Course E-Syllabus

1	**Course title**	Advanced Physical Chemistry
2	**Course number**	0303441
3	**Credit hours**	3
	Contact hours (theory, practical)	6 hours per week, no practical hours
4	**Prerequisites/co-requisites**	0303342
5	**Program title**	BSc in Chemistry
6	**Program code**	0303
7	**Awarding institution**	The University of Jordan
8	**School**	Science
9	**Department**	Chemistry
10	**Level of course**	Fourth Year
11	**Year of study and semester (s)**	2019/2020 Summer
12	**Final Qualification**	
13	**Other department (s) involved in teaching the course**	None
14	**Language of Instruction**	English
15	**Teaching methodology**	☐Blended ☒Online
16	**Electronic platform(s)**	☒Moodle ☒Microsoft Teams ☐Skype ☒Zoom ☐Others……
17	**Date of production/revision**	Summer 2019/2020

18 Course Coordinator:

Name: Dr Fadwa Odeh
Office number: 11
Phone number: 22125
Email: f.odeh@ju.edu.jo

19 Other instructors:

Name:
Office number:
Phone number:
Email:

Name:
Office number:
Phone number:
Email:

20 Course Description:

As stated in the approved study plan.
This course (in Summer 2019/2020) focused mainly on biophysical chemistry.

21 Course aims and outcomes:

A- Aims:

B- Intended Learning Outcomes (ILOs):
Upon successful completion of this course, students will be able to:

22. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1	1.1	Introduction to biochemical processes/Outline of course	Live lecture/Microsoft teams		
	1.2	Principles of biochemical thermodynamics/ Thermodynamics and living systems	Live lecture/Microsoft teams		
	1.3	Principle of common intermediates	Live lecture/Microsoft teams		
	1.4	Biological membranes and ion transport energetics	Live lecture/Microsoft teams		
	1.5	Thermodynamics of ATP hydrolysis	Live lecture/Microsoft teams		
2	2.1	Biochemical equilibria/bioenergetics overview	Live lecture/Microsoft teams		
	2.2	Glycolysis	Live lecture/Microsoft teams		
	2.3	The krebs cycle	Live lecture/Microsoft teams		
	2.4	Electron transport chain (complex I)	Live lecture/Microsoft teams		
	2.5	Electron transport chain (complex II)	Live lecture/Microsoft teams		
3	3.1	Electron transport chain (complexes III and IV)	Live lecture/Microsoft teams		
	3.2	Electron transport chain (complex V)	Video lecture		
	3.3	Binding equilibria	Live lecture/Microsoft teams		
	3.4	Independent site binding	Live lecture/Microsoft teams		

	3.5	Cooperative site binding, protein allosterism and ITC			
4	4.1	Vibrational & rotational spectroscopy			
	4.2	Vibrational & rotational spectroscopy			
	4.3	Electronic Spectroscopy			
	4.4	Electronic spectroscopy			
	4.5	Resonance spectrsocopy			
5	5.1	Resonance spectroscopy			
	4.2	XRD for biomolecules structure determination			
	5.3	Atomic force microscopy AFM			
	5.4	AFM			
	5.5	Eid Al Adha			
6	6.1	Eid Al Adha			
	6.2	Eid Al Adha			
	6.3	Eid Al Adha			
	6.4	Biosensors definition and overview			
	6.5	Types of biosensors			
7	7.1	Biosensors design and components			
	7.2	Biosensors design and components			
	7.3	Biosensors design and components			
	7.4	Comparison of biosensors			
	7.5	The signal and samples			
8	8.1	Advantages and disadvantages			
	8.2	Seminar			
	8.3	Seminar			
	8.4	Seminar			
	8.5	Seminar			

- Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
- Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz…etc

23 Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:
two quizzes and two home works will be delivered and a presentation (worth 50%) and a final exam (worth 50%)

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform

24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform…etc):

Laptop or smart phone
Internet connection
webcam

25 Course Policies:

A- Attendance policies: attendance will be taken

B- Absences from exams and submitting assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

F- Available university services that support achievement in the course:

26 References:

A- Required book(s), assigned reading and audio-visuals:

- Physical Chemistry for the life sciences by Engel, Drobny & Reid

B- Recommended books, materials and media:

- Physical Chemistry by Laidler, Meiser & Sanctuary
- Physical Chemistry by Barrow
- Physical Chemistry By Atkins

27 Additional information:

Name of Course Coordinator: Dr Fadwa M Odeh Signature: ---------- Date: ----------

Head of Curriculum Committee/Department: ---------- Signature: ----------

Head of Department: ---------- Signature: ----------

Head of Curriculum Committee/Faculty: ---------- Signature: ----------

Dean: ---------- Signature: ----------