



Jordan University of Science and Technology
Faculty of Science & Arts
Chemistry Department

CHEM481 Nano-Science Chemistry

Second Semester 2023-2024

Course Catalog

3 Credit Hours. 3 Credit hours (3 h lectures). The course aims to explore the chemistry topics, both traditional and emerging, that are associated with nanoscale materials and provides students with the chemical properties and reactions of Nanomaterials and how they are different from bulk reactions. Topics covered include the Nanoscale materials in chemistry, unique bonding in nanoparticles and powders, synthetic methods for nanomaterials, nanocatalysis, the reaction of nanoparticles, the chemical composition of Nanomaterials, Nanostructured solid, Nanodispersion, Nanocomposites, types, advantages, reactivity, properties, preparation, characterization and applications, and other related topics

Teaching Method: On Campus

Text Book

Title	Essentials in Nanoscience and nanotechnology
Author(s)	Narendra Kumar, Sunita Kumbhat
Edition	1st Edition
Short Name	1
Other Information	by John Wiley & Sons

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	Handouts	Dr. Ayat Bozeyah	1st Edition	

Instructor

Name	Dr. Ayat Bouzieh
Office Location	Institute of Nanotechnology
Office Hours	Sun : 10:30 - 11:15 Mon : 12:30 - 14:00 Tue : 10:45 - 11:45 Thu : 10:30 - 13:30

Email	aabouzieh@just.edu.jo
-------	-----------------------

Class Schedule & Room

Section 1:
 Lecture Time: Sun, Tue, Thu : 09:30 - 10:30
 Room: قاعة الندوات/ العلوم

Prerequisites

Line Number	Course Name	Prerequisite Type
913110	CHEM311 Organic Chemistry (3)	Prerequisite / Pass
913470	CHEM347 Physical Chemistry (2)	Prerequisite / Pass

Tentative List of Topics Covered

Weeks	Topic	References
Weeks 1, 2	Introduction to nanomaterials in chemistry	Ch. # 1 From 1, L1-L3 From 2
Weeks 3, 4	Nanomaterials: General Synthetic Approaches/ Top Down approach	Ch. # 2 From 1, L4-L6 From 2
Weeks 4, 5	Nanomaterials: General Synthetic Approaches/ Bottom up approach	Ch. # 2 From 1, L7-L9 From 2
Weeks 6, 7	Characterization Tools for Nanomaterials	Ch. # 3 From 1, L10-L12 From 2
Weeks 8, 9	Nanomaterials	Ch. # 4 From 1, L13-L15 From 2
Week 10	Carbon-Based Nanomaterials	Ch. # 5 From 1, L16-L18 From 2
Weeks 11, 12	Self-Assembled and Supramolecular Nanomaterials	Ch. # 6 From 1, L19-L21 From 2
Week 13	Nanocomposite	Ch. # 7 From 1, L22-L24 From 2
Week 14	Unique Properties	Ch. # 8 From 1, L25-L27 From 2
Week 15	Application of nanomaterials	Ch. # 9 From 1, L28-L30 From 2
Week 2	Toxicity and Environmental Issues	Ch. # 10 From 1, L2 From 2
Week 5	First Exam	Ch. # 1, Ch. # 2 From 1, L1-L9 From 2

Week 9	Second Exam	Ch. # 3, Ch. # 4, Ch. # 5 From 1, L10-L18 From 2
Week 16	Final Exam	From 1, From 2

Relationship to Program Student Outcomes (Out of 100%)

a	b	c	d	e	f	g	h	i	j	k

Evaluation

Assessment Tool	Weight
First Exam	25%
Second Exam	25%
Homework & Quizzes	10%
Final Exam	40%

Policy

Exams	<p>- Exams Could be a mix of (Short essays, short answers, multiple choice, fill-in-the-blank, matching, etc.). They cover all lectures including all readings, lectures, handout material, and postings on the E-Learning module.</p> <p>- Exam make-up is accepted only for emergencies. Students absent from an examination must report immediately to the graduate registrar's office following JUST regulation. A student who is absent on account of illness must submit a medical certificate evidence. No make-up for quizzes</p> <p>___During exams___</p> <p>* You are not allowed to access or consult any materials, resources, websites, or applications whatsoever (both hardcopy and digital) that have not been provided by your examiner as part of the exam questions and any accompanying appendices (where applicable).</p> <p>* You are not allowed to communicate with another student during the exam, nor look at another?s answers.</p> <p>* You may not leave the exam until the midway point of the examination time.</p> <p>* You may not continue writing after the supervisor has announced the end of the examination.</p> <p>* You must ONLY use blue or black pens (no pencils).</p> <p>* You must provide your materials (pens, calculators, etc.). No spare materials will be provided, and no material in an exam may be shared.</p> <p>* Late students are allowed to enter the exam room during the first half midway point of the examination time, but they will not be given any extra time.</p>
Cheating	<p>Prohibited; The commitment of the acts of cheating and deceit such as copying during examinations, altering examinations for re-grade, plagiarism of homework assignments, and in any way representing the work of others as your own is dishonest and will not be tolerated. Standard JUST policy will be applied.</p> <p>المادة 7: إذا ضُبط الطالب أثناء الامتحان أو الاختبار متلبساً بالغش فتوقع عليه العقوبات التالية مجتمعة</p> <p>أ- اعتباره راسباً في ذلك الامتحان أو الاختبار</p> <p>ب- الغاء تسجيله في بقية المسابقات المسجل لها في ذلك الفصل</p> <p>ج- فصله من الجامعة لمدة فصل دراسي واحد، و هو الفصل التالي للفصل الذي ضبط فيه</p>

Attendance	<ul style="list-style-type: none">- Attendance is mandatory and will be recorded regularly.- Excellent attendance is expected.- Students who miss more than 20% of the classes will be dropped from the course as per JUST policy.- If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed
Withdraw	The last day of courses withdrawal (without reimbursement of tuition fees) is the day before the 1st day of final examination period

Date Printed: 2024-04-01