<td>Oct. 5</td>
<td>Reservoirs, traps, and seals</td>
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<tr>
<td>Oct. 12</td>
<td>Sedimentary Basins, exploration for mineral and hydrocarbon</td>
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<tr>
<td>Oct. 19</td>
<td>Production by drilling wells</td>
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<tr>
<td>Oct. 26</td>
<td>Introduction to mining</td>
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<tr>
<td>Nov. 2</td>
<td>Prospecting and exploration</td>
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<tr>
<td>Nov. 9</td>
<td>Mine development and exploitation</td>
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<tr>
<td>Nov. 16</td>
<td>Surface mining (coal, uranium, stone and rock)</td>
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<tr>
<td>Nov. 30</td>
<td>Underground mining (diamonds, metals, precious minerals)</td>
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<tr>
<td>Dec. 7</td>
<td>Unconventional resources (tar sands, oil shales, retorting)</td>
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<tr>
<td>Dec. 14</td>
<td>Economics and new technology (coal bed methane and uranium solution mining) Reserves and resources of extractive minerals in Wyoming</td>
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<tr>
<td>Dec. 18-21</td>
<td>Finals</td>
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