NOTE to prospective students: This syllabus is intended to provide students who are considering taking this course an idea of what they will be learning. A more detailed syllabus will be available on the course site for enrolled students and may be more current than this sample syllabus.

Course Name: Minerals, Energy, Water, and the Environment
Course Number: GEO 306
Credits: 3
Instructor name: Daniele McKay
Instructor email: mckaydan@onid.orst.edu

For more information, contact: MELINDA JENSEN, 104 WLKN, 541-737-1238

Email: I will use your OSU ONID email address to contact you. If you have not done so, set up your ONID email account at http://onid.oregonstate.edu/docs/gettingstarted/signup.shtml. If you do not regularly check your ONID email account, set it to automatically forward emails to your preferred email address (see frequently asked questions on the ONID web page).

Course Description: Geologic occurrences, environmental consequences, and future of non-renewable earth resources, including metals, materials, oil, soil, and groundwater. (Bacc Core Course). No pre-requisites.
Baccalaureate Core Course Attributes: Core, Synth, Sci/Tech/Soc

Communication: Please post all course-related questions in the General Discussion Forum so the whole class may benefit from our conversation. Please email me for matters of a more personal nature. I will reply to course-related questions and emails within 24-48 hours. I will strive to return your assignments and grades for course activities to you within five days of the due date.

Course Credits: This course consists of 90 hours of instruction, online activities, and assignments for 3 credits.

Technical Assistance: If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, or any other problems, contact the OSU Help Desk for assistance. Call (541) 737-3474, email osuhelpdesk@oregonstate.edu or visit the OSU Computer Helpdesk online.

Canvas/Blackboard Login Information - http://ecampus.oregonstate.edu/services/start/canvas-login.htm?expand=yes


Note to prospective students: Please check with the OSU Bookstore for up-to-date information for the term you enroll (http://osubeaverstore.com/Academics or 800-595-0357). If you purchase course materials from other sources, be very careful to obtain the correct ISBN.

Canvas: This course will be delivered via Canvas where you will interact with your classmates and instructor. Within the course Canvas site, you will access learning materials, class discussions, assignments, and quizzes. To preview how an online course works, visit the Ecampus Course Demo. For
technical assistance, visit Ecampus Technical Help. Although every effort has been made to ensure that course materials are compatible with a variety of hardware and platforms, internet access and Canvas compatibility is the responsibility of the student. Extensions for missed deadlines due to personal computer or internet issues will not be granted. If your computer or internet connection fails, simply go to a computer lab, library, or other public place where internet is available to access the course in Canvas.

**Required software:** To view course lectures, you need Microsoft Word and PowerPoint. Alternatives are the free Microsoft PowerPoint Viewer for Windows and for MAC. Also available for free download is OpenOffice, a suite of productivity tools that reads and writes to Microsoft Office files and allows users to open and save Word and PowerPoint files on their preferred platform. A current version of the free Adobe Reader will also be useful for opening supplemental readings and other documents posted as PDF files.

**Outline of Topics Covered:**
Week 1: Introduction: Fundamentals of Geology and Mineral Resources  
Week 2: Abundant and Scarce Metals  
Week 3: Other Mineral Resources: Building Materials, Chemicals, Fertilizers  
Week 4: Surface and Groundwater Resources  
Week 5: Midterm Exam  
Week 6: Energy Resources: Fossil Fuels  
Week 7: Consequences of Fossil Fuel Use: Air Pollution, Climate Change  
Week 8: Nuclear Energy and Radioactive Waste Disposal  
Week 9: Renewable Energy, Population Growth  
Week 10: Soil as a Resource; Waste Disposal and Landfills  
Week 11: Final Exam

**Measurable Learning Outcomes:** Students taking GEO 306 will be expected to:
1. Describe the geologic formation, distribution, and use of mineral, soil, energy, and water resources.  
2. Recognize that many of earth’s resources must be considered finite and non-renewable due to the amount of time required for geologic processes to form them.  
3. Describe trends in resource use through time and compare/contrast trends in resource consumption between more developed and less developed countries. Evaluate our future prospects for continued resource availability given current trends in demand.  
4. Assess environmental impacts of resource extraction and evaluate strategies for minimizing impacts.  
5. Evaluate the science behind politically charged issues related to the use of earth resources and convey that position to others through effective writing.  
6. Critically examine how our everyday decisions affect the land we live on, the water we drink, and the air we breathe.

**Baccalaureate Core:** Students taking this baccalaureate core class in science, technology, and society will be expected to:
1. Analyze relationships among science, technology, and society using critical perspectives or examples from historical, political, or economic disciplines. Lectures, readings, and class discussions will demonstrate that modern society depends on continued availability of earth resources; yet current patterns of use jeopardize continued availability with consequences for the way we live our lives. We will see examples of how uneven distribution of earth resources, along with uneven levels of consumption, have resulted in societal and geopolitical conflict. We will also see examples of current debates over policies to ensure continued resource availability while minimizing damage to the environment, and students will be asked to take informed positions on these issues.  
2. Analyze the role of science and technology in shaping diverse fields of study over time. Knowledge of the formation, distribution, and use of earth resources, and the related issues that result, exists at the intersection of geology, geography, economics, policy, and law, and we will see many examples of intersections between these subjects in this course. We will see how patterns of resource development and use have changed with the development of human civilization, as well as how our relationship to earth resources and our attitudes towards their use have changed over time.  
3. Articulate in writing a critical perspective on issues involving science, technology, and society using evidence as support. Students will evaluate policy issues regarding control of or access to earth resources, or managing the consequences of resource use, in weekly discussion board topics and more formal writing assignments. Students will be expected to take informed positions on these issues and cite factual evidence that supports their position. Weekly quizzes and the final exam also

This course is offered through Oregon State University Extended Campus. For more information, contact:
Web: ecampus.oregonstate.edu  
Email: ecampus@oregonstate.edu  
Tel: 800-667-1465
include essay questions where students will be required to synthesize evidence and draw conclusions about earth resources and the consequences of their use.

**Evaluation of Student Performance:** Student proficiency and learning outcomes will be assessed through quizzes and exams, which always include an essay component, discussions, and position statement assignments emphasizing technical writing, critical thinking, and factual supporting evidence.

**Course Organization:** Students will work through 10 one-week lessons grouped into weekly modules in Canvas. Each week includes reading, taking notes, and answering review questions on two lectures (presented as both Word documents and accompanying PowerPoint documents to facilitate taking your own notes) and assigned portions of the text. Weekly quizzes through Canvas will cover each week’s material and will include both multiple choice and essay questions. There is no quiz during Week 5 due to the midterm exam. Students will also participate in weekly discussion board topics through Canvas.

From the lectures, readings, and discussions, students will develop three written (900-1200 word) position statements on a question or issue raised by the instructor. Last but not least there are two exams: a midterm (Week 5) and cumulative final exam (during finals week). Exams are proctored, timed, and only available for a limited time through Canvas (see course schedule). **You must arrange for a proctor in order to take the mid-term and final exam.** Permission to take an exam outside of the scheduled window must be arranged well in advance. Proctors are not needed for weekly quizzes.

**Each week will end on Sunday at 11:59 pm** (Pacific Time). All assignments must be submitted through Canvas by 11:59 pm Pacific time on the Sunday ending the week they are assigned.

**See the Course Schedule posted in the Start Here module for all specific deadlines. All deadlines are exact and late work is not accepted.** For discussion board participation, no points will be given if not completed by the due date; in other words it is not possible to “make-up” discussion board participation. For assignments, quizzes, and exams, permission for an extension must be arranged in advance (before the due date) and will only be granted when circumstances beyond the student’s control prevent timely completion of the assignment. **Late work is not accepted under any other conditions.**

**Course Requirements and Grading:** There are nine weekly quizzes, a midterm exam and cumulative final exam, three position statements (on issues or questions raised by the instructor), and weekly discussion board participation. These are weighted according to the following table:

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes (9 @ 20 points each)</td>
<td>180</td>
<td>(31%)</td>
</tr>
<tr>
<td>Discussion Board Participation (9 weeks @ 10 points each)</td>
<td>90</td>
<td>(16%)</td>
</tr>
<tr>
<td>Position Statements (3 @ 30 points each)</td>
<td>90</td>
<td>(16%)</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>100</td>
<td>(17%)</td>
</tr>
<tr>
<td>Final Exam</td>
<td>120</td>
<td>(20%)</td>
</tr>
<tr>
<td>Total Points</td>
<td>580</td>
<td></td>
</tr>
</tbody>
</table>

**Course Grades:** Letter grades are based on your point total according to the following scale:

- A ≥ 92% of points possible
- B- ≥ 80% of points possible
- D+ ≥ 68% of points possible
- A- ≥ 90% of points possible
- C+ ≥ 78% of points possible
- D ≥ 62% of points possible
- B+ ≥ 88% of points possible
- C ≥ 72% of points possible
- D- ≥ 60% of points possible
- B ≥ 82% of points possible
- C- ≥ 70% of points possible
- F <60% of points possible

If at any time you are concerned about your grade or you have questions about course material or anything related to earth resources and the environment, contact me.

**Incompletes:** Final grades are based on the work completed at the end of term. Students should not expect an incomplete if the course is not completed by the end of the term except in extreme and unusual circumstances beyond the student’s control, and even then only if the following two conditions are met: 1) the student has a passing grade at the time the request for an incomplete is made, and 2) the student has completed at least 75% of the coursework.

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You will need to put effort into this class to do well. This class is designed for people who want to learn, are willing to take responsibility for their learning, and understand how this course relates to their education, their degree program, and their personal goals. More information on what you need to do to complete each of the course requirements is found in the following sections:

Discussion Boards: Active participation in this course is an essential part of your grade, and is accomplished through the discussion board in Canvas. Discussion board participation is an opportunity for you to express ideas and information in a forum comparable to a classroom discussion. Discussion board questions or topics are posted weekly by the instructor (there is no discussion board during the weeks of the midterm and final exams). You can earn up to 10 points for participation per week by posting an original contribution, asking insightful questions, or responding to classmates’ posts.

To encourage participation, all students will be required to (1) post an original response to the question by 11:59 pm each Wednesday, and (2) post at least two substantive responses to classmates’ posts by 11:59 pm each Sunday. Grades are based on the degree to which your posts contribute to class discussion. The discussion board is informal, but please use correct spelling, grammar, and punctuation so everyone can understand your ideas. Remember to be respectful of the opinions and viewpoints of others.

Position Statements: Instead of an in-depth term paper, you will write three 900-1200 word position statements during the term on topics related to earth resources and their use. For example, after a suitable point in the lectures, I will ask you to take a position on the following issue: Should carbon dioxide emissions from fossil fuel use be limited? Why or why not? Your task will be to critically evaluate the issues, develop an informed position that considers all the available information, and use factually accurate evidence, logical arguments, and effective writing to support your position. Position statements will be graded on writing style, the use of objective, logical, and well-grounded arguments, selection of credible and rigorous sources, and the correct use of references and citations.

Position statements will follow a set format and must include at least two correctly cited references from outside the class materials (i.e., not counting lectures or textbook). They will be submitted and graded electronically through Canvas. Suggested readings on each topic will be posted to get you started.

Quizzes: Quizzes consist of ten multiple-choice questions and two essay questions on weekly lectures. Each quiz must be taken in Canvas by 11:59 pm Pacific Time on Sunday of each week; you will have 35 minutes to complete each quiz. Quizzes are open book/ open note and are not proctored.

However, quizzes are not homework assignments; they are short exams. You are expected to have practiced answering questions about the material before you take the quiz. You are not allowed to use notes, the textbook, or the Canvas lectures during an exam, and exams are proctored to prevent students from doing so. As a result, you should take the quizzes the same way - otherwise your quiz scores will not reflect how you can expect to do on the exams. Think of the weekly quizzes as short practice exams. Practice answering the review questions until you are confident in your ability to answer them without help from your notes, the textbook, or the Canvas lectures. Only then are you ready to take a quiz.

You have 35 minutes to take each quiz. If you have time remaining after answering the questions, you may refer back to your notes if you were unsure about any questions. Just remember that any quiz question that you find you need help from your notes to answer is a question you were not prepared for, and would likely miss on an exam. If you find that the time limit makes you feel rushed, make yourself better prepared (see section on preparing for quizzes and exams). With more preparation, the time limit will become less and less of a factor. Extra time can only be given to students with a documented need and must be arranged through the DAS office; see http://ds.oregonstate.edu/home/

Turn in only your own work in your own words on all course assignments and quizzes. To do otherwise is plagiarism and will not be tolerated. A few students in past terms have chosen to answer essay questions by copying directly from the lectures. Because all quiz and exam questions come from the lecture material, this is easy enough to do. However, answers copied word for word will receive a zero because they demonstrate no understanding of the material. You would also be cheating yourself of a valuable learning opportunity to get feedback on your comprehension of the material before the exams.
Feedback on Quizzes and Exams: After the due date for a quiz or exam has passed and it has been graded, you can view it again through the Canvas gradebook. Take notes on the questions you missed to help you study for exams.

Exams: Exams are proctored, timed, and only available for a limited time through Canvas (see course schedule). You must arrange for a proctor in order to take the midterm and final exam. The time limit for the midterm is 80 minutes, and 110 minutes for the final. Permission to take an exam outside of the scheduled window must be arranged well in advance. Proctors are not needed for weekly quizzes.

Exams are a mix of multiple choice and essay questions and are very similar to the quizzes. Exams are based exclusively on the lectures, this means if a topic in the textbook is not covered in the lectures you will not be tested on it. Instead, the textbook is suggested as a resource to help you understand the lectures. Exams are closed book/ closed note and you are not allowed to access the internet or any other part of the course in Canvas (such as the lectures) during the exam.

Preparing for Quizzes and Exams: Take notes on the lectures, guided by the objective and review questions included with each lecture. Make sure your notes answer these questions. Then, practice, practice, practice for quizzes and exams until you are able to answer the objective and review questions without help from your notes, the lectures, or the textbook. If you can answer the review questions without using these materials, you have mastered the subject and will do well on the quizzes and exams. When preparing for the exams, make sure to review your weekly quizzes. Post questions about the material to the general discussion board in Canvas.

Exam Proctoring: Proctored exams are necessary to ensure the integrity of assessments. You must arrange for a proctor in order to access the exams, but this process is straightforward and flexible.

First, identify a suitable proctor in your area and make an appointment directly with that person to take your midterm and final exam. Check the course schedule posted in Canvas once the term begins for the dates the midterm and final will be open in Canvas. Exams will be available for a minimum of three days and you may take the exam any time during that window. Permission may be granted to take an exam on an alternate date in extenuating circumstances if arranged well in advance with the instructor.

Acceptable exam proctors include college or university testing centers, college or university instructors, public librarians, school teachers, administrators, counselors, educational service offices on military installations, and work supervisors (if your employer is paying for you to take this course). Unacceptable exam proctors include co-workers, friends, and relatives. Students who can come to Corvallis can take their proctored exams during testing sessions provided by ecampus, while students elsewhere can use testing centers at their nearest university or community college (see list of testing centers at http://ecampus.oregonstate.edu/services/proctoring/).

Once you have a proctor and have made an appointment with them, fill out the exam proctoring form at http://ecampus.oregonstate.edu/services/proctoring/. You will need to include the contact information for your proctor. This step is necessary so Ecampus can send your proctor the information for your exam, such as the access code. When you arrive for a proctored exam, your proctor will check your ID. You will then log into the course through Canvas, navigate to the exam, and your proctor will enter the password to open the exam. Exams in Canvas work the same way as the weekly quizzes. You are allowed 80 minutes for the midterm and 110 minutes for the final.

General Discussion Board: Please post questions about the course, assignments, lectures, etc. to the general discussion board if other students are likely to benefit from the answer. Otherwise, communicate with the instructor privately via email. I check the discussion board frequently and will reply by posting answers to your questions. This procedure allows the entire class to benefit from the questions and answers. Chances are good that if you have a question, others in the class have the same question.

Because this is an online class, all communication will take place via the Canvas discussion board or by private email between students and the instructor. Office hours or on-campus help is not available; if you have found that face-to-face interaction is essential for you to succeed in a course, then you should not take this course online. GEO 306 is offered on-campus during spring term each year. However, if you
happen to be on the OSU-Cascade campus in Bend, I encourage you to contact me and introduce
yourself as I enjoy meeting as many of my online and distance-education students as possible.

Responsibilities of Students and Instructor: Teaching and learning is a partnership between student
and instructor. Both student and instructor have responsibilities they must fulfill for teaching and learning
to be successful. If either student or instructor fails to carry out their responsibilities in this partnership, the
student will not be successful in the class. Following is a partial list illustrating these responsibilities:

Responsibilities of Instructor:
- Make clear statements of course and lesson objectives.
- Provide course materials (lectures, readings) directly related to these objectives and keep the course
  materials as current as possible with ongoing revisions and updates.
- Provide assessments (quizzes, exams) and other graded activities (discussion, writing assignments)
  that have clear connections to the course objectives and provide students with different ways to
demonstrate the degree to which they understand the content covered in the course.
- Provide feedback on graded work that is both useful and timely.
- Be accessible and available to students who ask questions.

Responsibilities of Students:
- Be familiar with the course structure and the policies by which the course is taught.
- Become personally invested in their education (time, money, commitment) and accountable.
- Dedicate time to the class on an ongoing basis throughout each week.
- Complete all assignments on time and always put forth their best effort. Review the results of graded
  work and learn from both successes and failures.
- Ask the instructor questions when clarification is needed.

Etiquette and Acceptable Use Policy: The same standards of civility and conduct that apply in a
classroom environment also apply to online courses. In this class, Canvas is our classroom and you must
interact with your classmates and instructors through Canvas in the same way you would interact in a
classroom. In particular, the Canvas discussion board is a place to ask questions, not post complaints.
The instructor will moderate student-student communication on Canvas. Any discussion board posts that,
in the instructor's judgment, do not contribute to a productive learning environment or maintain classroom
standards of civility will be removed. In such cases the instructor will either communicate with the student
privately via email or refer the student to ecampus. If a student has acted in a disrespectful manner
wards other students, the instructor may penalize that student's discussion board grade. First offense
will result in loss of participation points for that discussion board topic. Second offense will result in loss of
participation points for that discussion board topic and all future discussion board topics.

All use of Canvas for communication, whether with the instructor or with other students, will take place in
a public forum open to everyone enrolled in the course. Private or offline communication is not allowed
because Canvas is our classroom – as such, discussions must be open and accessible to the entire class
including all students and the instructor. If you have questions or concerns that you are not comfortable
sharing with the class, please email the instructor directly.

Guidelines for a Productive and Effective Online Classroom: Students are expected to conduct
themselves in all parts of this course in compliance with the university's regulations regarding civility.

Civility is an essential ingredient for academic discourse. All communications for this course should be
conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to
be expected. In all you say and do for this course, be professional. Please bring any communications you
believe to be in violation of this class policy to the attention of your instructor.

Active interaction with peers and the instructor is essential to success in this course, paying particular
attention to the following:
- Read your posts carefully before submitting them. Be respectful of others and their opinions,
  valuing diversity in backgrounds, abilities, and experiences.
Challenging the ideas held by others is an integral aspect of critical thinking and the academic process. Please word your responses carefully, and recognize that others are expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.

**Statement Regarding Students with Disabilities:** Accommodations are collaborative efforts between students, faculty, and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the instructor prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.

All materials used in this course are accessible. If you require accommodations please contact Disability Access Services (DAS). Additionally, Canvas provides a vendor statement certifying how the platform is accessible to students with disabilities.

**Expectations for Student Conduct:** Student conduct is governed by the university’s policies, as explained in the Office of Student Conduct: Information and Regulations.

**Academic Integrity:** Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit Avoiding Academic Dishonesty, or contact the office of Student Conduct and Mediation at 541-737-3656. OAR 576-015-0020 (2) Academic or Scholarly Dishonesty:

a) Academic or Scholarly Dishonesty is defined as an act of deception in which a student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in academic work or research, either through the student's own efforts or the efforts of another. It includes:

   (i) **CHEATING** - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.

   (ii) **FABRICATION** - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.

   (iii) **ASSISTING** - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).

   (iv) **TAMPERING** - altering or interfering with evaluation instruments or documents.

   (v) **PLAGIARISM** - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

b) Academic Dishonesty cases are handled initially by the academic units, following the process outlined in the University's Academic Dishonesty Report Form, and will also be referred to SCCS for action under these rules.

**OSU Student Evaluation of Teaching:** Course evaluations are extremely important and are used to help improve this course for future students. Results are tabulated anonymously and go directly to instructors and department heads. Student comments are compiled and confidentially forwarded to instructors, per OSU procedures. Online course evaluations will be available toward the end of each term and you will be sent instructions via ONID by the Office of Academic Programs, Assessment, and Accreditation. The results on the form are anonymous and are not tabulated until after grades are posted.