SWS 6366
BIODEGRADATION AND BIOREMEDIATION OF ORGANIC CONTAMINANTS
3 credit hour _Web based only

COURSE DESCRIPTION: This course will present the basic principles of chemical and biological degradation of toxic chemicals, and familiarize the students with the application of the remedial technologies in natural environments. Topics covered will include: 1) occurrence and ecological significance of toxic organic chemicals, 2) chemistry of contaminants, kinetics and mechanisms of degradation (chemical and biological), and 3) current technologies of bioremediation of contaminated soils and water.

INSTRUCTORS:

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TIMES: Every Spring semester

ENROLLMENT CAP: 18

ONLINE MEETINGS/CHATS: Tuesday 6:30 to 7:30 p.m. U.S. Eastern Time

DELIVERY MODE:

- Course material is provided Online at: https://lss.at.ufl.edu/. Be sure to click on “E-Course material is provided Online at: https://lss.at.ufl.edu/. Be sure to click on “E-learning in Canvas” on left side. Course number is SWS6366. Course material will include Lecture slides, supplemental reading material in pdf format, and videos. Email and message (discussion) board are used for asynchronous communication
- Adobe Connect online meeting system is used for chats (synchronous communication): Chat sessions: Tuesday 8-9:30 p.m. U.S. Eastern Time. Direct link to chat: http://mbreeze.ifas.ufl.edu/sws6366_chatroom (Links to an external site.)
- For Project presentations students will use VoiceThread. To access VoiceThread, go to https://ufl.voicethread.com and login with your gatorlink username and password. Further directions will be given when the project topics are assigned. To familiarize yourself with this software you can click on the link User guide.

COURSE PREREQUISITES: Computer with high-speed internet access (e.g. DSL, cable modem,
or satellite modem) with web camera and microphone. Basic knowledge of organic chemistry and microbiology will be required to follow the material in this course.

SOFTWARE: Windows operating system, Microsoft Office, and Adobe Reader.

COURSE OUTLINE:
The following topics will be covered in a total of 13 modules.
- Introduction to bioremediation and Historical perspectives
- Introduction to microorganisms
- Introduction to contaminants
- Strategies of microbial degradation and bioremediation
- Biotransformation of chemicals
- Environmental effects on microbial degradation
- Chemical interaction with the environment
- Kinetics of biodegradation
- Molecular Biology of Genetically modified microorganisms
- Bioremediation of organic and inorganic pollutants
- Remediation Technologies

In general student responsibilities include:
1. Students are expected to complete the weekly assigned work on time.
2. Participation in chat sessions and the discussion board is provides a great opportunity to engage in discussion with other class fellows. Therefore they are encouraged to use these discussion platforms. Discussions are graded.
3. Students are expected to complete all assignments/quizzes when offered. The course policy does not allow for any make-up quizzes/tests. However, under exceptional circumstances, students may discuss their situation with the instructors. Students need to make sure that the instructors are aware of any absences before the event.
4. Students are expected to demonstrate their mastery of presented material by passing written examinations and successfully completing assigned homework.

STUDENT ASSESSMENT:
You are expected to attend and be prepared to participate in all discussion sessions. Personal issues with respect to discussion sessions or fulfillment of course requirements will be handled on an individual basis. A portion of the grade is based on meaningful class participation, demonstrated student interest, and overall student dedication.
Assessments (100%) for the course are based on the following.

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<thead>
<tr>
<th>Assessment</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Quizzes</td>
<td>42%</td>
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<tr>
<td>Assignment</td>
<td>4%</td>
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<tr>
<td>Exam</td>
<td>30%</td>
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<tr>
<td>Project Presentation</td>
<td>12%</td>
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<tr>
<td>Chat session and Discussion Board</td>
<td>12%</td>
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This course follows the following Grading Scale (%)
A 93% and above  C 73-76.99%
A- 90-92.99%  C- 70-72.99%
B+ 87-89.99%  D+ 67-69.99%
B 83-86.99%  D 63-66.99%
B- 80-82.99%  D- 60-62.99%
C+ 77-79.99%  E Below 60

**RECOMMENDED BOOKS:** There is no required text for this course. However, we recommend the Alexander’s text. This will provide the extra clarification for some topics. *Additional handouts and reading references to specific topics will be given during the semester.*


**ACCOMODATIONS FOR STUDENTS WITH DISABILITIES:**
If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office ([http://oss.ufl.edu/](http://oss.ufl.edu/)). The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

**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.” Students are expected to act in accordance with the University of Florida policy on academic integrity (see Student Conduct Code, the Graduate Student Handbook or this web site for more details: [www.dso.ufl.edu/judicial/procedures/academicguide.php](http://www.dso.ufl.edu/judicial/procedures/academicguide.php)).

**UF COUNSELING SERVICES:**
Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575, or Student Mental Health Services, 352-392-1171. Visit their web sites for more information: [http://www.counsel.ufl.edu/](http://www.counsel.ufl.edu/) or [http://www.health.ufl.edu/shcc/smhs/index.htm#urgent](http://www.health.ufl.edu/shcc/smhs/index.htm#urgent)
The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women’s health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: [www.health.ufl.edu/shcc](http://www.health.ufl.edu/shcc)
Crisis intervention is always available 24/7 from:
   Alachua County Crisis Center: (352) 264-6789.

BUT – Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

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.

DE COMPLAINTS
Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See http://distance.ufl.edu/student-complaints for more details.