

<b>Course ID:</b>	<b>Course Title:</b>	<b>Winter 2017</b>
SC 245	Introduction to Nanoscience and Technology	<b>Prerequisite: CHE 101, CHE 103</b>
		<b>Credits: 3</b>

Class Information		Instructor Information		Important Dates	
<b>Days:</b>	Tues/Thurs	<b>Instructor:</b>	Liza Abraham PhD	<b>First day of classes:</b>	Wed., Jan 4, 2017
<b>Time:</b>	1:00-2:15	<b>Email:</b>	labraham@ambrose.edu	<b>Last day to add/drop, or change to audit:</b>	Sun, Jan. 15, 2017
<b>Room:</b>		<b>Phone:</b>	403-410-2000 Ext.6921	<b>Last day to request revised exam:</b>	Mon, Mar. 6, 2017
<b>Lab/ Tutorial:</b>		<b>Office:</b>		<b>Last day to withdraw from course:</b>	Fri, Mar. 17, 2017
		<b>Office Hours:</b>	W/F 11:00-3:00 and email appointment	<b>Last day to apply for coursework extension:</b>	Mon, Mar. 29, 2017
<b>Final Exam:</b>	Friday April 21 @ 1pm In A2210			<b>Last day of classes:</b>	Tue, April 11, 2017

### Course Description

An introduction to the fundamental concepts and applications of the developing field of nanoscience and technology. The underlying principles of nanoscale science, the unique properties of nano-sized 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.

### Expected Learning Outcomes

The student should be able to:

- explain the fundamental concepts and terminologies of nanoscience, with focusses on concepts related to size and scale and unique properties at the nanoscale
- integrate key concepts in chemistry, physics, and biology through the perspective of nanotechnology
- survey the application nanoscience to daily life, such as the role of nanoparticles in drug delivery, environmental remediation, food and agriculture
- explain the potential benefits and future of nanotechnology

### Textbooks

There will not be a prescribed textbook for the course. Course materials will be posted on Moodle as required.

\*The dates for quizzes may vary according to the pace and need of class.

**Course Schedule**

Week of :	Topic	*Important Dates
Jan.4	Introduction to Nanoscience and Nanotechnology	
Jan 11	Fundamentals of Nanoscience and Nanotechnology	In-Class Activity 1
Jan 18	Synthesis and Characterization of Nanoparticles	
Jan 25	Carbon Nanomaterials	In-Class Activity 2
Feb 1	Nanocarriers for drug delivery	
Feb8	Nanocarriers for drug delivery	In-Class Activity 3
Feb 15	<i>No Classes</i>	No Classes
Feb 22	Nanocarriers for drug delivery	<i>Quiz 1</i>
Feb 29	Nanomaterials and Environmental remediation	
March 7	Nanomaterials and Environmental remediation	<i>Quiz 2</i>
March 14	Nanomaterials and Environmental remediation	<i>High School Outreach</i>
March 21	Nanomaterials for Food and Agriculture Applications	<i>Midterm</i>
March 28	Nanomaterials for Food and Agriculture Applications	<i>ARC Presentation</i>
April 4	Nanomaterials for Food and Agriculture Applications	<i>Quiz 3</i>
April 11	Final Exam Review	

**Requirements:**

**Literature Review and Discussion:** There will be a substantial amount of literature reading throughout the course. Students will demonstrate an enhanced ability in reading the real world applications of nanoscience and nanotechnology in recent literature, develop self-learning abilities, and acquire new knowledge. Your research findings will be presented to the whole class for further discussion.

**Poster Presentation at Ambrose Research Conference (ARC):** Students are required to have a poster presentation at the at the Ambrose Research Conference on a topic related to nanoscience and technology

**High School Outreach:** High school outreach program is to introduce the newly developing nanoscience to high school students; specifically, to demonstrate that nanoparticles of silver behave differently than bulk

**In-Class Activities** are a major component of this course. It is designed to help you learn, understand and practice the material. Every in-class activity will be followed by a questionnaire for you to hand-in for grading. Many of the concepts that you are learning will be tested by in-class activities, followed by group discussions, which will account for 15% of the course mark.

**Assessments**

**In-Class Activities: 15%**

**Literature Review/ Discussion, ARC presentation, High- School Outreach: 30%**

**Quiz: 10%**

**Term Test: 15%**

**Final Exam (cumulative): 30%**

**Attendance:**

Class participation is extremely important to your learning in this course. Students who do not attend class may lose the opportunity to earn marks for in-class assessments.

**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

**Grading Scale:**

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

<b>C+</b>	<b>C</b>	<b>C-</b>	<b>D+</b>	<b>D</b>	<b>F</b>
<b>62% - 65.99%</b>	<b>58% - 61.99%</b>	<b>54% - 57.99%</b>	<b>50% - 53.99%</b>	<b>45% - 49.99%</b>	<b>&lt; 44.99%</b>

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](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.