

Course ID:	Course Title:	Winter 2019
CHE335	Introduction to Nanoscience and Nanotechnology	Prerequisite: CHE251 Credits: 3

Class Information		Instructor Information		Important Dates	
Days:	W/F	Instructor:	Liza Abraham PhD	First day of classes:	Thu., Jan 3
Time:	1:00-2:15	Email:	labraham@ambrose.edu	Last day to add/drop, or change to audit:	Sun, Jan 13
Room:	A2212	Phone:	403-410-2000 ext.6921	Last day to request revised exam:	Mon, Mar 11
Lab/ Tutorial:	3 of hrs/wk	Office:	A2160	Last day to withdraw from course:	Fri, Mar22
		Office Hours:	Open-door Policy	Last day to apply for coursework extension:	Fri, March 29
Final Exam:	April 10th at 9 am A2210			Last day of classes:	Fri, Apr5

Course Description

An introduction to the fundamental concepts and applications within the developing field of nanoscience and technology. The underlying principles of nanoscale science, the unique properties of nanosized particles and the modern applications of nanoscience will be explored. Instruction will consist of lectures, supplementary readings, in-class activities, quizzes, group projects and presentations.

Textbooks

No prescribed textbook for this course; notes will be provided.

Attendance:

- Class participation is extremely important to your learning in this course. If you miss any class please make sure to complete the notes from your peers.
- 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).

Course Schedule (tentative)

- Introduction to Nanoscience and Nanotechnology
- Fundamentals of Nanoscience and Nanotechnology
 - Chemistry of Carbon- Graphite, Carbon nanotubes, Graphene
 - Chemistry of Phospholipids, Surfactants, Micelles, Liposomes, Polymers, Dendrimers, Self-assembly of materials\
- Synthesis and Characterization of Silver and Gold Nanoparticles
 - Chemical, and biological methods (green Chemistry)
 - Characterization by UV-Vis, XRD, Dynamic Light Scattering, FTIR, XPS, SEM, TEM, AFM, LSPR
- Nanomaterials for Environmental Remediation/Water Purification/ Catalysis
- Nanocarriers for drug delivery-Polymeric/Hydrogel nanoparticles/Lipid/Metal and inorganic nanoparticles, nanoshells, quantum dots
- Nanomedicine and other applications.

Requirements:

Class Presentations (10%): Throughout the course, there will be assigned in-class group work related to the current topics. These assignments will be followed by student presentations. Grading will be conducted on an individually-based manner, with the criteria covering participation and quality of the work.

High-School Outreach Presentation and Report (10%): Students will prepare a demo and PPT presentation to introduce nanoscience and technology to high-school students. You will be required to submit a report discussing the overall experience.

ARC Presentation (5%): You must present a literature review on topics related to the applications of nanotechnology in water purification at the ARC conference. This will involve groupwork to create a scientific poster followed by presentation at the ARC

Research Project and Presentation (20%): Your class will be carrying out a research project in groups to develop nanoparticles for water purification toward microbial contamination. Grading will be individual.

Chem Demo (5%): You will be developing chemistry demos as an in-class activity.

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

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

Assessments

Class Presentations: 10%

High-School Outreach Presentation and Report: 10%

FINAL EXAM: 50%

ARC Presentation: APPLICATIONS OF NANOTECHNOLOGY (NANOPARTICLES) METHODS IN WASTEWATER TREATMENT 5%

Research Project and Presentation: 20%

Chem Demo: 5%

Final Exam will be cumulative.

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.

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.

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. 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.