Semester/Year: Spring 2015
Lecture Hours: 3  Lab Hours: 2  Credit Hours: 4
Class Time: 11:30-1:00 PM  Days: Mon, Wed, Fri  Room: TM 111
Instructor: Beth Wisely PhD
Instructor's Contact Information: Office Phone: Ext 2233  Email: bwisely@caspercollege.edu
Office Hours: T 9:00-10:00 AM, W 1:30-2:30 PM, Th 9:00-11:30 AM, F 10:00-11:30 AM
Course Description: Introduction to the processes and properties of the physical earth. Topics to be covered include: gravity and magnetics, heat flow, seismo-tectonics, earthquakes, global earth structure, electro-magnetism, and seismology.
Statement of Prerequisites: GEOL 2000, or permission of the instructor.
Goal: To familiarize the student with basic earth structure, fundamental physical forces and processes as well as the application of this knowledge to solving problems in geology.
Outcomes: Upon completion of this course, the student will
1. Demonstrate an understanding of basic earth structure and processes
2. Demonstrate knowledge of fundamental physical forces
3. Demonstrate knowledge of applied geophysics
4. Demonstrate expertise in applying geophysical concepts to solving geologic problems.
Course Objectives:
Gravity and gravitational fields
Isostatic equilibrium and plate flexure
Geothermics: convection and heat flow
Elastic seismic waves propagation
Seismic waves sampling of earth
Earthquake stress and seismic wave generation
Reflection seismology technique and oil exploration
Magnetic field generation and paleo-magnetism
Plate motion on a sphere: integration with geophysical constraints
Methodology: The course will have lecture and lab components, will incorporate individual, small group and class exercises, and explore the use of the scientific method in research and analysis.
Evaluation Criteria: Students will be graded using a variety of components including, but not limited to, tests, labs, in-class and take-home assignments, as well as participation and attendance.
Casper College may collect samples of student work demonstrating achievement of the above outcomes. Any personally identifying information will be removed from student work.
Required Text, Readings, and Materials: Text: Looking into the Earth, by Musset and Khan. Labs will be delivered to students digitally or in print. Trigonometry capable calculator is also required.
Class Policies: Attendance is mandatory. I reserve the right to lower your grade if you miss 5 or more class periods through the semester. Last Date to Change to Audit Status or to Withdraw with a W Grade: Check the Casper College Academic Calendar.

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 to attempt to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take the matter through the appropriate chain of command starting with the Department Head/Program Director, the Dean, 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 for more information on this topic.

Official Means of Communication: Casper College faculty and staff will employ the student's assigned Casper College email account as a primary method of communication. Students are responsible to check their account regularly.

ADA Accommodations Policy: If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To request academic accommodations, students must first consult with the college’s Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.

Calendar or schedule indicating course content: This is a generalized plan of GEOL 2005, and I reserve the right to go faster or slower than the tentative schedule below and to change due dates. Any changes to this schedule will be announced in class, via email, or both. Students may also be assigned additional reading for case studies.

TENTATIVE AND GENERALIZED COURSE SCHEDULE: Your instructor reserves the right to alter the schedule below, as needed. The class will be notified in class and/or email of any changes.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>Introduction to Geophysics</td>
<td>Pages 1-12 SUBPART 1.3, CH 8</td>
</tr>
<tr>
<td></td>
<td>Gravity and Gravitational Fields</td>
<td></td>
</tr>
<tr>
<td>3, 4</td>
<td>Isostatic Equilibrium and Plate Flexure</td>
<td>SUBPART 1.3, CH 9</td>
</tr>
<tr>
<td>5, 6, 7</td>
<td>Geothermics: Convection and Heat Flow</td>
<td>SUBPART 1.7, CH 17</td>
</tr>
<tr>
<td></td>
<td>Magnetic Field Generation and Paleomagnetism</td>
<td>SUBPART 1.4, CH 10 &amp; 11</td>
</tr>
<tr>
<td></td>
<td>Electrical Resistivity Methods</td>
<td>SUBPART 1.5, CH 12</td>
</tr>
<tr>
<td>8, 9, 10</td>
<td>Subsurface Geophysics</td>
<td>SUBPART 1.8, CH 18</td>
</tr>
<tr>
<td></td>
<td>Introduction to Seismology</td>
<td>SUBPART 1.2, CH 4</td>
</tr>
<tr>
<td>11-15</td>
<td>Seismology in Depth</td>
<td>SUBPART 1.2, CH 5, 6, 7</td>
</tr>
<tr>
<td>16</td>
<td>Final Exam Wednesday May 13, from 1:00-3:00 p.m.</td>
<td></td>
</tr>
</tbody>
</table>