

Soil Contamination & Remediation

SOS 6262 - 3 credits, Fall 2006

Instructor

Dr. Lena Q. Ma, 2157 McCarty Hall A, 392-9063 x208, lqma@ufl.edu

Teaching assistants

TBA (grading, chatting, and discussion via webCT)

Optional Reference Book

"[Management of contaminated site problems](#)" by D.K. Asante-Duah. 1996. Lewis Publishers.

Course Format

- ◆ On-campus: Lecturing, guest lecturing, group discussion, student presentation, and field trips. MCCD G001 W & F 6 & 7th periods.
- ◆ Off-campus: web-based lecture notes, readings, and threaded discussions. This option is only available to off-campus students. Register at <http://disted.ifas.ufl.edu> or visit <http://soils.ifas.ufl.edu/distance/> for more information.

Course Web Sites

Both the on-campus and off-campus sections rely on interactive computer technologies. Two web sites will be used for this class, with my web site used more heavily.

- ◆ **Web CT:** Registered students will be able to access the web CT course homepage located at <http://vista.courses.ufl.edu/webct/logonDisplay.dowebct> using Gatorlink account, which can be obtained at <http://gatorlink.ufl.edu/>. If you have trouble to access from an off-campus site, please go to <http://lss.at.ufl.edu/> and start from there.
- ◆ **SOS 6262:** <http://lqma.ifas.ufl.edu/sos6262/sos6262.html> (user name = sos6262 and password = sos6262)

The two web sites provide the following information:

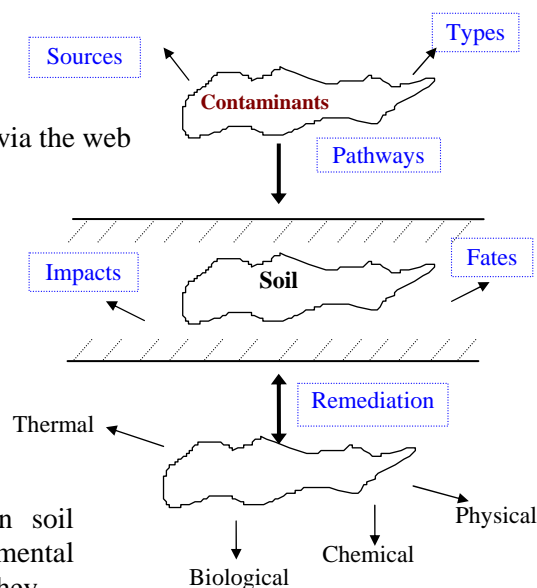
- ◆ Detailed lecture with associated readings
- ◆ Copies of all presentations and handouts used in class
- ◆ Distance education supplement for students taking the course via the web
- ◆ Supplementary reference materials (pdf)
- ◆ Threaded discussion forum (web CT site)
- ◆ Glossary of terms
- ◆ Related on-line resources

The following two sites are useful for this course too:

- ◆ Instructor <http://lqma.ifas.ufl.edu/>
- ◆ SOS3022 <http://lqma.ifas.ufl.edu/sos3022/sos3022.html>

Course Description

This course will examine current interdisciplinary topics on soil contamination & remediation. Topics include: what environmental contaminants are (types), where they come from (sources), how they contaminate soils (pathways), what impacts they have on the environment (impacts), how soils interact with them (fate), and finally how to remediate contaminated soils (cleanup). A brief review of basic soils will be provided. Experts from various environmental disciplines will be invited to the class. Field trips will be arranged to visit several contaminated sites in Florida.



Grading System

Field trip and report	5%
Leading group discussion	10%
Presentation (current information and research paper)	15%
Evaluation (presentation/research paper)	20%
Research paper	25%
Quizzes/mid-term exam, home work and classroom participation	25%
Total	100%

Group Discussion

Students are expected to lead one group discussion on topics selected by the discussion leader or the instructor 1-2 weeks before the discussion period.

Class Presentations (two)

Students are required to collect current information on soil contamination & remediation and give a 5-minute informal presentation. In addition, students are required to give a 20-minute presentation about a research paper.

Class Participation and Homework

Students are required to attend the class on a regular basis. Students will evaluate two classroom presentations and two research papers. In addition, students are expected to finish up to 5 homework assignments during the semester. An optional mid-term exam will be given during the semester.

Research Paper

Students are expected to select a suitable topic on soil contamination and remediation, review pertinent current literature, provide experimental strategy for addressing the problem, design specific experiments with appropriate techniques, and discuss and interpret alternative results. Both research papers and presentations will be evaluated by two class members and graded by the instructor. Limit the paper to 10 pages single-space including figures and references.

Academic Honesty

As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University."

Software Use

All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Accommodations for Students with Disabilities

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

UF Counseling Services

Resources are available on-campus for students having personal problems or lacking clear career and academic goals, which interfere with their academic performance. These resources include:

- *University Counseling Center, 301 Peabody Hall, 392-1575, personal and career counseling;*
- *Student Mental Health, Student Health Care Center, 392-1171, personal counseling;*
- *Sexual Assault Recovery Services, Student Health Care Center, 392-1161, sexual assault counseling; and*
- *Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.*

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

Additional information related to the course

◆ **Emphasis of the Course**

1. Soil will be emphasized, but will cover water and sediment
2. Emphasize trace metals, but will cover PAH, HC, PCB, & pesticides
3. Cover bioremediation, but emphasizes phytoremediation and trace metals
4. Expose you to engineering & toxicological views, and EPA regulations
5. The text book is optional and will supplement the class materials
6. My approach: from cradle to grave
7. Two parts: information oriented (For Your Information-FYI) and process oriented
8. Current knowledge rather than processes will be emphasized
9. Balanced education, combining science, information and communication skills

◆ **For Your Information (FYI) Topics**

1. Cleanup progresses
2. Contamination extent
3. Contamination prevention
4. Endocrine disrupters
5. Environmental impacts
6. Environmental penalties
7. Environmental regulations
8. Environmental research/business
9. Funding/career information
10. Remediation
11. Risk assessment
12. Superfund

◆ **Review of Basic Soils**

1. Soil and its functions
2. Soil formation and classification
3. Soil physical properties
4. Soil water
5. Soil colloids
6. Soil acidity and alkalinity
7. Soil organisms
8. Soil organic matter