Instructor: Dr. Peter D. Stahl  
office - Ag 23 (Wyoming Reclamation and Restoration Center office)  
phone: 766-2179  email: uncleM@uwyo.edu  
office hours: Tue-Thur 9-11 am or by appointment  
labs – Restoration Ecology Lab (Ag Bldg. Room 2030) and Soil Chem Lab

Credit: 3 hours  
Lecture: MWF 10:00 - 10:50 AM Agriculture Bldg, Room 2018

Course objectives:

1. Familiarize students with the history of the fields of restoration ecology and land remediation, especially mineland reclamation.  
2. Provide students with an understanding of nature of different types of ecosystem disturbance and problems associated with their remediation.  
3. Discuss the implications of land disturbance; how different ecosystem components are affected by disturbance and how they are addressed during remediation.  
4. Impart students with an understanding of the process of disturbed land reclamation.  
5. Familiarize students with state and federal regulations regarding land reclamation.  
6. Discuss the use of bioremediation and phytoremediation techniques in the cleanup of contaminated land.

Course requirements and grading:

Exams: Three 1 hour exams (including Final)*** 100 points each  
Homework: Four assignments 50 points each  
Term Paper: Library research paper 200 points  
(Topic must be approved by instructor)  
Field Trip (mandatory) 100 points  
Participation in class discussions 100 points  
900 total points possible

***No makeups for exams without prior permission from instructor or written physician's excuse. Term papers will not be accepted after due date unless prior arrangements are made.
Course Grading:
A final letter grade will be assigned according to the standard 90-100 = A, 80-89 = B, 70-79 = C, etc. system.

Exams:
Exams in this course are all short answer and essay type questions. The type of answers students will have to provide range from one word to one or two paragraphs. All exams are comprehensive.

Class Readings:
There is no textbook for this class. The readings required for this class are from a wide variety of sources including Textbooks, Reclamation and Restoration Books, popular press articles, Scientific Papers, Newspapers, government agency websites, and Internet websites.

Homework Assignments:
Students are required to write 1-2 page summaries of articles assigned for reading and class discussion. These summaries should discuss the important points of a paper and include a short critique of the reading. Readings will be posted on the class site on WyoWeb.

Term Papers:
Term papers are required in this course. Undergraduate students must submit a minimum 10 page paper; graduate students must submit a minimum 15 page paper. Term paper requirements and guidelines will be described in more detail in another class handout and will also be discussed by the instructor in class. Term papers are worth 200 of the total 900 class points.

Field Trip:
We will be taking a one day field trip to a mine or quarry on a Saturday early this fall (date to be announced). Participation in this field trip to a Natural Resource extraction site is one of the requirements of this class.

Guest Speakers:
This class will include guest lectures by experts in the field of land remediation including environmental specialists from surface coal mines, regulatory officials from Wyoming DEQ, practitioners from private industry and scientists doing research on land reclamation/restoration issues.
I. Introduction to Restoration Ecology and Land Reclamation (27 Aug – 7 Sept)
   - History and Development of Restoration Ecology, Land Reclamation and Contaminated Land Remediation
   - Applications in Modern Society

II. Ecosystem Disturbance and Remediation (10 Sept – 28 Sept)
   - Types of Disturbance
   - Impacts of Disturbance
   - Approaches/Philosophies of Remediation
   - Applications

III. Disturbed Land Reclamation (surface coal mines and natural gas wells, 1 Oct – 31 Oct)
   - Regulations
   - Practices, Procedures and Concepts
     - Site Preparation
     - Soils
     - Vegetation
     - Special Practices and Techniques
   - Bond release

IV. Contaminated Land Remediation (2 Nov – 19 Nov)
   - Regulations
   - Remediation Technologies
   - Bioremediation
   - Phytoremediation
V. Wetlands Reclamation/Restoration  (26 Nov – 3 Dec)
- Regulations
- Practices, Procedures and Concepts