

Course Plan for Bachelor Program - Study Plan Development and Updating Procedures/ Pharmacy Department	QF02/0408-4.0E
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Study Plan No.	2021/2022	University Specialization	Bachelor of Pharmacy
Course No.	0201450	Course Name	Selected Topics in Pharmaceutics
Credit Hours	3	Prerequisite *Co-requisite	Pharmaceutical Dosage Forms (2)
Course Type	☐ Mandatory University Requirement	☐ University Elective Requirement	☐ Faculty Mandatory Requirement
Teaching Style	☐ Full Online Learning	☐ Support course family requirements	☐ Mandatory Requirement
Teaching Model	☐ 1 Synchronous: 1 Asynchronous	☒ Blended Learning	☒ Elective Requirement
		☒ 1 Face to Face: 1 Asynchronous	☐ Traditional Learning
			☐ 2 Traditional

Faculty Member and Study Divisions Information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail
Office Hours (Days/Time)	Sunday, Tuesday, Thursday ()			Monday, Wednesday ()
Division number	Time	Place	Number of Students	Teaching Style
				Blended Learning
				Approved Model
				1 Face to Face: 1 Asynchronous

Brief Description

This course aims to provide students with advanced knowledge in pharmaceutics and dosage form design by introducing new applications such as radiopharmacy, biopharmaceuticals, and novel dosage forms. Being a blended course, these topics will be introduced via a mix of face-to-face and recorded lectures and asynchronous group activities.

Learning Resources

Course Book Information (Title, author, date of issue, publisher ... etc)	1. An Introduction to Clinical Pharmaceutics, Alexander T. Florence, 1 st Edition, 2010, Pharmaceutical Press 2. Aulton's Pharmaceutics: The Design and Manufacture of Medicines, M. E. Aulton and K. M. G. Taylor, 6th Edition, 2022, Churchill Livingstone.
Supportive Learning Resources (Books, databases, periodicals, software, applications, others)	- Selected review articles from the literature.
Supporting Websites	
The Physical Environment for Teaching	☒ Classroom ☐ Labs ☒ Virtual Educational Platform ☐ Others
Necessary Equipment and Software	- Microsoft Office. - Moodle.
Supporting People with Special Needs	Students with special needs should contact the course instructor at the beginning of the semester to accommodate their needs.
For Technical Support	E-Learning & Open Educational Resources Center. Email: elarning@zu.edu.jo ; Phone: +962 6 429 1511 ext. 425/362.

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Course learning outcomes (K= Knowledge, S= Skills, C= Competencies)

No.	Course Learning Outcomes	The Associated Program Learning Output Code
Knowledge		
The student should be able to:		
K1	List currently available biopharmaceuticals and their attributes.	MK2
K2	Discuss recent trends in dosage form design.	MK2
Skills		
The student should be able to:		
S1	Propose a suitable dosage form for a specific therapeutic need, based on drug physicochemical properties and patient considerations.	MS4
S2	Apply fundamental physicochemical principles in the formulation of drugs.	MS4
Competencies		
The student should be able to:		
-	-	-

Mechanisms for Direct Evaluation of Learning Outcomes

Type of Assessment / Learning Style	Fully Electronic Learning	Blended Learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm Exam	30%	30%	30%	0%
Participation / Practical Applications	0%	0%	30%	60%
Asynchronous Interactive Activities	30%	30%	0%	0%
Final Exam	40%	40%	40%	40%

Note 1: Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, and work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

Note 2: According to the Regulations of granting Master's degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).

Schedule of Simultaneous / Face-to-Face Encounters and their Topics

Week	Subject	Learning Style*	Reference **
1	- Introduction to the course	Lecture	-
2	- Introduction to clinical pharmaceuticals	Lecture Participatory learning	Ref. 1, pp. 1-24
3	- Excipients, allergic and immunological reactions	Lecture Participatory learning Problem-based learning	Ref. 1, pp. 27-39

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4	- The chemistry of drugs and their influence on Pharmaceutics: Case studies	Lecture Participatory learning	Ref. 1, pp. 41-67
5	- Drug formulation case studies 1. Amphotercin B formulations 2. Doxorubicin formulations 3. Propofol formulations 4. Long depot injections	Lecture Participatory learning Problem-based learning	Ref. 1, pp. 69-80
6	- Drug formulation case studies 1. Raft-producing oral formulations 2. Etoposide 3. Paclitaxel 4. Eutectic mixtures of local anesthetics 5. Fluroquinolones eye drops 6. Parenterals	Lecture Participatory learning Problem-based learning	Ref. 1, pp. 80-98
7	- Formulations and related adverse events	Lecture Participatory learning Problem-based learning	Ref. 1, pp. 101-120
8-	- Pediatric and geriatric formulations	Lecture Participatory learning	Ref. 1, pp. 121-131
9	Midterm Exam		
10	- Generic medicines: conventional drugs and biologics	Lecture Participatory learning Problem-based learning	Ref. 1, pp. 133-148
11	- Preparation and delivery of biopharmaceuticals	Lecture Participatory learning Problem-based learning	Ref. 2, pp. 752-768
12	- Preparation and delivery of biopharmaceuticals	Lecture Participatory learning Problem-based learning	Ref. 2, pp. 752-768
13	- Radiopharmaceuticals	Lecture Participatory learning	Ref. 2, pp 789-804
14	- Pharmaceutical quality: the application of pharmaceutics in medicines regulation	Lecture Participatory learning	Ref. 2, pp 894-914
15	- Modern manufacturing techniques: Microfluidics	Lecture Participatory learning	Selected review articles
16	Final Exam	-	-

* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.

** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.

Schedule of Asynchronous Interactive Activities (in the case of e-learning and blended learning)

Week	Task / Activity	Reference	Expected Results
1	-	-	-
2	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
3	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
4	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
5	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
6	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
7	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
8	- Watch a recorded lecture	Video on the E-learning platform	Answer questions embedded in the video
9	Midterm Exam		
10	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
11	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
12	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
13	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
14	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
15	- Watch a recorded lecture	Video on the E-learning platform	- Answer questions embedded in the video
16	Final Exam		