

Spring 2021

## **CHEM 474-102: Biochemistry II**

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## Chemistry: *Spring 2021 Course Syllabus*

### NJIT Academic Integrity Code:

The shift to remote and converged teaching due to the COVID-19 pandemic has required that both instructors and students make changes to their normal working protocols for courses. Students are asked to practice extra care and attention in regard to academic honesty, with the understanding that all cases of plagiarism, cheating, multiple submission, and unauthorized collaboration are subject to penalty. Students must properly cite and attribute all sources used for papers and assignments. Students may not collaborate on exams or assignments, directly or through virtual consultation, unless the instructor gives specific permission to do so. Posting an exam, assignment, or answers to them on an online forum (before, during, or after the due date), in addition to consulting posted materials, constitutes a violation of the university's Honesty policy. Likewise, unauthorized use of live assistance websites, including seeking "expert" help for specific questions during an exam, can be construed as a violation of the honesty policy.

All Students should be aware that the Department of Chemistry & Environmental Science (CES) takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

## COURSE INFORMATION

**Course Description:** CHEM 474-102: Biochemistry II

**Instructor:** Amir K Varkouhi

**Course Description:** Biochemistry II will focus on transducing and storing energy, synthesizing and engineering the molecules of life, and responding to environmental changes. Topics include basic concepts of metabolism and its regulation and information transfer. This may include glycolysis and gluconeogenesis, citric acid cycle, oxidative phosphorylation, photosynthesis, fatty acid metabolism, protein turnover and amino acid catabolism, biosynthesis of amino acids, DNA replication and recombination, RNA synthesis and processing, protein synthesis, control of gene expression, the immune system, and drug development.

### Required Reading

#### Term Paper

Students are responsible for submitting/presenting the term paper on or before the due date. Extenuating circumstances due to an emergency will only be considered at the discretion of the instructors with proper documentation. The paper must be 2-4 pages in length, double spaced, excluding references, tables, figures, etc, and must be formatted according to the 6th Ed. American Psychological Association (APA) format. 6th edition APA Style Format can be found at:

<http://owl.english.purdue.edu/owl/resource/560/02/> .

The term paper will be written and presented by students as a group work. Any form of plagiarism will result in a failing grade on the paper and the violation will be reported to the department.

**Number of Credits:** 3

**Prerequisites:** Chem 473 with a grade of C or better.

**Course-Section and Instructors**

Course-Section	Instructor
Chem 474-102	Amir K Varkouhi

**Office Hours for All Chemistry & Environmental Science Instructors:**

**Required Textbook:**

<b>Title</b>	Biochemistry
<b>Author</b>	Reginald H GarrettCharles M Grisham
<b>Edition</b>	6
<b>Publisher</b>	Cengage Learning
<b>ISBN #</b>	978-1305577206

**Learning Outcomes:**

1. Explain basic concepts of metabolism
2. Explain details of information transfer, which in may include DNA metabolism, transcription, and protein synthesis.
3. Compare and contrast methods of protein engineering and optimization.

## **POLICIES**

**All CES students must familiarize themselves with, and adhere to, all official university-wide student policies. CES takes these policies very seriously and enforces them strictly.**

**Grading Policy:** The final grade in this course will be determined as follows:

<b>Homework</b>	
<b>Quizzes</b>	
<b>Midterm Exam I</b>	40%
<b>Term paper</b>	20%
<b>Final Exam</b>	40%

Your final letter grade in this course will be based on the following tentative curve:

<b>A</b>		<b>C</b>	
<b>B+</b>		<b>D</b>	
<b>B</b>		<b>F</b>	
<b>C+</b>			

**Attendance Policy:** Attendance at classes will be recorded and is **mandatory**. Each class is a learning experience that cannot be replicated through simply "getting the notes."

**Homework Policy:** Homework is an expectation of the course. The homework problems set by the instructor

are to be handed in for grading and will be used in the determination of the final letter grade as described above.

**Exams:** There will be two midterm exams held in class during the semester and one comprehensive final exam. The following exam periods are tentative and therefore possibly subject to change:

Midterm Exam I	1 March
Term paper presentation	26 April and 3 May
Final Exam	10 May

The final exam will test your knowledge of all the course material taught in the entire course.

**Makeup Exam Policy:** There will normally be **NO MAKE-UP QUIZZES OR EXAMS** during the semester. In the event that a student has a legitimate reason for missing a quiz or exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the CES Department Office/Instructor that the exam will be missed so that appropriate steps can be taken to make up the grade.

**Cellular Phones:** All cellular phones and other electronic devices must be switched off during all class times. Such devices must be stowed in bags during exams or quizzes.

## ADDITIONAL RESOURCES

**Chemistry Tutoring Center:** Located in the Central King Building, Lower Level, Rm. G12. Hours of operation are Monday - Friday 10:00 am - 6:00 pm. For further information please click [here](#).

**Accommodation of Disabilities:** Office of Accessibility Resources and Services (*formerly known as Disability Support Services*) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please contact Chantonette Lyles, Associate Director at the Office of Accessibility Resources and Services at 973-596-5417 or via email at [lyles@njit.edu](mailto:lyles@njit.edu). The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Office of Accessibility Resources Services office authorizing your accommodations will be required.

For further information regarding self-identification, the submission of medical documentation and additional support services provided please visit the Accessibility Resources and Services (OARS) website at:

- <http://www5.njit.edu/studentsuccess/disability-support-services/>

**Important Dates See:** Spring 2021 Academic Calendar, Registrar  
<https://www5.njit.edu/registrar/spring-2021-academic-calendar/>

Our department link:  
<https://chemistry.njit.edu/>

## Spring 2021 Academic Calendar

January	18	Monday	Martin Luther King, Jr. Day
January	19	Tuesday	First Day of Classes
January	23	Saturday	Saturday Classes Begin
January	25	Monday	Last Day to Add/Drop a Class
January	25	Monday	Last Day for 100% Refund, Full or Partial Withdrawal
January	26	Tuesday	W Grades Posted for Course Withdrawals
February	2	Tuesday	Last Day for 90% Refund, Full or Partial Withdrawal - No Refund for Partial Withdrawal after this date
February	15	Monday	Last Day for 50% Refund, Full Withdrawal
March	8	Monday	Last Day for 25% Refund, Full Withdrawal
March	14	Sunday	Spring Recess Begins - No Classes Scheduled - University Open
March	21	Sunday	Spring Recess Ends
April	2	Friday	Good Friday - No Classes Scheduled - University Closed
April	5	Monday	Last Day to Withdraw
May	4	Tuesday	Friday Classes Meet
May	4	Tuesday	Last Day of Classes
May	5	Wednesday	Reading Day 1
May	6	Thursday	Reading Day 2
May	7	Friday	Final Exams Begin
May	13	Thursday	Final Exams End
May	15	Saturday	Final Grades Due
TBA			Commencement

**Course Outline**  
**Topics to be Covered**  
 (This is a plan and  
 may be subject to  
 change)

Lecture	Section	Topic	Assignment
25 Jan	102	Introduction of the course, The facts of life	
1 Feb	102	Recombinant DNA: Cloning and creation of Chimeric genes	
8 Feb	102	Nucleic Acid-based therapeutics	
15 Feb	102	Enzymes: An overview	
22 Feb	102	Metabolism: An overview	
1 Mar	102	Midterm exam	
8 Mar	102	Photosynthesis	
15 Mar		-----	
22 Mar	102	Metabolic Integration and Organ Specialization	
29 Mar	102	DNA Metabolism Replication, Recombination, and Repair	
5 Apr	102	Transcription and the Regulation of Gene Expression	
12 Apr	102	Protein Synthesis	
19 Apr	102	The reception and Transmission of Extracellular Information	
26 Apr	102	Presentation and discussion of the Term paper	
3 May	102	Presentation and discussion of the Term paper	
10 May	102	Final exam	