Summer SS1 2022
Stony Brook University
Department of Chemistry
College of Arts and Sciences

CHE 310: Chemistry in Technology and the Environment

Instructor:

Dr. Daniel Amarante

Office Hours: Wednesday 8:00 PM – 9:30 PM (Zoom)

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COURSE DESCRIPTION: This course focuses on the chemistry of environmental processes, environmental degradation, remediation and abatement processes, energy production, and some connections between chemistry-related and non-chemistry-related aspects of sustainability.

Prerequisite: CHE 132 or CHE 152

LEARNING OBJECTIVES:

Upon completion of the course, students will be able to:

a. Explain major processes in the chemistry of: photochemical smog, stratospheric ozone, greenhouse and enhanced greenhouse effect, acid rain, carbonate buffer system, environmentally relevant oxidation and reduction reactions, energy from fossil fuel combustion, energy from nuclear fission, persistent organic pollutants.

b. Analyze the role of the chemical enterprise in both exacerbating and addressing the challenges of anthropogenic environmental degradation.

c. Appraise the effectiveness of a book written for a general audience addressing issues of sustainability that have chemical or other technical aspects.

d. Apply concepts and tools drawn from any field of study in order to understand the links between science or technology and the arts, humanities or social sciences.

e. Synthesize quantitative and/or technical information and qualitative information to make informed judgments about the reciprocal relationship between science or technology and the arts, humanities, or social sciences.

f. Work effectively in teams to learn course content and further develop process skills

COURSE REQUIREMENTS:

- **Text**: Spiro, T. G.; Purvis-Roberts, K. L.; Stigliani, W. M. (2012) Chemistry of the Environment, 3rd ed. (ISBN 978-1891389702)
- **Scientific Calculator** with exponents, powers, and logarithms (graphing calculators are permitted).
- **Spare batteries** for your calculator and response pad.
- **#2 pencils and erasers** for each exam.
- **Ring binder** to organize your work.
- **Blackboard.stonybrook.edu** account is where all announcements, policies, and information will be posted.
  For help accessing Blackboard click Help and Support at the site.

Each student is responsible for knowing all procedures and course expectations detailed in this document, in other handouts or announced during lectures or in Blackboard. Failure to attend a lecture is not an excuse for not knowing what was presented or announced. If you miss a lecture it is your responsibility to find out what transpired from a fellow student, or from your instructor.

- **Respondus Lockdown Browser** for online exams.
- **Stony Brook Email Account** accessible at stonybrook.edu/mycloud. For help with Google Apps for Education see http://it.stonybrook.edu/help/kb/logging-in-to-google-apps-for-education.

Exam Dates (all listed dates are EST):

Exam 1, Friday June 3, 2022	**4:00 PM – 6:00 PM**
Exam 2, Friday June 17, 2022	**4:00 PM – 6:00 PM**
Final Exam, Friday July 1, 2022	**2:00 PM – 5:30 PM**

Attendance and Make Up Policy

- All students must take the final exam. Unexcused absence will result in a score of 0. A student who is unable to take the final exam because of illness or other extenuating circumstances must contact an instructor before or within 24 hours following the exam. Only then will a grade of incomplete (I) be assigned. The make-up final will be given Wednesday August 24, 2022 from 1:00 – 3:30 PM and appropriate documentation is required at that time. Failure to take the final or make-up exam will result in a course grade of F.

Description and schedule of lectures and assignments.

MWF Class Lectures: Monday, Wednesday, and Friday 1:30 PM – 3:00 PM EST. Lecture notes will be posted on Blackboard before each class. Lectures will be conducted via Zoom. Zoom Meeting link is available on Blackboard. All lectures will be recorded and uploaded to Blackboard. You will need to bring to each class pens or pencils, a calculator and a device for responding to lecture questions with TurningPoint. These lectures include interactive learning sessions designed to help you understand key concepts and apply them in exercises and problems. You will work on these activities in the class and report your answers with TurningPoint. You will benefit most from these sessions if you prepare by completing the reading assignment.

Exams

Exams (composed of a combination of multiple-choice, numerical short-answer and ordering) are based on materials covered in the lectures, text and other assignments are scheduled as indicated above. You must take each exam using the Respondus Lockdown Browser. You must have, your University ID (or another valid picture ID) and a scientific calculator with spare batteries. Graphing calculators are permitted. Respondus Monitor will act the proctor during the exams. Accessing additional devices (such as cellphones, secondary electronic devices etc.) will not be permitted. An Honor Code statement will be provided for each exam. By taking and completing the exam, you acknowledge the terms in the Honor Code statement. Violations may result in a report to Academic Judiciary and a course grade of F.

A review of all relevant materials will be conducted prior to each exam. Success on these exams will require that you understand important concepts, as well as their use in solving problems relevant to the course material. If you understand assigned problems in this way, and test your understanding on problems that are not assigned, you are more likely to do well in this course.

GRADING:

Course grades will be based on the following percentages (all grades will be available on Blackboard):

Problem Sets: 20.0%	Exam 1: 17.0%
Group Activities: 15.0%	Exam 2: 17.0 %
Surveys: 8.0%	Final Exam: 23.0%

The lowest problem set will be dropped at the end of the semester. Final percent grades will be rounded up (to the tenth's place). Final letter grades will be based on the following cutoffs:

A: $\geq$ 90.0%	B-: 70.0 – 74.9%	D: 50.0 – 54.9%
A-: 85.0 – 89.9%	C+: 65.0 – 69.9%	F: $\leq$ 49.9%
B+: 80.0 – 84.9%	C: 60.0 – 64.9%	
B: 75.0 – 79.9%	D+: 55.0 – 59.9%	

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CLASS PROTOCOLS:

- All lectures will be conducted using Zoom.

- Microphones: During lecture, please keep your microphones muted unless you want to ask a question.

- Webcams: During lectures, you may keep your webcams off unless you ask a question.

- Questions regarding class topics are always welcome. Questions that are not directly related to class topics should be directed to the instructor immediately before or after class, and instructors will do their best to be available at these times. If the instructor is not available immediately before or after class, questions can be taken during office hours or sent to instructor email.

- Stony Brook University expects students to: maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Any behavior that interrupts the ability of instructors to teach, the safety of the learning environment, and/or students' ability to learn will be reported to University Community Standards. Students who display such behavior may be asked to consult with one of the course instructors or asked to leave a class session, whereupon University Police will be notified. Information on campus policy regarding student disruptions can be found at http://www.stonybrook.edu/sb/behavior.shtml.

COURSE RESOURCES:

Blackboard: should be checked regularly for announcements, reading and homework assignments, lecture notes, help room schedules, solutions to end-of-chapter problems, sample exams from previous semesters, and other important matters. Support for Blackboard is available through the information at blackboard.stonybrook.edu.

Getting Help:

- Help with concepts or assignments is available during office hours or by appointment.

- Questions about course content, organization, grades, exams, or personal problems should be addressed to Dr. Amarante, immediately after lectures or during office hours.

- Office hours for all instructors are posted under Faculty Information in Blackboard.

- Additional academic help may be available through the Residential Tutoring Centers (studentaffairs.stonybrook.edu/res_programs/rtc/) or the Academic Success & Tutoring Center (stonybrook.edu/commcms/academic_success/).

STUDENT ACCESSIBILITY STATEMENT:

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Student Accessibility Support Center, ECC (Educational Communications Center) Building, Room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the Student Accessibility Support Center. For procedures and information go to https://www.stonybrook.edu/sasc/.

ACADEMIC INTEGRITY STATEMENT:

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. The faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at www.stonybrook.edu/commcms/academic_integrity.

In this course you are strongly encouraged to work with others to master the material in the text, lecture notes and other assignments. However, in working with others to arrive at your response to a question, you must understand and be able to explain the rationale behind your response and not just report someone else's answer. It is intellectually dishonest to report someone else's work and understanding as your own. Therefore, violations of the following will result in a course grade of F and a report to the Academic Judiciary.

- You must work independently when asked to do so.

- You must take the examinations independently with no assistance from any other person, without the aid of any unauthorized materials, and without access to any electronic communication devices.

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CRITICAL INCIDENT MANAGEMENT:

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

ELECTRONIC COMMUNICATION STATEMENT:

Email and especially email sent via Blackboard (http://blackboard.stonybrook.edu) is one of the ways the faculty officially communicates with you for this course. It is your responsibility to make sure that you read your email in your official University email account. For most students that is Google Apps for Education (http://www.stonybrook.edu/mycloud), but you may verify your official Electronic Post Office (EPO) address at http://it.stonybrook.edu/help/kb/checking-or-changing-your-mail-forwarding-address-in-the-epo.

If you choose to forward your official University email to another off-campus account, faculty are not responsible for any undeliverable messages to your alternative personal accounts. You can set up Google Mail forwarding using these DoIT-provided instructions found at http://it.stonybrook.edu/help/kb/setting-up-mail-forwarding-in-google-mail.

If you need technical assistance, please contact Client Support at (631) 632-9800 or supportteam@stonybrook.edu. Submit a help request ticket: https://it.stonybrook.edu/services/itsm

Understand When You May Drop This Course:

It is the student's responsibility to understand when they need to consider withdrawing from a course. Refer to the Stony Brook Academic Schedule for dates and deadlines for registration: http://www.stonybrook.edu/commcms/registrar/calendars/academic_calendars.
- Undergraduate Course Load and Course Withdrawal Policy
- Graduate Course Changes Policy

Incomplete Policy:

Under emergency/special circumstances, students may petition for an incomplete grade. Circumstances must be documented and significant enough to merit an incomplete. If you need to request an incomplete for this course, contact me for approval as far in advance as possible.

Course Materials and Copyright Statement:

Course material accessed from Blackboard, SB Connect, SB Capture or a Stony Brook Course website is for the exclusive use of students who are currently enrolled in the course. Content from these systems cannot be reused or distributed without written permission of the instructor and/or the copyright holder. Duplication of materials protected by copyright, without permission of the copyright holder is a violation of the Federal copyright law, as well as a violation of Stony Brook's Academic Integrity.

Online Communication Guidelines and Learning Resources:

Maintain professional conduct both in the classroom and online. The classroom is a professional environment where academic debate and learning take place. I will make every effort to make this environment safe for you to share your opinions, ideas, and beliefs. In return, you are expected to respect the opinions, ideas, and beliefs of other students—both in the face-to-face classroom and online communication. Students have the right and privilege to learn in the class, free from harassment and disruption. The course follows the standards set in the Student Code of Conduct, and students are subject to disciplinary action for violation of that code. If your behavior does not follow the course etiquette standards stated below, the grade you receive for a posting may suffer. I reserve the right to remove any discussion messages that display inappropriate language or content.

Online Etiquette:
- Offensive language or rudeness will not be tolerated. Discuss ideas, not the person.
- Avoid cluttering your messages with excessive emphasis (stars, arrows, exclamations).
- If you are responding to a message, include the relevant part of the original message in your reply, or refer to the original post to avoid confusion;
- Be specific and clear, especially when asking questions.

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- Use standard punctuation and capitalization. Using all UPPERCASE characters gives the appearance of shouting and makes the message less legible;
- Remember that not all readers have English as their native language, so make allowances for possible misunderstandings and unintended discourtesies.

Online Classes Require Better Communication:

It is important to remember that we will not have the non-verbal cues that occur in a face-to-face classroom. I cannot see the confused, frustrated, or unhappy expressions on your face if you encounter problems. You MUST communicate with me so that I can help. To make the experience go smoothly, remember that you're responsible for initiating more contact, and being direct, persistent, and vocal when you don't understand something.

Technology Requirements:

This course uses Blackboard for the facilitation of communications between faculty and students, submission of assignments, and posting of grades and feedback. The Blackboard course site can be accessed at https://blackboard.stonybrook.edu

If you are unsure of your NetID, visit https://it.stonybrook.edu/help/kb/finding-your-netid-and-password for more information. You are responsible for having a reliable computer and Internet connection throughout the term. Caution! You will be at a disadvantage if you attempt to complete all coursework on a smart phone or tablet. It may not be possible to submit the files required for your homework assignments.

Students should be able to use email, a word processor, spreadsheet program, and presentation software to complete this course successfully.

The following list details a minimum recommended computer set-up and the software packages you will need to have access to, and be able to use:

- PC with Windows 7, 8 or 10
- MacOS 10.12 or higher, OSX 10.11, OSX 10.10
- iOS 11.0 or higher (iPad only)
- Need to download and install Respondus Lockdown Browser (see instructions in separate document). Please note Lockdown browser does not work on Chromebooks. If you have a Chromebook please notify Dr. Amarante immediately.
- Respondus Lockdown Browser resources link: https://web.respondus.com/he/lockdownbrowser/resources/
- Latest version of Chrome or Firefox; Mac users may use Chrome or Firefox. (A complete list of supported browsers and operating systems can be found on the My Institution page when you log in to Blackboard.)
- High speed internet connection
- Word processing software (Microsoft Word, Google Docs, etc.)
- Webcam and a microphone
- Printer (optional)
- Ability to download and install free software applications and plug-ins (note: you must have administrator access to install applications and plug-ins).

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