

<b>Course ID:</b>	<b>Course Title:</b>	<b>Fall 2019</b>
<b>CHE 333</b>	<b>Environmental Chemistry and Sustainability Studies</b>	<b>Prerequisite: CHE101 &amp; CHE103</b>
		<b>Credits: 3</b>

Class Information		Instructor Information		Important Dates	
<b>Day:</b>	M	<b>Instructor:</b>	Dr. Liza Abraham	<b>First day of classes:</b>	Wed., Sept. 4
<b>Time:</b>	2:30-5:30	<b>Email:</b>	<a href="mailto:labraham@ambrose.edu">labraham@ambrose.edu</a>	<b>Last day to add/drop, or change to audit:</b>	Sun, Sept 15
<b>Room:</b>	A 2131	<b>Phone:</b>	(403) 410-2000 ext. 6921	<b>Last day to request revised exam:</b>	Fri, Nov.1
		<b>Office:</b>	A2160	<b>Last day to withdraw from course:</b>	Mon, Nov 18
		<b>Office Hours:</b>	open door policy	<b>Last day to apply for coursework extension:</b>	Mon, Nov 25
<b>Final Exam:</b>	F December 13 1:00- 4:00 A 1085			<b>Last day of classes:</b>	Wed, Dec 11

### Course Description

Focuses on the source, reactivity and environmental fates of toxic chemicals with a global perspective. Topics include environmental aquatic chemistry, environmental microbial chemistry, environmental health and toxicology, pollution and waste management. Instruction will consist of lecture, in-class activities and presentations.

### Expected Learning Outcomes

Students should come out of this course being able to:

- Explain the physical and chemical processes relevant to a range of key environmental chemistry issues
- Describe the reactivity and fate of toxic Chemicals – Pesticides, PAH, Naphthenic acids, herbicides, pesticides, dioxins, and heavy metals
- Explain topics related to environmental Health
- Explain issues related to energy and Sustainability- climate change, alternative energy, hydrogen fuel cells etc.
- Apply their knowledge to research an important environmental chemistry problem and prepare a formal presentation and recommend possible solutions.

**Textbook:** *Textbook: No prescribed textbook. Relevant materials will be posted on Moodle.*

## **Topics to be covered**

### **Environmental Aquatic Chemistry**

- Chemistry of Water Pollution
- Chemistry of Water Treatment and Technologies
- Current Research in Water purification

### **Environmental Microbial Chemistry**

- Aquatic microbial Chemistry
- Bioremediation

### **Environmental Health and Toxicology**

- Radiation and Chemicals as Mutagens
- Persistent Organic Pollutants
- Endocrine Disruptors

### **Pollution and Waste Management**

- Plastics
- Ozone Pollution

### **Energy**

- Renewable and Non-Renewable
- Current Research in Solar Power and Biofuels

### **Sustainability**

- Principles of Green Chemistry
- Student Projects

## Grading Assessments:

In determining the overall grade in the course the following weights will be used:

In-Class Activities/Class Participation: 20%

I @ Home Project: 20%

TERM TEST: 20% (**October 21**)

FINAL EXAM: 40%

Final Exam will be cumulative.

## Grade Summary:

The available letters for course grades are as follows:

<u>Letter Grade</u>	<u>Description</u>
A+	
A	Excellent
A-	
B+	
B	Good
B-	
C+	
C	Satisfactory
C-	
D+	
D	Minimal Pass
F	Failure

A+	A	A-	B+	B	B-
95% - 100%	87% - 94.99%	82% - 86.99%	77% - 81.99%	72% - 76.99%	66% - 71.99%

C+	C	C-	D+	D	F
62% - 65.99%	58% - 61.99%	54% - 57.99%	50% - 53.99%	45% - 49.99%	< 44.99%

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

### Requirements:

- All students registered in CHE 333 are expected to take the *WHMIS 2015* quiz and pass with a percentage of at least 80 before engaging in lab activities. You are permitted to re-take the quiz this as many times as necessary. Students need to complete the quiz by Friday, September 6. Here is the link to the Moodle site; <https://moodle.ambrose.edu/course/view.php?id=2576>
- **In-Class Activities/Class Participation** are a major component of this course. There will be a substantial amount of literature reading throughout the course. Your research findings will be presented to the whole class for further discussion. There will be case studies on major environmental issues and further discussions in class. Every in-class activity will be graded and which will account for 20% of the course mark. Some examples of in-class activities are:  
Alternatives to antibiotics as growth promoters  
Bioremediation  
Fluoride Controversy  
Mercury Toxicity in Daily Life  
Glyphosate (Roundup) Debate  
River Ganges pollution  
Sunscreen controversies  
Tobacco Carcinogenesis  
Reproductive Health Impacts of Exposure to Toxic Environmental Chemicals
- **I @ Home Project with Universities in India:** There will be an International component to this course.

Participating in the I@ home project will increase your knowledge of global issues related to environmental chemistry awareness of current research and trends in the subject area understanding of how the academic field is viewed and practiced in different cultural contexts understanding of other cultures/languages/ beliefs, values, perspectives, and practices skills in working with people from other cultures, acceptance of cultural differences, willingness to learn from people of other cultures

#### Partnering Institutions

CMS College was established in 1817 by the Church Missionary Society of England is one of the oldest colleges in India. This autonomous College located at the heart of Kottayam town offer undergraduate, postgraduate and doctoral programs in fourteen arts and science disciplines.

St. Mary's College (SMU), Manarcadu is an affiliated Arts and Science College under Mahatma Gandhi University and was located in the rural suburb of Manarcadu offers undergraduate and postgraduate programs, in arts and science.

This project consisted of four tasks

Task # 1: Introduction Video

Create an introduction video of yourself including the following items: Try to film your video outside your house, college, park or anywhere that you use so other students can see what it looks like. Duration: 2-5 minutes. Ask someone to film you on phone. Sent your video to [classmconnect@gmail.com](mailto:classmconnect@gmail.com)

Name  
School  
Year/age  
What you're studying  
Hobbies/favorite activities  
Favorite TV show or movie – explain a bit about what it is  
How many siblings you have  
What you hope to be/career  
What are your favorite foods/ explain  
Show a bit of an activity you're interested in.

Task #2: What do you know about your partner country?

Explore the website <https://classroomconnect.travel.blog/> and identify five pieces of information that you found interesting of the other country and one new fact about your own country. Share your discoveries with one another over WhatsApp. This will be counted toward participation marks.

Task #3: Create a PPT presentation on the following topics

For task #3, information and relevant papers are posted in Google drive. Use your group WhatsApp to connect with your group members. Use Google Doc within the group for documentation.

The presentation must be completed collectively and thus, you will have to use a document sharing website or app (e.g. Google Slides).

The purpose of this PowerPoint proposal is to extract relevant pieces of information from the provided source and outline a draft of a presentation schematic. Despite using different sources, your presentation must be cohesive and clear. Please briefly read through each source and select crucial pieces of information from each that your team would like to include in your slides. Everybody in your team must participate but how this will be executed can vary; for example, you could assign a source to each team member and they would be responsible for extracting information or you all can go through each source for information and then eliminate points your team deems unnecessary. However, it is essential that every member of your team reads through every source. Your topic may require additional research. Send your completed PPT slides to [classrmconnect@gmail.com](mailto:classrmconnect@gmail.com) for feedback. Compile the oral presentation and submit it for evaluation. This will be presented to the whole class.

Task #4: devise a lab activity related to your sustainability topic.

- You are not allowed to use phone as your calculator; you must use a calculator to do all your work.
- In respect to the professor and to your fellow students, we ask that you:
  - a) Turn your phone off during class and that you don't use it for texting during lecture or lab;
  - b) Not have conversations with the people beside you during lecture – it is very distracting to the people around you;

- c) Use your laptops for lecture material and assignments only – that you are not using the internet or Facebook during class time;
- d) Arrive to lecture on time
- e) Don't listen to music in class. These will help to maximize the learning experience for you and your fellow students (and will keep your professor in a good mood).

## Ambrose University Academic Policies:

### Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

### Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

### Exam Scheduling

Students, who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

### Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

### Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at [privacy@ambrose.edu](mailto:privacy@ambrose.edu).

### Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

### Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

### **Academic Integrity**

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university college. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

**Note:** Students are strongly advised to retain this syllabus for their records.