



Republic of Yemen

الجمهورية اليمنية

**Ministry of Higher Education &
Scientific Research**

وزارة التعليم العالي و البحث العلمي

Lebanese International University

الجامعة اللبنانية الدولية

**School of Pharmacy & Medical
Sciences**

كلية الصيدلة والعلوم الطبية

وثيقة مواصفات برنامج بكالوريوس الصيدلة السريرية

Bachelor of Clinical Pharmacy - Program Specifications Document

2019

Program Identification and General Information معلومات عامة عن البرنامج		
صيدلة سريرية	اسم البرنامج: Scientific name of the program	1
بكالوريوس	الدرجة العلمية التي يمنحها البرنامج (الشهادة) Award granted on completion of the program	2
173	إجمالي الساعات المعتمدة لمنح المؤهل (الدرجة العلمية) Total credit hours required to award the degree	3
الجامعة اللبنانية الدولية	الجهة المسؤولة عن منح الدرجة العلمية (الجامعة) The body responsible for granting the degree	4
كلية الصيدلة والعلوم الطبية	اسم الكلية التي ينتمي إليها البرنامج: The faculty to which the program belongs	5
الصيدلة السريرية	اسم القسم الذي ينتمي إليه البرنامج: The body responsible for the program	6
5 سنوات	عدد سنوات الدراسة في البرنامج: Number of years needed for completion of the program	7
نظام الائترام - الساعات الاكاديمية Semesters – Credits Hours	نظام الدراسة في البرنامج: Study system	8
1. Academia and Research 2. Community Pharmacy 3. Governmental and Non-Governmental Institutions 4. Hospital Pharmacy 5. Clinical Pharmacy 6. Pharmaceutical Company 7. Pharmaceutical Industry	المهنة/ المهن التي يعد البرنامج للالتحاق بها: Promising jobs/employments for graduates	9
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حسب أنظمة وزارة التعليم العالي والبحث العلمي اليمنية As per the Yemeni Ministry of Higher Education and Scientific Research	المعدل المطلوب للالتحاق بالبرنامج: Grade entry requirements	
2019	تاريخ آخر اعتماد لوثيقة مواصفات البرنامج: Latest attesting date of the program specification document	14

رؤية الجامعة ورسالتها وأهدافها: University Vision, Mission and Aims

رؤية الجامعة: University Vision

الاسهام الايجابي في المجتمع من خلال الابداع في التعليم.

Making a positive social contribution through creative education and innovation.

رسالة الجامعة: University Mission

خدمة المجتمع من خلال تمكين الطلبة والمتخرجين من تطبيق المعرفة في كل مرحلة من حياتهم المهنية. وتوفير الفرص لتحسين المهارات والخبرات التي تطابق معايير الجامعة في التميز لبناء الأمة.

To serve society through empowering students and alumni to apply knowledge and awareness in every step of their profession by providing unique opportunities to enhance skills and experience that meet the LIU excellent standards to build the nation.

أهداف الجامعة: Aims of the University

1. تمكين الطلاب من تطوير الوعي والمعرفة والتشارك الثقافي والاستدامة البيئية.
2. تطوير والاحتفاظ بالكادر الأكاديمي والإداري المؤهل والمتنوع.
3. مراجعة المناهج الدراسية بشكل مستمر وتطويرها لتحقيق نتائج التعلم المرجوة.
4. الاهتمام بالتفاعل بين التدريس والبحث العلمي
5. ادماج التقنية الحديثة لتحقيق التعلم الفعال.
6. الاهتمام بمشاركة خريجي الجامعة وتمكينهم للاسهام الفعال في سوق العمل.
7. التزام الجامعة بتقديم الدعم المستمر والتواصل مع الطلاب لتحقيق قيم الجامعة.
8. نشر المعرفة والمهارات متعددة المجالات والقيم الضرورية للتنافس في مجتمع المعرفة.
9. بناء السلوك لدى الطلاب حتى يكونوا مواطنين يتحملون المسؤولية ويهتمون بالتعلم مدى الحياة.
10. توسيع الخبرات التعليمية المتنوعة والمهارات في البيئة الجامعية.

To meet our Excellence Standards “an acronym that stands for”:

E Empower students to develop awareness and engagement in cultural and environmental sustainability.

X Expand, develop, retain, and promote an excellent and diverse faculty.

C Continually review curricula for innovative outcomes.

E Enable dynamic interplay of teaching and research.

L Learn how to leverage and apply innovative technologies, tools and methods to enable active learning.

L Level up alumni engagement that stimulates and empower LIU’s graduates to foster a significant difference in the job market.

E Endeavor to align LIU’s values and commitments to student support and communication.

N Nurture knowledge, multidisciplinary skills and values necessary to compete in a knowledge-based society.

C Construct LIU’s students’ behavior to be responsible citizens and life-long self-actuated learners.

E Expand diverse learning experiences and skills in the university environment.

University’s Values: قيم الجامعة

التميز Excellence

الأمانة Integrity

الشراكة Collaboration

جودة الخدمة Serving with Quality

الإبداع والابتكار Innovation and creativity

المسؤولية الإجتماعية Social Responsibility

رؤية الكلية ورسالتها وأهدافها: Faculty Vision, Mission and Aims

رؤية الكلية: Faculty Vision

To be a nationally leading, globally recognized figure in modernizing and advancing the education of pharmaceutical, biomedical, and nutritional sciences.

رسالة الكلية: Faculty Mission

To prepare distinguished clinical professionals in pharmacy, biomedical, and nutrition and dietetics for successful careers in healthcare through knowledge-based, practice-oriented, research-directing academic programs that are nationally valued and internationally accredited.

أهداف الكلية: Aims of the Faculty

1. Generating professionals able to work collaboratively within the healthcare team with self-confidence and respect.
2. Adopting and adapting state-of-the art advancements to the school's academic programs.
3. Promoting development and growth of the faculty, its departments and staff, and its students and alumni.
4. Supporting collaborations for multidisciplinary research, affiliations with various healthcare specialties, and initiatives for community-based health services.

رؤية ورسالة القسم وأهدافه: Clinical Pharmacy Department, Vision, Mission and aims

رؤية القسم: Vision of Clinical Pharmacy Department

Becoming the national reference and the hub for the paradigm shift of pharmacy education.

رسالة القسم: Mission of Clinical Pharmacy Department

Offering knowledge-based, skill-developing clinical programs that train students in pharmaceutical care practice and research professionally and ethically.

أهداف القسم: Objectives of Clinical Pharmacy Department

1. Preparing students to work as a member of the patient's healthcare team.
2. Promoting excellence in pharmacy teaching, training, research, and care provision.
3. Guiding students in professionalism, career development, and life-long learning.
4. Fostering extended learning opportunities through post-graduate programs.

رسالة البرنامج وأهدافه: Program Mission and Aims

Program Mission: رسالة البرنامج	
Generating quality clinical pharmacists with added value potential to the healthcare team and patient.	
Program Aims: أهداف البرنامج	
1. Providing students with principles and fundamentals of the science and the practice of clinical pharmacy.	
2. Guiding and helping students acquiring and improving skills necessary for practice.	
3. Exposing students to practice environments in the real world.	
4. Growing students' leadership capabilities and collaborative work.	
Program Standards & Benchmarks: معايير البرنامج ومرجعياته	
المعايير الأكاديمية للمحتوى العلمي للبرنامج Academic Standards:	
1. Accreditation Council for Pharmacy Education (ACPE) 2. NARS 3. Benchmarking Programs	
ملحق (1) المعايير الأكاديمية للمحتوى	
Benchmarks: مرجعيات البرنامج	
1. University of Santo Tomas 2. Beirut Arab University 3. Al Ain University 4. The University of Sydney 5. National University of Singapore	

مخرجات التعلم المقصودة للبرنامج: Intended Learning Outcomes (ILOs)	
أولاً: مجال المعرفة والفهم: Knowledge and Understanding (A)	
بعد الانتهاء من البرنامج بنجاح سوف يكون المتخرج قادراً على ان :	
Upon successful completion of the Bachelor of Clinical Pharmacy Program, the graduate will be able to:	
A1.	Review the knowledge facts and principles of both basic and medical sciences.

A2.	Identify the role of each of the pharmaceutical sciences in the development and use of pharmaceutical products.
A3.	Discuss disease pathophysiology and the patient's clinical presentation.
A4.	Relate the biologic effects of medicinal substances to their physicochemical properties and their interactions with the living systems.
A5.	principles of ethics of both practice and scientific research.
ثانيا: مجال المهارات الذهنية: (B) Intellectual Skills	
عند الانتهاء من البرنامج بنجاح سوف يكون المتخرج قادرا على	
Upon successful completion of the Bachelor of Clinical Pharmacy Program, the graduate will be able to:	
B1.	Conceptualize pharmaceutical care as the standard framework of clinical pharmacy services in various healthcare settings.
B2.	Integrate patient's demographic, social, and health data to discover drug-related problems.
B3.	Compare alternative therapeutic plans for each drug-related problem based on evidence of effectiveness, safety, and cost.
B4.	Create a patient-specific pharmaceutical care plan to achieve a definite outcome for each drug-related problem.
B5.	Propose research ideas based on practice gaps and improvement opportunities.

ثالثا: مجال المهارات العملية والمهنية: (C) Professional and Practical Skills	
بعد الانتهاء من البرنامج بنجاح سوف يكون المتخرج قادرا على ان :	
Upon successful completion of the Bachelor of Clinical Pharmacy Program, the graduate will be able to:	
C1.	Provide pharmaceutical care professionally in various pharmacy practice setting.
C2.	Communicate effectively with patients and other health care professionals.
C3.	Contribute in developing, implementing and monitoring pharmaceutical care plans.
C4.	Counsel patients on the purpose and expectations of drug therapy.
C5.	Document pharmaceutical care steps in a patient's medical record.

C6	Respond to drug information requests in a systematic manner.
رابعاً: مجال المهارات العامة: (D) General Skills	
بعد الانتهاء من البرنامج بنجاح سوف يكون المتخرج قادراً على ان : Upon successful completion of the Bachelor of Clinical Pharmacy Program, the graduate will be able to:	
D1.	Advocate leadership by initiating and advocating change to develop new opportunities in response to problems they identify.
D2.	Develop presentation, promotion, marketing, business administration, as well as numeric and computation skills.
D3.	Capability of time management, critical thinking, problem solving, decision-making, and team-work capabilities.
D4.	Communicate clearly by verbal and written means.

استراتيجيات التعليم والتعلم وأساليب التقييم:
Teaching and Learning Strategies (استراتيجيات التعليم والتعلم)
Tools
Lecture
Lab work
Homework
Homework
Assignments
Problem -based learning
Hospital & community pharmacy training
Dispensing lab
Written exam

Discussion
Case study
Presentation
Hands-on
Lab work report
Seminar
Seniors Project
Senior project report

Program Intended Outcomes مخرجات تعلم البرنامج		Teaching and Learning Strategies	Assessment Tools
A. Knowledge and Understanding	Upon successful completion of the Bachelor of Clinical Pharmacy Program, the graduate will be able to:		
	A1.	Review the knowledge facts and principles of both basic and medical sciences.	Lecture, lab work, assignment, homework Written exam, report, hands-on, presentation, case study
	A2.	Identify the role of each of the pharmaceutical sciences in the development and use of pharmaceutical products.	
	A3.	Discuss disease pathophysiology and patient's clinical presentation.	
	A4.	Relate the biologic effects of medicinal substances to their physicochemical properties and their interactions with the living systems.	
	A5.	Recall the ethics and methods of scientific research.	

B. Cognitive/ Intellectual Skills	Upon successful completion of the Bachelor of Clinical Pharmacy Program, the graduate will be able to:			
	B1.	Conceptualize pharmaceutical care as the standard framework of clinical pharmacy services in various healthcare settings.	Assignment, Problem - based learning	Discussion, case study, Written exam
	B2.	Integrate patient's demographic, social, and health data to discover drug-related problems.		
	B3.	Compare alternative therapeutic plans for each drug-related problem based on evidence of effectiveness, safety, and cost.		
	B4.	Create a patient-specific pharmaceutical care plan to achieve definite outcome for each drug-related problem.		
	B5.	Propose research ideas based on practice gaps and improvement opportunities.		
C. Practical and Professional Skills	Upon successful completion of the Bachelor of Clinical Pharmacy Program, the graduate will be able to:			
	C1.	Provide pharmaceutical care professionally in various pharmacy practice setting.	Hospital training, Community pharmacy training, Drug Factory visits, Dispensing lab, Journal club, Seminar, Seniors project	Presentation, Seminar, Seniors Project
	C2.	Communicate effectively with patients and other health care professionals.		
	C3.	Contribute in developing, implementing and monitoring pharmaceutical care plan.		
	C4.	Counsel patient on the purpose and expectations of drug therapy.		
	C5.	Document pharmaceutical care steps in patient medical record.		

	C6.	Respond to drug information requests in systematic manners.		
D. General and Transfer able Skills	Upon successful completion of the Bachelor of Clinical Pharmacy Program, the graduate will be able to:			
	D1.	Advocate leadership by initiating and advocating change to develop new opportunities in response to problems they identify.	Hospital training, community pharmacy training, visits, dispensing lab,	Presentation, Seminar, seniors project
	D2.	Develop presentation, promotion, marketing, business administration, numeric and computation skills.	journal club, seminar seniors project	
	D3.	Capability of time management, critical thinking, problem solving, decision-making and team-working.		
	D4.	Communicate clearly by verbal and written means.		

Program Structure هيكل البرنامج			
الوزن النسبي %	الساعات المعتمدة Credit Hours	المتطلبات Requirements	
%15	27	إجبارية	متطلبات جامعة University Requirements
%20	35	إجبارية	متطلبات كلية Faculty Requirements
%61	105*	إجبارية	متطلبات برنامج Program Requirements
%4	6	اختيارية	
%100	173	إجمالي الساعات المعتمدة Total of Credit Hours	

*Including 12 credit hours of hospital training, which translates to 600 working hours: Saturday to Wednesday from 8:00 to 13:00 for 24 weeks. Clinical Training Plan.

*Including 3 credit hours of community pharmacy training, which translates to 250 working hours: Saturday to Wednesday from 8:00 to 13:00 for 10 weeks.

توزيع المقررات على متطلبات البرنامج			
1. متطلبات جامعة University Requirements			
اسم المقرر Course Title	رمز المقرر	الساعات المعتمدة Credit Hours	

		Code/ NO.	نظرية Th.	عملي Lab.	تطبيق Pr.	اجمالي س. م Total Credit Hours	رموز المتطلبات القبليّة Pre- Requisites Code
1	Arabic Language and Literature	ARAB200	3			3	
2	Basic Computing Skills	CSCI100	3			3	
3	Introduction to Arab Islamic Civilization	CULT200	3			3	
4	English Composition & Rhetoric	ENGL150	3			3	
5	Advanced English Composition & Rhetoric	ENGL200	3			3	ENGL150
6	Technical writing	ENGL250	3			3	ENGL200
7	English Communication Skills	ENGL350	3			3	ENGL200
8	Human Rights – Global Perspective	HUMN210	3			3	
9	Statistics for Health Sciences	MATH245	3			3	
Total of Credit Hours إجمالي الساعات المعتمدة			27			27	

2 متطلبات كلية Faculty Requirements							
اسم المقرر Course Title	رمز المقرر Code/ NO.	الساعات المعتمدة Credit Hours				اجمالي س. م Total Credit Hours	رموز المتطلبات القبليّة Pre- Requisites Code
		نظرية Th.	تمارين Tut.	عملية Pr.			

1	Medical Biochemistry	BIOC310	4			4	BIOL200 CHEM250 CHEM300
2	General Biology I	BIOL200	3			3	
3	General Biology I Lab	BIOL200L			1	1	
4	Human Physiology & Anatomy	BIOL360	4			4	BIOL200
5	Human Physiology & Anatomy Lab	BIOL360L			1	1	BIOL200
6	Microbiology	BIOL385	3			3	BIOL200 ENGL200
7	Microbiology Lab	BIOL385L			1	1	ENGL200 BIOL200
8	Pathophysiology	BMED445	4			4	BIOL360 ENGL200
9	General Chemistry	CHEM200	3			3	
10	General Chemistry Lab	CHEM200L			1	1	
11	Quantitative Analysis	CHEM205	2			2	CHEM200
12	Quantitative Analysis Lab	CHEM205L			1	1	
13	Organic Chemistry I	CHEM250	3			3	CHEM200 ENGL150
14	Organic Chemistry II	CHEM300	3			3	ENGL150 CHEM250
15	Organic Chemistry Lab	CHEM300L			1	1	CHEM250 ENGL150
إجمالي الساعات المعتمدة Total Credit Hours			29	6		35	

3. متطلبات برنامج Program Requirements

3:1- متطلبات برنامج إجبارية Compulsory Courses

اسم المقرر Course Title	رمز المقرر	الساعات المعتمدة Credit Hours	رموز المتطلبات القبليّة
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		Code/ NO.	نظرية Th.	تمارين Tut.	عملية Pr.	اجمالي س.م Total Credit Hours	Pre-Requisites Code
1	Introduction to Drug Information	PHAR200	2			2	ENGL200
2	Pharmacy Practice, History & Ethics	PHAR250	3			3	ENGL200 PHAR200
3	Pharmaceutical Calculations	PHAR300	2			2	ENGL200 PHAR200
4	Medical Chemistry I	PHAR400	3			3	CHEM300
5	Pharmaceutical Analysis & Biotechnology	PHAR405	2			2	CHEM300
6	Pharmaceutical Analysis & Biotechnology Lab	PHAR405L			1	1	CHEM300
7	Drug Dosage Forms I	PHAR410	3			3	PHAR300
8	Physical Pharmacy	PHAR420	3			3	ENGL350 PHAR250 PHAR300
9	Pharmacognosy & Herbal Medicine	PHAR425	3			3	PHAR410
10	Medicinal Chemistry II	PHAR450	3			3	PHAR400
11	Physical Assessment in Pharmacy Practice	PHAR455	2		1	3	PHAR300 PHAR250 ENGL350
12	Pharmacy Management & Drug Marketing	PHAR460	3			3	PHAR300 PHAR455
13	Interpretations of Lab Data	PHAR465	3			3	BMED445
14	Drug Dosage Form II	PHAR470	3			3	PHAR410
15	Drug Dosage Form II Lab	PHAR470L			1	1	
16	Pharmacy Practice Experience I (PPEI)	PHAR480			6	6	PHAR455 PHAR300 PHAR250
17	Pharmacology I	PHAR505	3			3	PHAR400 PHAR450
18	Biopharmaceutics & Pharmacokinetics	PHAR510	4			4	PHAR410
20	Therapeutics I (Neurology/Psychiatry)	PHAR515	3			3	PHAR505
21	Therapeutics II (Pulmonary/Rheumatology)	PHAR520	3			3	PHAR505
22	Pharmacology II	PHAR555	3			3	PHAR505
23	Pharmacogenomics	PHAR560	3			3	PHAR505 PHAR555

24	Therapeutics III	PHAR565	3			3	PHAR555
25	Therapeutics IV	PHAR570	3			3	PHAR555
26	Pharmacology III	PHAR575	3			3	PHAR555
27	Pharmacy Practice Experience II (PPE II)	PHAR580			6	6	PHAR575
28	Pharmacy Seminar	PHAR585	1			1	PHAR575
29	Clinical Immunology	PHAR590	2			2	
30	Non Prescription Drugs	PHAR606	3			3	
31	Toxicology	PHAR610	3			3	PHAR575
32	Therapeutics V	PHAR615	3			3	PHAR575
33	Therapeutics VI	PHAR620	3			3	PHAR575
34	Pharmacoeconomics	PHAR625	3			3	PHAR575
35	Therapeutics VII	PHAR630	3			3	PHAR575
36	Clinical Pharmacy	PHAR640	3			3	PHAR480
37	Pharmacy Dispensing Lab	PHAR650			2	2	PHAR630
38	Pharmacy Law	PHAR656	1			1	
Total Credit Hours إجمالي الساعات المعتمدة			88		17	105	

اسم المقرر Course Title	رمز المقرر Code/ NO.	الساعات المعتمدة Credit Hours				رموز المتطلبات القبليّة Pre-Requisites Code
		نظرية Th.	تمارين Tut.	عملية Pr.	اجمالي س. م Total Credit Hours	
Community pharmacy	PHAR500			3	3	
Senior project	PHAR550	3			3	
Total Credit Hours إجمالي الساعات المعتمدة		3		3	6	

الخطة الدراسية للبرنامج Study Plan

Study of Plan The Bachelor of Clinical Pharmacy (PHAR)

First Year

Fall Semester				
Code	Title	Credits	Prerequisites	Corequisites
CHEM200	General Chemistry	3		CHEM200L
CHEM200L	General Chemistry Lab	1		CHEM200
BIOL200L	General Biology I Lab	1		BIOL200
BIOL200	General Biology I	3		BIOL200L
ENGL150	English Composition & Rhetoric	3	ELC103	
Total		11		
Spring Semester				
Code	Title	Credits	Prerequisites	Corequisites
ENGL200	Advanced English Composition & Rhetoric	3	ENGL150	
CHEM250	Organic Chemistry I	3	ENGL150 - CHEM200	
CHEM205	Quantitative Analysis	2	CHEM200	CHEM205L - CHEM250
CHEM205L	Quantitative Analysis Lab	1		CHEM205
BIOL360	Human Physiology & Anatomy	4	BIOL200	BIOL360L
BIOL360L	Human Physiology & Anatomy Lab	1	BIOL200	BIOL360
Total		14		
Summer Semester				
Code	Title	Credits	Prerequisites	Corequisites
CHEM300L	Organic Chemistry Lab	1	ENGL150 - CHEM250	CHEM300
CHEM300	Organic Chemistry II	3	ENGL150 - CHEM250	CHEM300L
BIOL385	Microbiology	3	ENGL200 - BIOL200	BIOL385L
CSCI100	Basic Computing Skills	3	ELC103	ENGL150
PHAR200	Introduction to Drug Information	2	ENGL200	
BIOL385L	Microbiology Lab	1	ENGL200 - BIOL200	BIOL385
Total		13		
Second Year				
Fall Semester				
Code	Title	Credits	Prerequisites	Corequisites
BMED445	Pathophysiology	4	ENGL200 - BIOL360	
PHAR400	Medical Chemistry I	3	CHEM300	

PHAR250	Pharmacy Practice, History & Ethics	3	PHAR200 - ENGL200	PHAR300
PHAR300	Pharmaceutical Calculations	2	ENGL200 - PHAR200	PHAR250
Total		12		
Spring Semester				
Code	Title	Credits	Prerequisites	Corequisites
PHAR450	Medicinal Chemistry II	3	PHAR400	
PHAR405L	Pharmaceutical Analysis & Biotechnology Lab	1	CHEM300	PHAR405
PHAR420	Physical Pharmacy	3	PHAR300 - PHAR250 - ENGL350	
PHAR405	Pharmaceutical Analysis & Biotechnology	2	CHEM300	PHAR405L
BIOC310	Medical Biochemistry	4	CHEM300 - CHEM250 - BIOL200	
Total		13		
Summer Semester				
Code	Title	Credits	Prerequisites	Corequisites
PHAR465	Interpretations of Lab Data	3	BMED445	
PHAR410	Drug Dosage Forms I	3	PHAR300	
PHAR505	Pharmacology I	3	PHAR400 - PHAR450	
PHAR455	Physical Assessment in Pharmacy Practice	3	PHAR300 - PHAR250 - ENGL350	
Total		12		
Third Year				
Fall Semester				
Code	Title	Credits	Prerequisites	Corequisites
PHAR470L	Drug Dosage Form II Lab	1		PHAR470
PHAR555	Pharmacology II	3	PHAR505	
PHAR425	Pharmacognosy & Herbal Medicine	3	PHAR410	
PHAR470	Drug Dosage Form II	3	PHAR410	PHAR470L
Total		10		
Spring Semester				
Code	Title	Credits	Prerequisites	Corequisites

PHAR575	Pharmacology III	3	PHAR555	
MATH245	Statistics for Health Sciences	3		PHAR300
PHAR460	Pharmacy Management & Drug Marketing	3	PHAR455 - PHAR300	
PHAR590	Clinical Immunology	2		PHAR575
PHAR510	Biopharmaceutics & Pharmacokinetics	4	PHAR410	
Total		15		
Summer Semester				
Code	Title	Credits	Prerequisites	Corequisites
PHAR520	Therapeutics II (Pulmonary/Rheumatology)	3	PHAR505	PHAR555
PHAR515	Therapeutics I (Neurology/Psychiatry)	3	PHAR505	PHAR555
PHAR560	Pharmacogenomics	3	PHAR555 - PHAR505	
PHAR610	Toxicology	3	PHAR575	
Total		12		
Fourth Year				
Fall Semester				
Code	Title	Credits	Prerequisites	Corequisites
PHAR570	Therapeutics IV	3	PHAR555	PHAR575
PHAR565	Therapeutics III	3	PHAR555	PHAR575
ENGL250	Technical writing	3	ENGL200	
PHAR615	Therapeutics V	3	PHAR575	
Total		12		
Spring Semester				
Code	Title	Credits	Prerequisites	Corequisites
PHAR620	Therapeutics VI	3	PHAR575	
PHAR640	Clinical Pharmacy	3	PHAR480	PHAR580
PHAR630	Therapeutics VII	3	PHAR575	
Total		9		
Summer Semester				
Code	Title	Credits	Prerequisites	Corequisites
PHAR650	Pharmacy Dispensing Lab	2	PHAR630	PHAR480 - PHAR606
CULT200	Introduction to Arab - Islamic Civilization	3		

PHAR480	Pharmacy Practice Experience I (PPEI)	6	PHAR250 - PHAR300 - PHAR455	PHAR650 - PHAR606
Total		11		
Fifth Year				
Fall Semester				
Code	Title	Credits	Prerequisites	Corequisites
PHAR656	Pharmacy Law	1		PHAR580
PHAR606	Non Prescription Drugs	3		PHAR650 - PHAR480
ARAB200	Arabic Language and Literature	3		
PHAR625	Pharmacoeconomics	3	PHAR575	PHAR580
Total		10		
Spring Semester				
Code	Title	Credits	Prerequisites	Corequisites
HUMN210	Human Rights Global Perspective	3		
ENGL350	English Communication Skills	3	ENGL200	
PHAR500	Pharmacy Elective I	3	PHAR575	
PHAR585	Pharmacy Seminar	1	PHAR575	
Total		10		
Summer Semester				
Code	Title	Credits	Prerequisites	Corequisites
PHAR580	Pharmacy Practice Experience II (PPE II)	6	PHAR575	PHAR640
PHAR550	Pharmacy Elective II	3	PHAR575	
Total		9		

متطلبات القبول في البرنامج Admission Requirements:

يشترط لقبول التحاق الطالب في البرنامج ما يلي:

1. شهادة الثانوية العامة الاصل وطبق الاصل
2. صورة الجواز او البطاقة الشخصية
3. خمس ه صور 4 * 6
4. خريجي المحافظات الجنوبية اصل الثانوية العامة معتمدة من وزارة التربية والتعليم (+ شهادة تاسع - اول ثانوي - ثاني ثانوي .
6. خريجي العام الدراسي 2021 - 2022 م المطلوب بيان مؤقت من الكنترول .
7. خريجي الشهادات الصادرة من خارج اليمن اصل الشهادة معادلة من وزارة التربية والتعليم (الكنترول)
8. اجتياز اختبار القبول المحدد قبل الجامعة
9. اجتياز اختبار اللغة الانجليزية المحدد من قبل الجامعة

10. صورة الإقامة للطالب الغير يمني (مجددة لنفس العام)

الإمكانات المطلوبة لتنفيذ البرنامج

مصادر التعليم والتعلم المتعلقة بالبرنامج:

- The library
- Electronic library
<https://www.liu-elibrary.com/>

المعامل والتجهيزات والادوات والمواد التعليمية

- Laboratories (pharmacy, chemistry & Microbiology)
- virtual pharmacy
- Dispensing lab
- Buildings (Classroom, Data show)
- Hospitals and pharmacies (training)

تقويم البرنامج وتحسينه Program evaluation and improvement

العينة Sample	طريقة التقويم Assessment method	الفئة المستهدفة Targeted
جميع طلبة السنة النهائية	استبيان للطلبة السنة النهائية	طلاب ما قبل السنة النهائية
- جميع الخريجين	استقصاء سنوي	خريجي البرنامج
جميع طلاب التدريب في المستشفيات والصيدليات	استقصاء سنوي	الطلاب في مراحل التدريب السريري المستشفيات والصيدليات
عينة من الاستبيان	استبيان	جهات التوظيف

The School of Pharmacy & Biomedical science Major: Clinical Pharmacy Course Description

Core Requirements			
Code	Title	Credit	Course Description
BIOC310	Medical Biochemistry	4	Medical Biochemistry is designed to present the basics of biochemistry, thus including a study of structure of amino acids, carbohydrates, lipids, proteins, vitamins, and nucleic acids, in addition to their metabolism, it also imparts knowledge about the catalytic role of enzymes, their structure, kinetic and mechanism of action, bioenergetics, membranes and signaling systems, integration and regulation of the major metabolic pathways, nitrogen metabolism, myoglobin, hemoglobin, and hemostasis, with emphasis on the biochemical basis of human disease
BIOL200	General Biology I	3	This course aims to provide students with basic information of living system organizations, energy transfer and continuity of life. The topics include: biological history; structure and functions of cells and cellular organelles; transport across cell membrane; cell division; general biochemistry; and DNA structure. This course has both a lecture and laboratory component.
BIOL200L	General Biology I Lab	3	This lab course introduces principles of microscopy with emphasis on viewing different animal tissues and cells, in addition to experimentation related to the concepts discussed in BIOL 200.
BIOL360	Human Physiology & Anatomy	4	The course examines the basic concepts of structure and function of the human body. Processes of cardiovascular, respiratory, nervous, digestive and reproductive body systems will be surveyed. Organ systems will be discussed using models and other lab materials. Human Anatomy & Physiology, therefore, covers the structure and functioning of the human body. The course begins with an introduction to the human body and the key chemistry concepts needed to understand its processes. Each of the nine systems of the body is covered in detail. One major dissection is done at the beginning of the year to familiarize students with the internal structure of mammals. Other laboratory experiences are provided related to the body system being studied.
BIOL360L	Human Physiology & Anatomy Lab	1	In this lab students learn how to use anatomical terminology and body position. Also they study the appendicular and axial skeleton, and joints. In addition, students perform dissection of the heart, brain, kidneys... and of whole animal. Also students study reflexes and muscle twitching in frog. The primary objective of this lab is to help Biology and Pharmacy students master the basic concepts of Human Anatomy. The different lab sessions avoid rote memorization and help maintain a high level of interest in understanding the fundamentals of human anatomy by using charts, models, dissection as well as laboratory reports.
BIOL385	Microbiology	3	In this course you will be introduced to the world of microbiology in terms of classification, identification, pathogenic effects, and beneficial effects as applications in food industry and to principles of culturing, isolation, enumeration and identification of different

			microbes. Also, you will have the chance to discover examples of different groups and species of microorganisms that have direct impact on human health.
BIOL385L	Microbiology Lab	3	In this lab students learn how you use microbial culture, staining techniques, disinfection, and sterilization. Isolation of a culture of some normal flora and a survey of parasites are included. Use various metabolic reactions in the identification and classification of organisms. This Microbiology laboratory is a two hour a week laboratory course with experiments.
BMED445	Pathophysiology	3	This course studies the mechanisms, etiologies, risk factors and complications of diseases processes. It emphasizes on the clinical signs and symptoms, history, prognosis and epidemiology of diseases. Study of pathological imbalances including cellular adaptation and injury, fluid compartment exchanges with edema and dehydration, electrolyte functions, control and imbalances, acidosis and alkalosis, nervous system injuries and responses, sensory imbalances, skeletal system injury and repair, soft tissue injury and repair, and muscle injury and dysfunction.
CHEM200	General Chemistry	3	This course covers the basic principles of Chemistry. An in-depth study of electronic structure chemical of atom, periodicity, chemical bonding and molecular structure. Chemical equilibrium will focus mostly on acid base, redox reactions and other complex ionic equilibria followed by many solution reactions such as precipitation of buffers. The final part of this course describes the basic principles of thermodynamics of various states of matter, electrochemistry, and the kinetic aspects of chemical reactions.
CHEM200 L	General Chemistry Lab	3	The laboratory work involves hands-on experience with chemical systems. Experiments include basic calorimetry, a limited qualitative and quantitative analysis scheme, properties of gases, acid-base and redox titrations.
CHEM205	Quantitative Analysis	2	This course covers methods associated with quantitative analytical techniques. It emphasizes the quantitative determination of substances using spectroscopic analysis, analytical separations, chromatography, and electrochemical methods: potentiometric, voltammetry, and coulometer. Laboratory stresses use of methods and instrumental techniques for quantitative chemical analysis
CHEM205 L	Quantitative Analysis Lab	1	This Lab course covers methods associated with quantitative analytical techniques. It emphasizes the quantitative determination of substances using spectroscopic analysis, analytical separations, chromatography, and electrochemical methods: potentiometric, voltammetry, and coulometry. Laboratory stresses use of methods and instrumental techniques for quantitative chemical analysis.
CHEM250	Organic Chemistry I	3	This course will focus on laying the fundamental principles of Organic chemistry. We will analyze in depth the theory of chemical bonding, molecular structure and physicochemical properties in organic chemistry. We will cover also the acidity and basicity, inductive effect, stereochemistry and nucleophilic substitution (SN1,SN2, E1 and E2) concepts and applications. These principles will be applied to the chemistry of alkanes, alkyl halides, alcohols, ethers and alkenes in the first semester of organic chemistry.
CHEM300	Organic Chemistry II	3	This course will continue the study of the fundamental principles of Organic chemistry started in CHEM 250. We will analyze in depth the theory of chemical bonding, molecular structure and physicochemical

			properties of aromatics and their reactions such as aromaticity and electrophilic aromatic substitution. The chemistry and properties of other functional groups such as aldehydes, ketones, carboxylic acids and amines and their derivatives. The final part of this course will focus on spectroscopy and structure of organic compounds
CHEM300L	Organic Chemistry Lab	1	Is a laboratory course to teach the students several common organic chemistry techniques. Emphasis is placed on experimental precision and accurate results as well as safe laboratory procedures. This laboratory course is for students with good aptitude for synthesis in organic chemistry and who want to learn the preparation, isolation, and identification of organic compounds. Students will have also the opportunity to explore interesting areas of organic chemistry and work more independently on the laboratory.

Major Requirements

Code	Title	Credit	Course Description
PHAR200	Introduction to Drug Information	2	This course introduces students to basic principles of drug information including, medical terminologies, and drug monograph. In addition, students will learn how to identify the different parts for the (SOAP note). The course also provides students with the knowledge to write drug consults and drug utilization review. The course will help students to recognize the different literature resources available, different types of a study design and apply basic biostatistics calculations.
PHAR250	Pharmacy Practice, History & Ethics	3	This 3-credit course emphasizes upon the historical background and major milestones in the evolution of pharmacy from apothecaries to clinical pharmacy. The first part for this course deals with pharmacy history present and future. The second part deals with pharmacy practice including major medical terms and abbreviations, function for international pharmaceutical organizations and overview about drug classes and dosage forms. The last part deals with ethical principles governing patient–pharmacist relationship.
PHAR300	Pharmaceutical Calculations	2	This course provides the pharmacy student with the knowledge and skills needed to mix medications to obtain concentration/dose, to convert measurements from the metric system to the apothecary system and vice versa, to calculate doses needed for pediatrics or adults, to mathematically adjust medication doses in case of renal or hepatic compromise, and to interpret correctly standard abbreviations and symbols used in prescriptions and medication orders
PHAR400	Medical Chemistry I	3	This course will introduce the principles of medicinal chemistry which deals with the physicochemical properties of drugs that affect their therapeutic applications. Discussion will include the chemical stability, dosage form, synthesis and biotransformation pathways, absorption and structure-activity relationship (SAR) of pharmaceutical agents. During this course, factors like the chemical, stereochemical and physical properties of certain classes of drugs will be emphasized. The drug classes will include the following: drugs affecting cholinergic, adrenergic, and serotonergic neurotransmissions, general and local anesthetics.
PHAR405	Pharmaceutical Analysis & Biotechnology	2	The course introduces the fundamental principles of modern instrumental methods used in pharmaceutical analysis, including the theoretical background and calculations needed, with their applications for identifying, separating and quantifying drugs.

			Instrumentation discussed within this course fall into: Spectroscopic methods (UV-Visible, IR and Atomic Absorption), chromatographic methods (TLC, HPLC and GC), and electroanalytical methods.
PHAR405 L	Pharmaceutical Analysis & Biotechnology Lab	1	The course provides the students with practical experience of the instrumental methods used in pharmaceutical analysis; including UV-visible spectrophotometry, chromatographic methods (column, TLC and HPLC), polarimetric assays, conductometric titrations and enzymatic methods. The course also presents the underlying principles guiding the instrument operation, instrument components, and the nature of the data generated by the instrument for each method discussed. Moreover, the course covers the basic principles in data analysis, error analysis and calibration.
PHAR410	Drug Dosage Forms I	3	This course introduces the students to the different types and preparation of pharmaceutical dosage forms encountered in pharmacy practice. Solid dosage forms, semisolid dosage forms, and transdermal drug delivery systems will be covered in this course. This course relates the basic scientific background to pharmaceutical practice regarding the dosage forms preparation and quality control.
PHAR420	Physical Pharmacy	3	This course helps in understanding the fundamental physicochemical principles relating to the design of pharmaceutical dosage forms by focusing on solubility, dissolution, distribution, diffusion principles, liquids, colloids, and thermodynamics
PHAR425	Pharmacognosy & Herbal Medicine	3	The course introduces students to natural products and other bioactive molecules from nature, their origin, identification, development, and usage. Furthermore, it identifies the chemical structure, classes and structure-- - activity relationships of natural products. Moreover the course identifies the importance of natural products as major ingredients used within drug manufacturing.
PHAR450	Medicinal Chemistry II	3	This course helps the students to explore the principal classes of prescription drugs including neurologic, anesthetic, analgesic, anti-inflammatory, anti-bacterial, and cardiovascular agents. It will also familiarize the students with the indications of neurologic, anesthetic, analgesic, anti-inflammatory, anti-bacterial, and cardiovascular agents, along with their related pharmacokinetics, pharmacodynamics and pharmacological profile.
PHAR455	Physical Assessment in Pharmacy Practice	3	This course introduces the student to the physical examination process. The student will assist in assessing vital signs and other common physical exams done in inpatient and outpatient settings in order to maximize patients' medical therapies. The course will include laboratory session where students practice use of basic medical devices and vital signs measurement assessment.
PHAR460	Pharmacy Management & Drug Marketing	3	This course emphasizes on effective pharmacy management and marketing strategies. Management and marketing theories are explained thoroughly and their application in the market place. Social, governmental laws and economical differences between cultures have impact on marketing and management theories and their implementations.
PHAR465	Interpretations of Lab Data	3	The course stresses on common laboratory data used to diagnose diseases or to monitor drug therapy effectiveness and toxicity. Students will learn the biochemical significance of each clinical test in relation to diseases and drug treatment.
PHAR470	Drug Dosage Form II	3	This course is the second part of the dosage forms courses which serve to introduce the students to the different types and preparation of pharmaceutical dosage forms encountered in pharmacy practice.

			Suppositories, liquids, disperse systems, pulmonary delivery systems, and sterile dosage forms will be covered in this course. This course relates the basic scientific background to pharmaceutical practice regarding the dosage forms preparation and quality control.
PHAR470 L	Drug Dosage Form II Lab	1	This one-credit course is the practical part of the two series of dosage form courses (PHAR410, PHAR470) that deal with different formulations and drug delivery systems focusing on the rational and the significance of each dosage form. The course will help the students to acquire the skills in preparing different dosage forms in the lab based on guidelines and pharmacopeias.
PHAR480	Pharmacy Practice Experience I (PPEI)	3	This course is part of a series of practice experience courses which introduces students to the philosophy and practice of pharmaceutical care, including patient counseling, monitoring plans, and patient outcomes, with emphasis on the role of the pharmacist as the primary manager of patient drug therapies. Students are also required to spend one month training in the Drug Information Center to practice their role as drug information provider for the public and other healthcare professionals
PHAR500	Community Pharmacy	3	This course aim provides skills in a community pharmacy setting and is designed for the pharmacy student to actively participate in a supervised program of pharmacy practice. Students gain experience by applying their didactic learning in the pharmaceutical sciences in resolving problems that arise during the delivering pharmaceutical services for outpatients. This practice experience emphasizes on the managerial tasks of the pharmacist ranging from medication selection and order, proper handling and dispensing of controlled substances, appropriate filling and maintaining patient profiles, and patient
PHAR505	Pharmacology I	3	This course introduces the underlying principles of pharmacology and provides an overview of the physiological, biochemical, and anatomical foundations for the interaction of drugs and chemicals with biological systems. The course includes a systematic study of the effects of drugs on different organ systems and disease processes, the mechanisms by which drugs produce their therapeutic and toxic effects, and the factors influencing their absorption, distribution and biological actions.
PHAR510	Biopharmaceutics & Pharmacokinetics	3	This course introduces the students to the concepts of biopharmaceutics, and pharmacokinetics. The processes of absorption, distribution, metabolism, and excretion of drugs are discussed with the purpose of improving the evaluation of drug delivery systems and the therapeutic management of patients. The relationship among physiology, pharmacokinetics and pharmacodynamics is explored to help understand clinical variability to drug response. The student will be able to understand the concepts, origins, calculations, applications and limitations of kinetic concepts.
PHAR515	Therapeutics I (Neurology/Psychiatry)	3	This course is the first of a series of 7 courses of therapeutics that focus of identifies the pathophysiology, etiology, risk factors and signs and symptoms of most common neurologic and psychiatric disorders. It provides the nonpharmacologic and pharmacologic treatment options according to evidence-based guidelines. It introduces the students to the application of pharmacologic and pharmacokinetic parameters, and description of factors that would guide the selection of the best treatment options. It also familiarizes the students with how to evaluate the treatment therapy for psychiatric and neurologic

			diseases through highlighting on the monitoring parameters and important medications' adverse effects. The student will apply problem-solving strategies to patient-oriented cases and will develop patient treatment plan.
PHAR520	Therapeutics II (Pulmonary/Rheumatology)	3	This course identifies the pathophysiology, etiology, risk factors and signs and symptoms of most common Pulmonary/Rheumatology Disease. It provides the non-pharmacologic and pharmacologic treatment options according to evidence-based guidelines. It introduces the students to the application of pharmacologic and pharmacokinetic parameters, and description of factors that would guide the selection of the best treatment options. It also familiarizes the students with how to evaluate the treatment therapy for Pulmonary/Rheumatology Diseases through highlighting on the monitoring parameters and important medications adverse effects. The student will apply problem-solving strategies to patient-oriented cases and will develop patient treatment plan.
PHAR550	Senior Project	3	The senior project is a core component of the curriculum, and must be performed to fulfil the graduation requirements. In this project, a group of 3-5 students, with the help of a supervisor, develop an idea of clinical research as well as a data collection form. Then, students collect, analyze, and summarize the project data. After supervisor approval, the students write a draft of their work and submit it for discussion in the school. The final copy of the research is produced after applying the recommended corrections.
PHAR555	Pharmacology II	3	This course introduces the underlying principles of pharmacology and provides an overview of the physiological, biochemical, and anatomical foundations for the interaction of drugs and chemicals with biological systems. The course includes a systematic study of the effects of drugs on different organ systems and disease processes, the mechanisms by which drugs produce their therapeutic and toxic effects, and the factors influencing their absorption, distribution and biological actions.
PHAR560	Pharmacogenomics	3	This course is intended to provide 4th year pharmacy students , after a general background in Genetics, Cell and Molecular Biology, the general principles of pharmacogenomics of drug metabolism and its potential applications to tailor drug therapy, as well as the applications to patients care in few therapeutic areas.
PHAR565	Therapeutics III	3	This course is the third of a series of 7 courses of therapeutics that focus on diseases of various organ systems divided into modules. Within each module drug treatment of selected diseases is reviewed. An emphasis is placed on assessment, indications for drug therapy, selection of rational and safe drug therapy, identification of alternatives to drug therapy and patient monitoring. The student will apply problem-solving strategies to patient cases and develop patient care plans.
PHAR570	Therapeutics IV	3	This course identifies the pathophysiology, etiology, risk factors and signs and symptoms of most common endocrinologic and women's health related disorders. It provides STUDENT the non-pharmacologic and pharmacologic treatment options according to evidence-based guidelines. It introduces the students to the application of pharmacologic and pharmacokinetic parameters, and description of factors that would guide the selection of the best treatment options. It also familiarizes the students with how to evaluate the treatment therapy for endocrinologic and women's health related disorders

			through highlighting on the monitoring parameters and important medications adverse effects. The student will apply problem-solving strategies to patient-oriented cases and will develop patient treatment plan.
PHAR575	Pharmacology III	3	This course introduces the underlying principles of pharmacology and provides an overview of the physiological, biochemical, and anatomical foundations for the interaction of drugs and chemicals with biological systems. The course includes a systematic study of the effects of drugs on different organ systems and disease processes, the mechanisms by which drugs produce their therapeutic and toxic effects, and the factors influencing their absorption, distribution and biological actions
PHAR580	Pharmacy Practice Experience II (PPE II)	3	This course is part of a series of practice experience courses which introduces students to the philosophy and practice of pharmaceutical care, including patient counseling, monitoring plans, and patient outcomes, with emphasis on the role of the pharmacist as the primary manager of patient drug therapies. Students are also required to spend one month training in the Drug Information Center to practice their role as drug information provider for the public and other healthcare professionals
PHAR585	Pharmacy Seminar	3	This course involves meticulous selection of up-dated research and review articles that are pertinent to pharmacotherapeutics course topics that students are concurrently taking. Students are responsible for evaluating and critiquing original publications and review articles focusing on the weaknesses and strengths of the article and appropriately extrapolating the results to the proper patient population by evaluating the internal and the external validity of the article reviewed.
PHAR590	Clinical Immunology	3	The course aims to make students familiar with immune system structure, functions and immune system related diseases. The course contents include: types of immunity, immune cells and organs, humoral and cell-mediated immunity, hypersensitivity, autoimmune diseases, tumor immunology, transplantation immunology, and immunodeficiency disorders. The course will focus on the development of immune system and how it attacks pathogens but does not attack human cells as well as on human diseases which resulted either from abnormal immune responses such as hypersensitivity and autoimmunity or deficient immune responses as in immunodeficiency diseases.
PHAR606	Non Prescription Drugs	3	The purpose of this course is to teach the students a consistent and systematic approach used to meet the drug-related needs for patients with self-care concern and to promote the value of their guidance in selecting and monitoring treatment with nonprescription drug. This course focuses on increasing a patient awareness of the importance of consulting a pharmacist, not only when considering a drug for the first time but also when making subsequent purchases. Emphasis is placed on product selection, herbal medicines, vitamins, dietary supplements and appropriate patient consultation for each. Medical supplies and equipment's pertaining to pharmacy practice are also discussed.
PHAR610	Toxicology	3	This course presents the basic principles of toxicology including areas of toxicology, factors affecting toxicity in humans and disposition of toxins in human body. The course also provides students with knowledge about diagnostic measures and clinical management (i.e.

			stabilization of vital function and specific antidotal measures) of poisonings. Poisoning with common groups of chemicals (pesticides, metals, solvents and common drugs) will be presented including, mechanism of toxicity, sources of exposure, major clinical manifestation and methods of treatment.
PHAR615	Therapeutics V	3	This course identifies the pathophysiology, etiology, risk factors and signs and symptoms of Infectious Diseases. It provides the non-pharmacologic and pharmacologic treatment options according to evidence-based guidelines. It introduces the students to the application of pharmacologic and pharmacokinetic parameters, and description of factors that would guide the selection of the best antimicrobial treatment options. It also familiarizes the students with how to evaluate the treatment therapy for Infectious Diseases. through highlighting on the monitoring parameters and important medications adverse effects. The student will apply problem-solving strategies to patient-oriented cases and will develop patient treatment plan.
PHAR620	Therapeutics VI	3	This course is the sixth of a series of 7 courses of therapeutics that focus in pathophysiology of the most common cancer diseases, risk factors, prevention, and treatment approaches based on updated guidelines. An emphasis is placed on assessment, indications for drug therapy, selection of rational and safe Chemotherapy, identification of alternatives to drug therapy and patient monitoring. The student will apply problem-solving strategies to patient cases and develop patient care plans.
PHAR625	Pharmacoeconomics	3	This course introduces basic concepts in accounting useful to pharmacy practice as well as basic micro and macro-economic theories. Topics will focus on supply and demand analysis, inflation, balance sheets, income statement and other concepts necessary to achieve optimal financial management and meet national drug policies. This course teaches the students to evaluate health economic and clinical outcome researches and to apply pharmacoeconomic analysis in clinical practice.
PHAR630	Therapeutics VII	3	This course identifies the pathophysiology, etiology, risk factors and signs and symptoms of selected diseases. It provides the non-pharmacologic and pharmacologic treatment options according to evidence-based guidelines. It introduces the students to the application of pharmacologic and pharmacokinetic parameters, and description of factors that would guide the selection of the best treatment options. It also familiarizes the students with how to evaluate the treatment therapy for selected diseases through highlighting on the monitoring parameters and important medications adverse effects. The student will apply problem-solving strategies to patient-oriented cases and will develop patient treatment plan.
PHAR640	Clinical Pharmacy	3	The aims of this course are to demonstrate, through learning environment, how to assess individual patient and population drug-related needs and develop a plan to meet those needs. The student will successfully perform a comprehensive patient assessment while being patient-centered and empathetic by identifying drug therapy problems and evaluating drugs for indication, effectiveness, safety, and convenience. The student will be able to develop individualized and clinically appropriate care plans for a patient and appropriately

			educate patients on their drug therapy and assess for patient understanding through effective communication
PHAR650	Pharmacy Dispensing Lab	2	This course focuses on the clinical aspect of pharmacy as well as its practices. Each student will be working individually from his pharmacy station in the dispensing lab. Some students will be placed in pharmacy settings created at the University while others will play the role of patients. Dispensing practices, counseling and checking for drug interactions and other pharmacy practices will be applied in this course so that the student will be evaluated for clinical and practical skills upon graduation. A counseling session will take place at the end of each laboratory session.
PHAR656	Pharmacy Law	1	This class provides an introduction to the scope and authority of programs, which relate to the legal and ethical practice of pharmacy. The focus is on a conceptual understanding of regulatory agencies and how pharmacy practically and ethically interacts with them.

General Education Requirements

Code	Title	Credit	Course Description
ARAB200	Arabic Language and Literature	3	This course is a comprehensive review of Arabic Grammar, Syntax, major literature and poetry styles, formal and business letters.
COMM105	Essentials of Mass Communications	3	The course is designed to improve the communication skills of the student. Topics covered are: group communication, organizational communication, cross culture and leadership communication and communication ethics. this course enhances the public speaking and presentation skills
CSCI100	Basic Computing Skills	3	Learn basic computer skills with topics including hardware, application and system software. The course aims at making students competent in computer-related skills. It is supposed to develop basic computer knowledge by providing an overview of the computer hardware and basic components of the computer such as inputs, outputs and storages as well as the differences between the operating systems and application programs. There is an interest in this course in making the students competent in Internet and its uses too. This course also provides a practice on common software applications such as MS-Word, MS-PowerPoint and internet/E-mail technology using MS-Outlook.
CSCI200	Introduction to Computers	3	Learn advanced computer concepts with topics including digital security, networking, communications, operating systems, database management, programming languages, information systems development and career opportunities in computer field and computer trends. This course also provides a hands-on practice on common software applications such as, spreadsheet applications (MS-Excel), Database applications (MS-Access) and simple view of programming language.
CULT150	National Culture	3	This course discusses several topics such as citizenship, Islam, Yemen before Islam, Yemen during Islam, challenges facing Yemen, and unity.
CULT200	Introduction to Arab - Islamic Civilization	3	The aim and purpose of this course is to investigate Arab-Islamic civilization by focusing on two major aspects, namely the intellectual and cultural aspects by calling attention to the achievements and contributions made by the Arabs and Islam to the civilization of East and West.

ENGL150	English Composition & Rhetoric	3	ENGL150 is mainly about how to write paragraphs. In addition to capitalization rules, punctuation rules and subject–verb agreements, students in this course learn how to write different kinds of sentences correctly. They learn three types of sentences: simple sentences, compound sentences and complex sentences. Then they learn how sentences are combined to make paragraphs. They effectively practice writing topic sentences, supporting sentences and concluding sentences. Students, on the other hand, become aware of avoiding grave sentence errors such as fragments, run-ons and comma splices. ENGL150 is the major base for all writing courses needed for a university student. The writing courses which come after ENGL150 at the LIU are ENGL200, ENGL250 and ENGL350 and for all of them, it is crucial to know how to structure a complete sentence correctly.
ENGL200	Advanced English Composition & Rhetoric	3	ENGL200 is mainly about how to write essays. It comes directly after ENGL150 English Composition & Rhetoric which teaches students how to write paragraphs. Generally speaking, students who know how to write paragraphs well find this course a piece of cake, for an essay is a combination of paragraphs. As students in ENGL150 know what constitutes a paragraph, in ENGL200 they learn what constitutes an essay. They learn how to write different kinds of essays by practicing writing essays on a weekly basis. After students write essays in class, the teacher corrects those essays and gives them back to the students to re-write them without any errors. This way, students are going to improve their writing greatly. As ENGL150 is a prerequisite for ENGL200, ENGL200 is an inevitable requirement for ENGL250 Technical Writing and ENGL350 English Communication Skills. In other words, ENGL150, ENGL200 and ENGL250/ENGL350 have to be learned respectively.
ENGL207	English Reading skill	3	ENGL207 Basic Reading Skills is intended for students who need improvement in basic reading skills. It aims to help students develop basic reading skills, such as previewing and making predictions, scanning, skimming, making inferences, building powerful vocabulary and finding main ideas. Students are supposed to learn five units. Each unit is accompanied by vocabulary and comprehension exercises for consolidating the skills and for testing comprehension. The last part of the textbook includes three units and each unit has passages followed by practical multiple-choice questions. To make students enjoy reading, this course attempts to familiarize students with some basic speaking skills related to the reading topics.
ENGL250	Technical writing	3	This intermediate writing course is designed to teach students the academic skills needed to succeed in college and university content courses. It basically focuses on how to use the APA (American Psychological Association) and MLA (Modern Language Association) writing styles to do research. Students will have opportunities to effectively use these two international writing styles in paraphrasing paragraphs and summarizing articles in forms of paragraphs. Further, this course clarifies how to take short and long quotations according to the APA and MLA rules. Using the MLA and APA rules, students learn how to write in-text citations, bibliographies, works-cited and references All the LIU students, especially those who are interested in doing research papers, take this practical writing course to know how to paraphrase, summarize and quote something without committing plagiarism.

ENGL350	English Communication Skills	3	ENGL350 is a writing-speaking course which has two different complementary categories. The first category is the written skills based on particular writing techniques and the language structure. Students learn the writing processes at work. They learn how to write memos, faxes, emails, business letters, business proposals, effective short reports, resumes and job application letters. The second category is the oral category which is based upon listening and speaking skills. The course requires planning, organizing, illustrating and delivering individual and team presentations of different types and purposes using the relevant terminologies and proper visual aids. The presentations necessitate pre-prepared written documentations. The oral presentations focus on three different issues: speaking with confidence, analyzing the audience, and organizing a speech. The assessments should meet the requirements of the course and the students have to reach an acceptable spoken-written level to pass the course.
HUMN210	Human Rights – Global Perspective	3	This course will consider the development of human rights through the exploration of the problems of achieving human rights in developing societies. The course will focus its discussion on problems that occur in developing societies, diverse in their structures, resources, history, and aspirations. The courses aim will be to acquire insights and understanding of social, economic, cultural, legal, and political processes by which development and human rights advance or retract in various societies.
POLS440	The Arab Israeli Conflict	3	This course explores the causes, development, and implications of the Arab-Israeli conflict from its inception in the late 19th century until the present day.

وزارة التعليم العالي والبحث العلمي
الجامعة اللبنانية الدولية - صنعاء
كلية الصيدلة والعلوم الطبية
الصيدلة السريرية

Student Training Plan
خطة التدريب السريري لطلاب البكالوريوس
صيدلة سريرية

mcherfan

خطة التدريب السريري لطلاب البكالوريوس صيدلة سريرية

LEBANESE INTERNATIONAL UNIVERSITY

**SCHOOL OF PHARMACY & MEDICAL
SCIENCES**

Summer 2022



Bachelor of Clinical Pharmacy

Student Training Plan

خطة التدريب السريري

لطلاب البكالوريوس صيدلة سريرية

Pharmacy Practice Experience I (PHAR 480)

&

Pharmacy Practice Experience II (PHAR 580)

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Introduction:

Pharmacy Practice Experiences (PPE) is a two series internship, each extends over twelve weeks to be spent in a hospital pharmacy department, and in four clinical departments of a hospital. PPE are designed to provide students the opportunity to further develop their skills and knowledge base in clinical pharmacy practice and pharmaceutical care provision to patients with disease states that pharmacists are likely to encounter in their practices.

PPE reinforce and continue the development of skills and knowledge students received during the previous years. In addition, PPE provide students the opportunity to interact with various patient populations and healthcare professionals in a variety of settings. Students must work under the supervision of a licensed pharmacist or preceptor at all times during the PPE.

Practice Program Goals:

The goals and objectives of PPE are based on the competencies needed to fulfill the requirements of the bachelor degree of clinical pharmacy. Students must demonstrate a minimum level of proficiency by the end of each of the four clinical specialties in order to receive credit.

Preceptors may use these to devise their own goals and objectives for their rotations and work with students to incorporate individual student interests into goals and objectives.

At the end of PPE, the student will be able to:

- 1) Demonstrate a commitment to improve the care of patients in all aspects of hospital pharmacy practice.
- 2) Apply the pharmaceutical care model of practice in all aspects of drug therapy to individualize patient therapy.
- 3) Perform routine professional functions in all areas of hospital pharmacy practice.
- 4) Demonstrate an expanded knowledge base in the areas of institutional pharmacy practice, rational and economic use of drug therapy, and the role of drug therapies in the management of patients' medical problems.
- 5) Critically evaluate the medical and pharmaceutical literature when responding to drug information requests, and when applying new advances in therapy to the management of individual patient medical problems.
- 6) Communicate effectively with patients, other health care providers, and pharmacy department staff.
- 7) Provide effective education on drug therapy to patients, other health care providers, and pharmacy staff and students.
- 8) Demonstrate a commitment to continue self directed learning.

Course Description:

This internship is 24 weeks in length. In four weeks, the student will be under the direct supervision of a hospital pharmacist, where his major tasks will be accomplished within the hospital pharmacy premises. In the remaining 20 weeks the student will be attached rotationally to the healthcare team of four clinical departments, three of which are compulsory (internal medicine (IM) for 6 weeks, cardiac care unit (CCU) for four weeks, and intensive care unit (ICU) for 6 weeks), and an elective one for four weeks. In each rotation the student will be on the floors, by patient bedside and consulting charts under the supervision of the attendant and a registered nurse.

General Rules and Regulations

- Each student will spend a period of twelve weeks in hospital training.
- Each student will complete four clinical rotations and a hospital pharmacy attachment.
- Compulsory rotations are Cardiac Care Units (CCU), Intensive Care Unit (ICU), and Internal Medicine (IM)
- Elective rotation- one of the following, depending on availability: Pediatrics, Oncology, Endocrinology, Infectious Diseases.
- Selection of the elective rotations is tailored according to availability of the services and vacancies at that specific time.
- All students, in addition, should spend a three-weeks period in the hospital pharmacy.
- Preceptors prior to the commencement of the rotation will distribute students into different services with the cooperation of the hospital pharmacist and/or medical director.
- The student must be present five days per week, Saturday through Wednesday from 8:00 till 1:00.
- Preceptor reserves the right to visit the student at any time during rotation schedule with no prior notification.
- Each student is responsible **for two active cases per week** to be thoroughly assessed following the SOAP format discussed later.
- Each student should perform **five to seven** active patient **monitoring** and at least **two** documented **interventions** per week.
- All students are required to attend all seminars, presentations, and discussions held by their preceptors. Absence will affect the final grade and with each absence 5% of the grade will be deducted.
- Every student is expected to **clearly identify him/herself as a pharmacy student (not a pharmacist)**. The student should not hesitate to admit lack of knowledge in an area if a question is posed on him/her by any member of the health care team. However, he/she should have the curiosity to search and submit complete, unbiased, and current information about the request.
- **Attendance is mandatory**. The student must notify the preceptor **at least 24 hours** and get the approval before his/her absences. The preceptor will schedule a make-up for the lost day and extra hours after three are prohibited. Students with unexcused absences will be subject to strict actions deemed appropriate by the school. A 5% will be deducted from the grade for his first absence and withdrawal from the course for the second time.

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- The student must not accept financial compensation for his/her twelve-week rotation nor for any project required by the hospital as a part of the course.
- Student must exhibit a **professional appearance** both in manner and dress. They must adhere at all times to the standard dress code and wear their clean LIU white coat during rotation along with their nametag. This ensures a professional image of the student and the university. Students are NOT allowed to wear jeans nor casual wear, or to put on sport shoes.
- Male students must wear a shirt and a tie at all times (unless approved otherwise by the preceptor due to religious issues). Only long sleeves shirts are allowed.
- Female students must wear professional clothes and shoes where open shoes aren't allowed. Exaggerated makeup is not permitted.
- Any **violation** in the dress code will be **reported** to the clinical committee, which will take the appropriate action
- Criticism by preceptors should be viewed as a means of constructive advice or evaluation and not an embarrassment.
- The students should abide by the rules and regulations set by the hospital regarding parking procedures, log in/out, library and resource access and human resource requirements.
- Students are required to attend and participate in grand rounds, meetings, talks, and seminars conducted in their services especially those pertinent to pharmacy practice.
- Assignments, projects, presentations, and journal clubs should be completed and submitted on time according to a preset schedule with the preceptor. Any delay in assignments or failure to present on time (Maximum one day) will result in grade deduction on the current task. Otherwise, a **zero** will be granted on that work.
- Students shall maintain professional attitude when dealing with other members in the health care team. If a conflict arises, the student is required to report it to the preceptor. The latter will resolve any misunderstanding.
- The student must **keep confidential** all information pertaining to the patient's health and any other information of a personal nature.
- **Misbehaving** or un-respectful attitude towards the preceptor results in **dismissal** from the course.

Preceptors:

Asst. Prof. Dr. Abdullah Ahmed Al-Dahbali
Asst. Prof. Dr. Khaled Mohammed Alakhali
Dr. Mohammed Abdullah Kubas
Faiz khaled sakran, Pharm D
Zahra Faisal, PharmD

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Student Evaluation & Assessment:

- Student evaluation is an ongoing process in both PPE I and PPE II. Preceptors assess their students and provide their feedback orally whenever deemed appropriate and through a written evaluation at the middle and the end of the semester. Midpoint evaluation is essential as an alert to those not performing satisfactorily. Preceptors will pinpoint the deficiencies in each student's performance so that they can improve before the end of the clerkship.
- Evaluation is primarily based on academic performance including but not limited to decision-making process, knowledge, ethics and morality, and communication skills.

Grading Distribution

Case Discussions*	40%
PowerPoint Topic Presentation	20%
Case Monitoring	15%
Final	15%
Field Supervisor Evaluation	10%

*The hospital pharmacy rotation evaluation is part of the case discussion.

The passing grade in this course is **D**.

Rotations:

– Major rotations:

- Hospital Pharmacy- four weeks
- Internal Medicine- 6 weeks
- Intensive Care Unit- 6 weeks
- Cardiac Care Unit- 4 weeks

– Elective rotations: - four weeks

- Pediatrics
- Infectious Diseases
- Oncology
- Endocrinology

• Purpose

– Acquire

- Clinical skills
- Knowledge
- Competencies in pharmaceutical care provision on wide variety of acute and chronic settings

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- Goals
 - To reinforce the pathophysiology/epidemiology for common diseases
 - To get familiar with clinical practice guidelines/literature & develop clinical skills in order to individualize patient therapy
 - To provide effective patient education and counseling
 - To provide effective communication skills with the health care professional
 - To develop critical thinking, decision making, and professional skills to optimize patient outcomes
- Objectives
 - Assess patient subjective data
 - Assess patient objective data
 - Formulate the pharmaco-therapeutic plan
 - Evaluate the effectiveness of treatment
 - Determine dosage adjustment or alternative therapy
 - Identify cultural, economic, psychological, and communication barriers which may affect patient compliance
- Assignments
 - Review of tertiary, secondary and primary literature related to the case discussed
 - Submit assigned duties or readings by the preceptor
 - Discuss 2 cases per week and at least 7 active monitoring
 - Present a power point topic assigned by his/her preceptor
 - Sit for a written examination
- Activities
 - Conduct patient physical assessment, interviews and or counseling sessions
 - Attend daily round(s)
 - Evaluate patient information from medical charts, records, and laboratory tests
 - Cases and monitoring discussion daily with the preceptor
 - Participate in seminars, journal club evaluation or other hospital health care activities
 - Prepare medical talks and presentations for the health care team

Internal Medicine

- Parkinson
- Alzheimer
- Pain management
- Hypertension
- Peptic ulcer
- DVT prophylaxis /treatment
- Diabetes Mellitus
- Bowel disturbances
- Osteoporosis
- Asthma
- COPD
- CAP /HAP
- Meningitis

- Urinary tract infection
- Dyslipidemia
- Seizure

Cardiac Care Unit

- Cardiovascular testing
- Ischemic Heart disease
- Cardiopulmonary Resuscitation
- Myocardial infarction
- CHF
- Hypovolemic shock
- Acute Coronary syndromes
- Cardiac arrest
- Cardiomyopathy /Diastolic Heart failure
- Venous thromboembolism
- Peripheral artery disease

Intensive Care Unit

- Fluid and electrolytes disturbances
- Chronic renal failure and end stage renal disease
- Acute renal failure
- Upper gastrointestinal bleeding
- Lower gastrointestinal bleeding
- Respiratory failure/ARDS and mechanical ventilation
- Diabetes ketoacidosis
- Stroke
- Parenteral Nutrition
- Liver cirrhosis's
- Hospital acquired pneumonia
- Jaundice
- Multiple organ dysfunction syndromes
- Septic Shock

Pediatrics

- Vaccination
- Thalassemia
- Meningitis
- Gastroenteritis
- Pediatric Seizure disorders /Status epileptics
- Respiratory viral infection
- Malnutrition
- Upper respiratory tract infection
- Lower respiratory tract infection
- Acid reflux
- Asthma /Allergies

Oncology

- Nausea /Vomiting
- Oncological Emergencies
- Pain assessment and Management
- Prevention and treatment of gastrointestinal disturbances
- Hematological disorders induced by chemotherapeutic drugs
- Monitoring parameters for major chemotherapeutic drugs
- Handling cytotoxic medications
- Solid tumors
- Liquid tumor
- Multiple myeloma
- Hematopoietic Stem cell transplant
- *Solid tumors:*
 - Breast cancer
 - Prostate cancer
 - Testicular cancer
 - Colorectal cancer
 - Lung cancer
 - Ovarian cancer
 - Bone cancer
- *Liquid tumor:*
 - Leukemia
 - Lymphoma
 - Sickle cell disease

Endocrinology

- Diabetes Mellitus
- Thyroid Disorders
- Adrenal gland disease
- Pituitary gland disorders
- Diabetic Ketoacidosis
- Hyperosmolar State
- HTN in Diabetic patients
- Hyperlipidemia in Diabetic patients
- Diabetic Nephropathy
- Diabetic Retinopathy
- Foot Care
- Diabetic Neuropathy

Infectious Diseases

Central Nervous System Infections
Lower Respiratory Tract Infections
Upper Respiratory Tract Infections
Skin and Soft Tissue Infections
Infective Endocarditis

Gastrointestinal Infections
Sepsis
Urinary Tract Infections and Prostatitis
Bone and Joints Infections
Febrile Neutropenia

Case Presentation/ Discussion:

Purpose:

The purpose of the case presentation is to demonstrate an integrated pharmaceutical care approach that reflects both the student's pharmacotherapeutic knowledge and awareness of the unique patient condition that requires individualization of therapy. Proper retrieval and interpretation of patient subjective and objective data are essential in assessing accurate drug related problems and formulating an appropriate treatment plan with the proper follow-up and reassessment.

Case Selection:

Choose a case in which your intervention had significantly affected, or potentially will affect, the therapeutic outcome of the patient. It is preferable to select a patient with whom you can have a direct contact. This will enable you to assess patient's drug-related problems, goals of drug therapy, and outcome.

Note: The student must refer to the **(Attached SOAP format)** for detailed information on how to properly assess, fill, and document a patient case. This format serves to document the pharmacist's decisions and interventions in various pharmacy practices.

Guidelines for Case Presentations:

The facts of the case should be presented in approximately 10 minutes followed by an assessment of the treatment by relying on most updated guidelines and thorough discussion of the **drug-related problems (DRPs)** (an additional 30-40 minutes).

Suggested Case Presentation Format

1. Subjective Data
 - a. Patient Demographics (initials, age, gender, race)
 - b. Chief Complaint and History of Present Illness:
Why did the patient seek medical attention?
 - c. Past Medical History and Medications
List/review briefly the patient's past medical conditions (including dates), surgical procedures and medication management
 - d. Present Medical Conditions and Medications
Review the patient's current medical conditions and medications
 - e. Family/Social/Allergy/Compliance History
2. Objective data
 - a. General Appearance
 - b. Physical examination, Review of Systems
 - c. Relevant Laboratory Findings (where available, or applicable)
Include dates for lab investigations
 - d. Pinpoint abnormal values and make it relevant to patient present diagnosis

- e. Other diagnostic tests that could be done for the patient
- 3. Assessment Data
 - a. Diagnosis of present condition: Brief definition of the disease
 - b. Assess disease severity
 - c. Include risk factors for the disease and highlight specific RF for the patient
- 4. Plan Data:
 - a. Patient directed goals of therapy
 - b. Non-pharmacological treatment
 - c. Pharmacological treatment
 - Present treatment algorithm while relying on most updated guidelines
 - Present therapeutic alternatives (consider efficacy, SE, safety, compliance, cost, drug interactions, etc.)
 - Provide a patient specific recommendation from the list of therapeutic alternatives
 - Support your recommendation by randomized controlled trials
 - Compare your recommendations and assess appropriateness of patient treatment
 - Present a monitoring plan (response to therapy, signs and symptoms, Drug-Drug interactions, toxicities, side effects...)
 - Identify the Drug Related Problems
 - Prognosis and second line treatment in case of treatment failure
 - d. Patient counseling
 - e. Discharge plan

Patient Monitoring:

The student is required to:

1. Monitor 5-7 patients in the service he/she is in charge of, so that they can disclose to the team any information about a specific case when requested. **Attached Monitoring Format.**
2. Judge the pertinence of available information and determine the frequency and duration of monitoring to ensure proper drug therapy.
3. Monitor disease progression/regression in the patient using appropriate, relevant, and pertinent monitoring parameters.
4. Review medication administration records usually filled by the nurse as a critical source of drug monitoring information. Missed doses, drug interactions, incompatibilities, and other potential drug-related problems may be evident
5. Identify potential drug-drug, drug-food, drug-lab, and drug-disease interactions. The student shall describe the mechanism, significance, clinical manifestations, and strategies for recognition and prevention of such interactions.
6. Differentiate between baseline labs needed to forecast therapeutic effect/toxicity and monitoring labs, which aid in determining drug therapy effectiveness/toxicity.
7. Identify laboratory results, which apparently lack validity for a patient (i.e., Treat patients, not numbers), and determine when an abnormal laboratory value represents a new problem or an adverse drug reaction.
8. Make appropriate dosage adjustments for (a) acute treatment, (b) chronic treatment, (c) renal impairment, (d) hepatic impairment, (e) perfusion/circulatory impairment, and (f) other factors, and recognize the need for proper adjustments in drug therapy when parameters change.

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9. Identify factors influencing any unexpected response to therapy.
10. Properly document all findings, discuss any clinically significant information with the preceptor and, with approval, report this information to the patient's physicians and nurses and fill an intervention form (**Attached at the end**) when you detect less than optimal prescribed therapeutic regimen.

Journal Club:

Each student must present one recent article during his/her rotation. The article will be presented to the preceptor in the presence of the other students to ensure a group discussion and stimulate exchange of thoughts and ideas.

Student Topic Presentation:

Each student must present one topic in a PowerPoint presentation during his/her rotation. The topic will be assigned by the preceptor two weeks before the assigned date of the presentation. The student's presentations will be conducted by individual hospital sites in the presence of the other students to exchange thoughts and ideas.

Additional required tasks:

- Each student must provide a daily log in/out form signed by the pharmacist/attendant/nurse in charge. Refer to **Attached form**
- Each student must fill a weekly report that should be submitted to the preceptor by the end of each week. Refer to attached **weekly report format**
- Students must complete patient intervention forms provided at the end of this manual. A drug incident report must be filled in case of an adverse drug reaction or allergy incident.
- Each student is responsible to keep a rotation file that includes: all the monitoring conducted during the rotation, the intervention, the case presentations and any other activity. The rotation file should be submitted to the preceptor by the end of each rotation.
- Completion of the appropriate paperwork required by Lebanese Order of Pharmacists is the sole responsibility of the student. See **Attached form.**

ONLINE RESOURCES

- American Pharmacist Association www.aphanet.org
- The American Society of Health-System Pharmacists (ASHP) www.ashp.org
- U.S. Pharmacopeia www.usp.org
- U.S. Food and Drug Administration www.fda.gov/medwatch
- Centers for Disease Control www.cdc.gov
- The Clinician Ultimate Reference Guide www.globalrph.com
- Drug interactions checker http://www.drugs.com/drug_interactions.php
- Web site with common prescribing information <http://www.rxmed.com>
- Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (full report) <http://www.nhlbi.nih.gov/guidelines/hypertension/jnc7full.htm>
- National Guideline Clearinghouse <http://www.guideline.gov>
- High quality information about marketed drugs: <http://dailymed.nlm.nih.gov>

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- Clinical reference tool <http://www.ebscohost.com/dynamed/>

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Patient Database Worksheet
SOAP Format

Student name:

Demographic Information

Patient name:	ID number:
Age:	Physician name:
Weight:	Admission date:
Height:	Discharge date:
Ideal body weight:	Bed #:
BMI:	CrCl:
Race:	Nutritional status:
Gender:	Service:

Chief complaint:

History of present illness:

Past medical history:

Past surgical history:

Social/family history:

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Vaccination Status:

Vaccine type	Dates

Allergy/reaction history: Food, Dyes, Medications.....

Type of Allergy:

Description:

Past medications history (medication taken at home):

<i>Medication name</i>	<i>Indication</i>	<i>Strength/dosage form /Route</i>	<i>Dosing Schedule</i>	<i>Date Started/ Date Stopped</i>

Present medications history:

<i>Medication name</i>	<i>Indication</i>	<i>Strength/dosage form</i>	<i>Dosing Schedule (Fill Monitoring Sheet for present medications)</i>

Physical Exam

Review of System:

GEN: general appearance and health status

HEENT: head, ears, eyes, nose, throat

COR: cardiopulmonary exam

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ABD: abdomen

EXT: extremities

NEURO: neurological exam

PSYCH: mental status exam

Vital signs:

Vital signs	Day 1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9
Temperature									
Respiratory Rate									
Blood Pressure									
Pulse									

Chemistry Lab:

Lab data	Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9
Na									
K									
Cl									
Mg									
Cr									
GLU									
AST									
LDH									
ALT									
BUN									
HCO3									
BILI									
ALB									
LDL									
HDL									
LDL									
TG									
INR									
CPK									
Uric Acid									
APTT									
CO2									

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Hematology Lab:

Lab data	Day 1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9
WBC									
Hg									
Hct									
SEG									
Platelet									
EOS									
MON									
LYM									
RBC									

Microbiology lab:

Date	Site of culture	Culture result

Antibiogram Results:

Problem List:

Current Disease Conditions	Treatment
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

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SOAP:

Subjective:

Objective:

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Lab Value	Normal Range	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Hg/Hct								
RBCs								
WBCs								
Neutrophils								
Lymphocytes								
Platelets								
Sr Cr/Cr clearance								
BUN								
Na ⁺ /K ⁺								
Ca ²⁺ /Mg ²⁺								
SGOT/SGPT								
Albumin/globulin								
Total cholesterol								
HDL								
LDL								
TG								
FBG								
HbA1C								
Uric acid								
Troponin								
CK-MB								
INR								
PT/aPTT								
Others; specify								

Vital Signs

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
BP							
RR							
Temp							
HR							

Urine Analysis

Color	
Specific gravity	
RBCs	
WBCs	
Nitrate	
Others; specify	

Microbiology Lab Results

Color	
Specific gravity	
RBCs	

Stool Analysis Results: _____

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Pharmacy Practice Experience I/II

Weekly Activities Report Form:

Student Name: _____

Date: _____

Rotation: _____

Hospital: _____

WEEK: ____	Topics and Comments
Cases Prepared	1. 2.
Cases Discussed with preceptor	
Monitoring	
New Things Learned	1. 2. 3. 4.
Other Activities (Talk, grand round....)	

Preceptor Signature:

Student Signature:

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Pharmacy Practice Experience I/II

Medication Intervention Form

Student Name: _____ Physician: _____ Patient Initials: _____ Service: _____	Source: 1: Written prescription 2: Verbal Order 3: Phone Order	Accepted: 1: Yes 2: No
--	---	------------------------------

Type of Intervention			
Allergy/disease State Contraindications -Acetaminophen allergy -Aspirin allergy -Penicillin allergy -Cephalosporin allergy -Sulfa allergy -Morphine/meperidine/ codeine Allergy -Others: _____	Therapeutic Consultation -Adjust dose -Adjust frequency or duration -Change to more effective drug -Check labs -Disease state recommendation -Pharmacokinetics consult -Pain management consult -Others: _____	Duplicate/unnecessary Therapy -Duplicate forms of the same medication -Duplicate of two medications with same efficacy -Unnecessary therapy	Order Clarification -Clarified poor physician handwriting -Clarified dosage form -Clarified drug -Clarified frequency or duration -Clarified indication -Clarified strength -Others: _____
Alternate Route -Oral to _____ -Rectal to _____ -IM to _____ -IV to _____ -SC to _____ -Topical to _____ -Others: _____	Renal Excreted Drug Monitoring -Dose adjustment Hepatically Metabolized Drug Monitoring -Dose adjustment	Formulary Conversion -Convert from non- formulary/non available to formulary -Convert to more cost effective drugs -Others: _____	Interaction/ Compatibility -IV compatibility -Drug-Drug interaction -Drug-Herbal interaction -Drug-Disease interaction -Others: _____

Summary of Intervention

Describe a brief scenario of what happened and what the action/correction was

Intervention Supervised and Approved by (name and signature)

Case Discussion Evaluation Form

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Student name:

Preceptor name:

Case topic:

Date:

Grade/100:

1= unacceptable; 2= poor; 3= acceptable or good; 4= very good; 5= excellent

Subjects (15 points)					
• Identified and collected the necessary data	1	2	3	4	5
• Categorized and organized data using the appropriate format	1	2	3	4	5
• Incorporated all relevant data/facts	1	2	3	4	5
Objective (15 points)					
• Identified and collected necessary data	1	2	3	4	5
• Categorized and organized data using the appropriate format	1	2	3	4	5
• Incorporated all relevant data/facts	1	2	3	4	5
Assessment (40 points)					
• Filtered relevant data from irrelevant data	1	2	3	4	5
• Collected and organized all appropriate patient or drug-related information	1	2	3	4	5
• Identified missing or incomplete data	1	2	3	4	5
• Identified a complete problem list	1	2	3	4	5
• Assessed each problem	1	2	3	4	5
• Evaluated appropriateness of drug therapy	1	2	3	4	5
• Evaluated all drug therapy, based on efficacy and SE	1	2	3	4	5
• Assessed need for current or additional medications	1	2	3	4	5
• Used critical thinking and problem solving skills	1	2	3	4	5
• Selected resources that are accurately relevant	1	2	3	4	5
• Applies best evidence to individualize patient therapy	1	2	3	4	5
• Answered questions properly	1	2	3	4	5
Plan (30 points)					
• Included desired therapeutic goals/endpoints	1	2	3	4	5
• Recommended an appropriate plan for each problem	1	2	3	4	5
• Included recommendations for drug therapy	1	2	3	4	5
• Included recommendations for non-drug	1	2	3	4	5
• Included recommendations for monitoring	1	2	3	4	5
• Justified proposed plan	1	2	3	4	5
• Presented in an organized, logical manner	1	2	3	4	5

Presentation Evaluation Form

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Student names:

Presentation topic:

Date:

Grading system:

1=unacceptable; 2=poor; 3=acceptable or good; 4=very good; 5= excellent or outstanding

I. Content 55%					
1. Presentation objectives					
a. Clearly presented	1	2	3	4	5
b. Attracted the audience attention	1	2	3	4	5
c. Accurate and to the point	1	2	3	4	5
2. Presentation organization					
a. Flowed logically	1	2	3	4	5
b. Well organized	1	2	3	4	5
c. Precise and confined to topic	1	2	3	4	5
d. Clear introduction and conclusion	1	2	3	4	5
e. Appropriate use of allowed time	1	2	3	4	5
3. Presentation material					
a. Attractive and reflective introduction	1	2	3	4	5
b. Deep complete information presented	1	2	3	4	5
4. All essential parts were discussed:					
c. Disease background	1	2	3	4	5
d. Non-pharmacologic treatment	1	2	3	4	5
e. Pharmacologic treatment	1	2	3	4	5
f. Focus was made on the pharmacologic treatment	1	2	3	4	5
g. Use of appropriate studies (by number and content)	1	2	3	4	5
h. Appropriate case presentation and solving	1	2	3	4	5
i. Summarized and reflective conclusion	1	2	3	4	5
j. Clinical recommendation made at the end	1	2	3	4	5
k. Good use of references	1	2	3	4	5
II. Review of primary Literature (10%)					
1. Appropriate presentation of the literature	1	2	3	4	5

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2. Appropriate evaluation of the literature	1	2	3	4	5
3. Relevant to the topic of interest	1	2	3	4	5
II. Presentation appearance 10%					
1. Use of small sentences	1	2	3	4	5
2. No spelling mistakes	1	2	3	4	5
3. Appropriate use of graphs and pictures	1	2	3	4	5
4. Overall elegant and professional appearance	1	2	3	4	5
5. Enthusiasm	1	2	3	4	5
III. Presentation delivery 10%					
1. Shows understanding of the topic and presentation content	1	2	3	4	5
2. Well prepared and organized	1	2	3	4	5
3. Clear and right to the point (vs. reading word by word)	1	2	3	4	5
4. Attracted the audience: did the audience follow the presentation; did the audience understand the article content...	1	2	3	4	5
IV. Answering questions 5%					
1. Extent of correct answers	1	2	3	4	5
2. Complete answers	1	2	3	4	5
3. Answers are logically presented	1	2	3	4	5
4. Answers showed expended knowledge in the topic	1	2	3	4	5
IV. Presentation & communication skills 10%					
1. Direct eye contact	1	2	3	4	5
2. Proper rate of speech	1	2	3	4	5
3. Appropriate pitch of voice	1	2	3	4	5
4. Absence of obvious nervousness	1	2	3	4	5
5. Smooth delivery: appropriate pauses, transition and follow of ideas	1	2	3	4	5

Student's Signature:

Instructor's Signature:

Journal Club Evaluation Form

Student name:

Preceptor name:

Article title:

Date:

Grading system:

1=unacceptable; 2=poor; 3=acceptable or good; 4=very good; 5= excellent or outstanding

I. Content 65%
General Evaluation 5%
1. Journal a. Classification/impact factors b. Background
2. Article title
3. Authors a. Relative background b. Number of authors identified c. Relative published articles
4. Presentation of abstract and references a. Brief (and not detailed) b. Summarized: study goals, method, results c. Reflective of content d. Evaluation of references
Introduction (10%)
5. Article introduction a. Introduction and interest in topic described b. Clear identification of the background c. Use of primary literature or other related articles d. Clear identification of the purpose e. Clear identification of the objective f. Clear identification of the hypothesis
6. Article method a. Study design described and understood b. Identification of sponsor(s) (relation of sponsor to drug therapy used and to study authors) c. Patients eligibility (inclusion/exclusion criteria) and their appropriateness d. Drug therapy accurately discussed and evaluated

- e. Listing of 1ry and 2ndry outcomes
- f. Identification of statistical methods
- g. Appropriate use of statistical methods

Results (20%)

7. Article Results

- l. Patient's baseline characteristics: how listed? Pin point important data...
- m. Drug therapy: complete or non-complete ; comparison to relative guideline/literature
- n. Primary and secondary outcomes
- o. Withdrawals and dropouts are discussed
- p. Student critically evaluated results presented in the paper
- q. Impact of statistical tests on data

Discussion (10%)

8. Study discussion

- a. Identify the authors comments
- b. List the authors mentioned strengths and weaknesses
- c. Identification of the authors conclusion

9. Student discussion

- a. Strengths and weakness of the study clearly identified and listed during the presentation
- b. Strengths and weakness of the study clearly summarized at the end of the presentation
- c. How study impacts clinical practice (external validity)
- d. Clinical recommendations is accurately made

II. Review of pertinent primary literature (5%)

- a. Other recent clinical trial relevant to the topic were discussed

III. Presentation appearance, delivery and communication skills (25%)

- 1. Use of small sentences
- 2. Overall elegant and professional appearance

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3. Appropriate use of graphs and pictures
4. Student did not read the presentation
5. Shows understanding of the article and its content
6. Well prepared and organized
7. Good vocabulary
8. Attracted the audience: did the audience follow the presentation?
9. Direct eye contact
10. Proper rate of speech
11. Appropriate voice quality, pitch of voice
12. Shows confidence, good posture and absence of nervousness
13. Smooth delivery: appropriate pauses, transition and follow of ideas

IV. Ability to answer questions (5%)

1. Answers are accurate
2. Answers are logically presented
3. Answers reflect student's understanding of material presented

Student's Signature:

Instructor's Signature:

Mid-point Evaluation Form

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Student Name:

Preceptor

Name:

ID#:

Date

Hospital:

1 = below expectations; 2 = Meet expectations; 3 = Exceed expectations; 4 = outstanding

	Midpoint Evaluation					Final Evaluation			
	1	2	3	4		1	2	3	4
Appropriate utilization of SOAP format									
Appropriate evaluation of drug therapy (case assessment)									
Appropriate development of therapeutic patient care plan									
Timely submission of assignments as requested by the preceptor &/or coordinator									
Demonstrates ethical behavior									
Demonstrates Professional behavior									
Demonstrates initiative									
Participating actively in rounds									
Patient drug monitoring and intervention									
Attendance									
Willingly receives feedback, seeks to improve									
Overall evaluation/ current status									

Strengths

Weaknesses:

Comments and recommendations:

This student evaluation was reviewed with the student

Preceptor Signature

Student Signature

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Physician Evaluation Form

Physician Name:

Student

Name:

Service Unit:

Hospital:

1= below expectations; 2= Meet expectations; 3= Exceed expectations; 4= outstanding; NA= not applicable

	1	2	3	4	NA
Participates actively in rounds					
Demonstrates collaborative spirit with the health-care team					
Cooperates with others					
Communicates effectively with patients when needed					
Reliable, dependable					
Demonstrates initiative					
Demonstrates ethical behavior and confidentiality					
Demonstrates Professional behavior					
Demonstrates pharmacologic knowledge (drug therapy, side effects, monitoring...)					
Appropriate evaluation of drug therapy					
Appropriate development of therapeutic patient care plan					
Answered/searched for the questions					
Timely submission of assignments when requested					
Provided the medical team with appropriate drug-related interventions					
Showed improvement					
Attendance					
Overall evaluation/ current status					

Strength, Weaknesses, and/or Comments

Physician Signature

Date

**LEBANESE INTERNATIONAL UNIVERSITY
SCHOOL OF PHARMACY
LEBANESE INTERNATIONAL UNIVERSITY
School of Pharmacy**

Preceptor Lectures Schedule:

**Cardiology, Endocrinology & Infection
Summer 2022**

Name of rotation	Topic	Duration	Student name	M+D	Preceptor's Name
Cardiology Disorders	HTN & Dyslipidemia Stable Ischemic Heart Disease Acute Coronary Syndrome Chronic Heart Failure Acute Decompensated Heart Failure Venous Thromboembolism The Arrhythmias	Three 2/7/2022- 27/7/2022	Nada Al ramah Najwa Alnaib Omer Mohammed Sala Alhakimi Yasmeen Alkholany	6 M &3 D Case Presentation	Dr.Faiz
Name of rotation	Topic	Duration	Student name	M+D	Preceptor's Name
Endocrinology Disorders	Diabetics mellitus Renal Failure Liver Disease Thyroid disease	Three 2/7/2022- 27/7/2022	Aqeel Abdulhak Areej Atef Eman Arhab Nabil Ahmed ali Althary Ezzaldeen Aldaery	6 M &3 D Case Presentation	Dr.KHALED
Infection	Lower Respiratory Tract Infections Upper Respiratory Tract Infections Urinary Tract Infections and Prostatitis Influenza Sepsis and Septic Shock	Three 2/7/2022- 27/7/2022	Jihad Saleh Al gohif Mohammed Almadani Mohammed Alshaibah Ahmed Alaghbari Ahmed Al obahi	6 M &3 D Case Presentation	Dr.Abdullah

Pharmacy Practice Experience II(PPEII)

Name of rotation	Topic	Duration	Student name	M+D	Supervisor
Cardiology Disorders	HTN & Dyslipidemia Stable Ischemic Heart Disease Acute Coronary Syndrome Chronic Heart Failure Acute Decompensated Heart Failure Venous Thromboembolism The Arrhythmias	Three 2/7/2022- 23/7/2022	Nabil Ahmed ali Althary Nada Al ramah Najwa Alnaib Omer Mohammed Sala Alhakimi Yasmeen Alkholany	6 M &3 D Case Presentation	Dr.Faiz
Endocrinology Disorders	Diabetics mellitus Renal Failure Liver Disease Thyroid disease	Three 2/7/2022- 23/7/2022	Ahmed Al obahi Ahmed Alaghbari Aqeel Abdulhak Areej Atef Eman Arhab	6 M &3 D Case Presentation	Dr.ZAHRAA
Infection	<u>Lower Respiratory Tract Infections</u> <u>Upper Respiratory Tract Infections</u> <u>Urinary Tract Infections and Prostatitis</u> <u>Influenza</u> <u>Sepsis and Septic Shock</u>	Three 2/7/2022- 23/7/2022	Ezzaldeen Aldaeery Jihad Al gohif Mohammed Almadani Mohammed Alshaibah	6 M &3 D Case Presentation	Dr.Abdullah

Pharmacy Practice Experience II(PPEII)

Name of rotation	Topic	Duration	Student name	M+D	Supervisor
Cardiology Disorders	HTN & Dyslipidemia Stable Ischemic Heart Disease Acute Coronary Syndrome Chronic Heart Failure Acute Decompensated Heart Failure Venous Thromboembolism The Arrhythmias	Three 18/6/2022- 9/7/2022	Ezzaldeen Aldaeery Hebatallah Iujain Jihad Al gohif Mohammed Almadani Mohammed Alshaibah	6 M &3 D Case Presentation	Dr.Faiz
Endocrinology Disorders	Diabetics mellitus Renal Failure Liver Disease Thyroid disease	Three 18/6/2022- 9/7/2022	Nabil Ahmed ali Althary Nada Al ramah Najwa Alnaib Omer Mohammed Sala Alhakimi Yasmeen Alkholany	6 M &3 D Case Presentation	Dr.Zahraa
Infection	<u>Lower Respiratory Tract Infections</u> <u>Upper Respiratory Tract Infections</u> <u>Urinary Tract Infections and Prostatitis</u> <u>Influenza</u> <u>Sepsis and Septic Shock</u>	Three 18/6/2022- 9/7/2022	Ahmed Al obahi Ahmed Alaghbari Aqeel Abdulhak Areej Atef Eman Arhab	6 M &3 D Case Presentation	Dr.Abdullah

Pharmacy Practice Experience II(PPEII)

Pharmacy Practice Experience II(PPEII)

**Pharmacy Practice Experience
Site Evaluation Form**

SITE:	Strongly Agree	Agree	N/A	Disagree	Strongly Disagree
Had adequate technology (i.e., automation, hardware, and software)					
Demonstrated ethical standards and practice					
Had appropriate space for interactions with patients and/or professionals					
Provided a comprehensive mix of patients for a varied experience					
Was conducive to experiential learning					
Had an appropriate workload for the student to get a feel of real-life experience					
Offered on site presentations*					
Had adequate space to pharmacy students					
Had reports from lab and x-ray accessible to students					
Had a support staff accepting of student's role					
Provided instructional material for patients to supplement learning (leaflets, support group information)					
Provided a stimulating learning environment					
Had guidelines followed at the different units					
Had established protocols for the prevention/management of specific conditions (i.e., bed sores, wounds, intubation, insulin scale, ATB....)					
Had a library and had access to on line journals					

What are the strengths of this site?

What are the weaknesses of this site?

*Comment about the number of presentations:



LEBANESE INTERNATIONAL UNIVERSITY

School of Pharmacy & Medical Sciences

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Community Pharmacy PHAR685

Student Manual

دليل الطلاب في التدريب

SUMMER 2022



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COURSE TITLE: COMMUNITY PHARMACY)

COURSE CODE: PHAR685

CREDITS: 3

COURSE SYLLABUS

Course Description

This course is a structured introductory practice experience in community pharmacy. It exposes first professional year pharmacy students to aspects of entry-level pharmaceutical practice and pharmacy management in a community setting. The COMMUNITY PHARMACY is a twelve-week experiential program that aims to complement the basic pharmaceutical knowledge and communication skills learned in the didactic portion of the pharmacy curriculum.

Over years, the profession of pharmacy has changed from a focus on drug dispensing to the provision of a patient-centered care. During COMMUNITY PHARMACY the broad exposure to many pharmacy activities and practice settings, the interaction with diverse patient populations, and the opportunities to collaborate with other health care professionals, along with significant personal study, pave the way for the initial transition of the student to a practitioner. The student serves under the close supervision of both preceptors and pharmacists. The preceptors in charge will show the students how to apply knowledge learned in the classroom to daily practice, will assess the students' progress, and will contribute to the students' overall evaluation. Students enrolled in COMMUNITY PHARMACY obtain, early in their career, basic skills in pharmacy practice, in preparation for more advanced practice concepts addressed in the Fifth professional year pharmacy practice.

Learning Outcomes:

After the successful completion of COMMUNITY PHARMACY and with the assistance of pharmacists and preceptors, the students should be able to discuss/demonstrate/describe the following outcomes:

- 1. Discover the integral role of the pharmacist in the health care team**
 - Discuss pharmacy career options and challenges
 - Discuss the pharmacist's role in drug therapy management

- 2. Discuss system management in the operation of community pharmacy**
 - Define and describe technical and physical work like inventories, methods of purchasing, ordering, receiving, storage, disposal, organization and display of drugs and merchandise
 - Explore the expanding role of technology and informatics in the practice of pharmacy and patient care
 - Discuss third party issues
 - Describe the impact of regulatory agencies like the Yemen Ministry of Public Health and the Order of Pharmacists of Yemen
 - Discuss legal aspects for purchasing and dispensing of controlled substances

- 3. Demonstrate effective communication skills**
 - Conduct a patient interview and collect relevant information to create a patient medication history/profile
 - Demonstrate appropriate oral communication skills with patients
 - Observe effective communication with all members of the healthcare team (physicians, nurses, etc), as well as with preceptors
 - Observe appropriate counseling of a patient about basic drug-related information (name of drug, indication, directions, duration of treatment, potential adverse effects, appropriate storage, missed dose) as given by the pharmacist
 - Appropriately counsel a patient about para-pharmaceutical products, devices, and diagnostics

- 4. Identify the most frequently used nonprescription drugs in the management of simple ailments like cough, common colds, sore throat, pain and fever**
 - Display good listening skills to identify patient problems
 - Demonstrate the ability to do a differential diagnosis, ask appropriate questions, and respond with accurate information regarding the above products
 - Discuss the indications, side effects, and dosing information of such products

- Demonstrate knowledge of brand or generic names of drugs and their appearance, shape, color, markings, manufacturer, dosage form(s), routes of administration, strength(s) and counseling tips
 - Discuss OTC pharmacotherapy decisions on product selection guidelines with preceptor
 - Know some of the important herbal products and nutritional supplements available in the Yemeni market and discuss their indications and appropriate directions of use and counseling tips
- 5. Display, at all times, an ethical approach to patient-centered care by developing professionalism, confidentiality, responsibility, problem-solving skills, and a positive social interaction**

COMMUNITY PHARMACY GUIDELINES

1. COMMUNITY PHARMACY is a twelve-week rotation, with the start date being **Tuesday, July 1st, 2022**, and the end date being **Friday, September 19th, 2022**.
2. The daily rotation hours are six, either from 08:00 to 14:00, 09:00 to 15:00 or from 10:00 to 16:00, or from 11:00 to 17:00, from Saturday through Wednesday . Students who are employed in a pharmacy during an afternoon shift should start their shift maximally by 12:00. Accordingly, their rotation hours should end at 18:00, regardless of the working hours. In case of any exceptions, they should be discussed with the coordinator and the corresponding preceptor.
3. The major goal of the rotation is to expose the student to the essential operational elements routinely performed in the community setting. Since many of these tasks are performed regularly by pharmacists and technicians, it would be appropriate for the student to spend enough time with these individuals.
6. The required activities of COMMUNITY PHARMACY are subdivided into **3 modules**, each presented with the primary goals of knowledge and basic questions. The requirements of each module should be comprehensively fulfilled and studied during **Two weeks**.
7. There will be 2 workshops, a midterm, and a final exam during the COMMUNITY PHARMACY rotation.
8. **The passing grade in COMMUNITY PHARMACY is C.**

STUDENT ATTENDANCE

1. Students are expected to be present on their respective sites on all assigned practice days, and to attend any scheduled meetings/exams on campus.
2. Preceptors reserve the right to visit the student on site or call him/her on the site's landline at any time during practice hours.
3. Punctuality is a must, and tardiness in presenting to site or any unexcused absences are not tolerated, and will accordingly lower the student's evaluation.
 - a. The only acceptable reasons for absence are:
 - i. Personal hospitalization (proved by a hospital discharge summary)
 - ii. Family emergency (proved by legitimate documents)
 - b. In case of absence, the preceptor should be notified as soon as possible and a makeup day is set on Saturday of the same week.
 - c. A failure to abide by the above rules will automatically result in the following warning letter procedure:
 - First warning letter → This is an oral warning whereby the student will be informed that if his/her misconduct is repeated, then he/she will receive a 2nd warning letter
 - Second warning letter → The student will lose half of the grades for the oral recitation of the module at which he/she is rotating in (For COMMUNITY PHARMACY and PPE 2 → lose 4%)
 - Third warning letter or more → The student will lose all the grades for the oral recitation of the module at which he is rotating in (For COMMUNITY PHARMACY and PPE 2 → lose 7.5%)
 - In case the student received the second and third warning letters during the same module, then he will receive a zero on the oral recitation.
4. A daily Log In/Log Out sheet (attached at the end of this manual) should be filled by the student on daily basis, and should be signed and stamped by the pharmacist at the end of the rotation.

STUDENT RESPONSIBILITIES

1. Each student participating in COMMUNITY PHARMACY is expected to behave in a manner consistent with that of other members at the designated pharmacy practice site, regarding all policies and procedures.
2. Standard dress code and neat appearance is expected from all COMMUNITY PHARMACY students .A white laboratory coat with a name tag is mandatory and it ensures a professional image of both the student and LIU.
3. Since the primary objective of the rotation is learning, the student needs to be active, not passive. He/she should actively participate in a professional manner relative to the rotation objectives.
4. Information obtained through experiential education activities must be considered private and confidential. Such information must not be circulated or discussed outside the pharmacy setting. This includes all patient data, pharmacy records, pricing systems, trading policies, etc... The only allowed discussion about such information should involve the pharmacist, concerned pharmacy staff, or the preceptor.
5. Students should never abuse facilities at the practice site like parking or telephone.
6. Students must not enter in direct conflicts with the pharmacist, pharmacy staff(s) and/or pharmacy patients. Any problem or misunderstanding should be reported and discussed with the preceptor.
7. Students must communicate with the preceptors through phone, email, or SMS to resolve any conflicts related to PPE I.
8. Students should not call or sms a preceptor before 8:00 AM of a given working day. Moreover, students should write their names in an sms to identify themselves.
9. The completion of practice documents of the Yemen Order of Pharmacists at the beginning and the end of COMMUNITY PHARMACY is the sole responsibility of the student. They should ask the pharmacist to declare their stage period on the OPL website based upon the rules and regulations that have been set forth by the order.

COURSE OUTLINE

COMMUNITY PHARMACY rotation involves 4 modules, 3 weeks each, as shown below:

Module number	Topic
1	Medical devices
	Baby products
	Contraceptive methods
	Para-pharmaceuticals & tests
2	Pharmacy management
	Herbal products
	Nutritional supplements
3	Dermatology and Cosmetology
43	OTC products (cough, cold, sore throat, ORS, analgesics, and antipyretics)
	Allergic Rhinitis

WORKSHOPS, GRADING DISTRIBUTION, AND EXAM DATES

Name	Weight (%)
Oral exam	30
Assignment	15
Oral discussion	30
Presentation	25

Module 1

MODULE 1: MEDICAL DEVICES, BABY PRODUCTS, CONTRACEPTIVE METHODS, PARAPHARMACEUTICALS AND TESTS

Topic 1: Medical Devices

Learning Outcomes:

At the end of this topic, students must know the following information about:

A. Pregnancy tests:

1. Learn the mechanism of action of pregnancy tests
2. Identify the different types and methods of pregnancy tests kits
3. Differentiate between available tests, their use, their sensitivity and accuracy in screening
4. Counsel patients on instructions of use and interpretation of results
5. Be familiar with different brands available at the Yemeni market

B. Ovulation Tests:

1. Identify the mechanism of action of ovulation tests
2. Counsel and educate patients on instructions of use and interpretation of results
3. Evaluate the criteria if a particular test would be appropriate for screening purposes & the factors that affect the accuracy of the test
4. Be familiar with different brands available at the Yemeni market

C. Blood Pressure Measurement Devices:

1. Learn the JNC 8 recommendations
2. Identify the different types of blood pressure measurement devices
3. Learn counseling and educational methods prior to BP measurement
4. Learn how to measure BP using different devices
5. Evaluate the criteria if a particular device would be appropriate for measurement purposes & the factors that affect the accuracy of that device

6. Be familiar with different brands available at the Yemeni market

D. Blood Glucose Measurement Devices:

1. Learn ADA and AACE blood glucose levels recommendations
2. Identify the different types of blood glucose measurement devices
3. Learn appropriate instructions of use, interpretation of results and counseling techniques
4. Evaluate the criteria of a particular device: appropriateness and accuracy
5. Be familiar with different brands available at the Yemeni market

E. Blood Cholesterol & Triglyceride Measurement Devices:

1. Acquire basic knowledge about the new guideline for dyslipidemia
2. Identify the different types of blood Cholesterol/Triglyceride measurement devices
3. Learn the appropriate instructions of use, interpretation of results and counseling techniques
4. Evaluate the criteria of a particular device: appropriateness and accuracy
5. Be familiar with different brands available at the Yemen market

F. Temperature Measurement:

1. Identify the different types of Temperature measurement devices
2. Collect information about patient education for the Temperature measurement devices
3. Evaluate the criteria if a particular device would be appropriate for measurement purposes & the factors that affect the accuracy of that device
4. Be familiar with different brands available at the Yemen market

A. Pregnancy Tests

1. What is h-CG and what is the mechanism of action of pregnancy tests?

2. What are the different types of pregnancy tests?

a. Urine vs. blood

b. Qualitative vs. quantitative

3. What are the different types or methods of home use test kits?

4. Please give four brand names available at your pharmacy and fill in the table below:

Brand name				
Type of test				
Type of kit				
Manufacturer				
Accuracy				
Price				

5. Give the instructions on use of each of the above pregnancy tests.

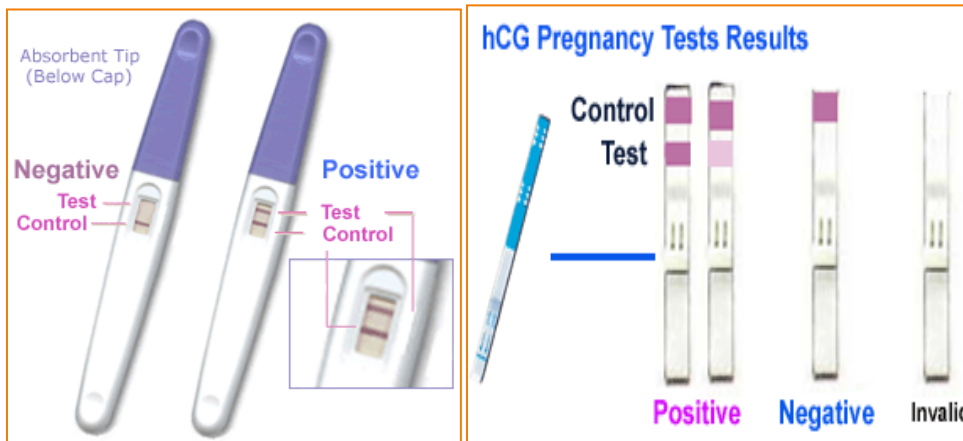
6. When is the test indicated and how are the results interpreted?

7. What is the percentage of error of a pregnancy test?

8. What are the factors that may interfere with pregnancy test results?

a. False positive

b. False negative



4. Please give three brand names for ovulation kits available at your pharmacy and fill in the table below:

Brand name			
Type of test			
Type of kit			
Manufacturer			
Accuracy			
Price			

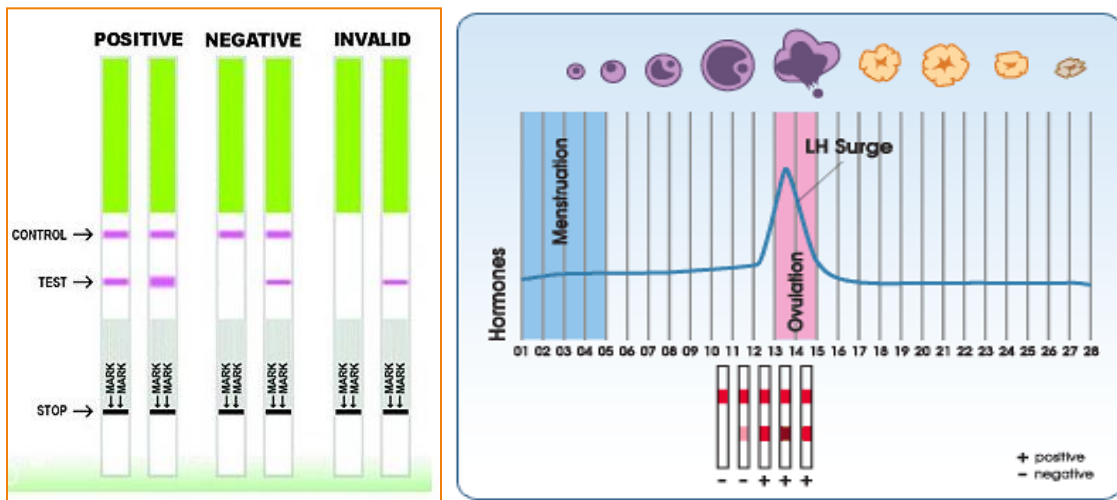
5. Give the instructions on use of 2 different ovulation tests, by filling in the table below and identifying when to start testing, the proper time of the day, and the interpretation of the results.

Test Examples		
When to start testing		
Proper time of the day		

Interpretation of the results		
--------------------------------------	--	--

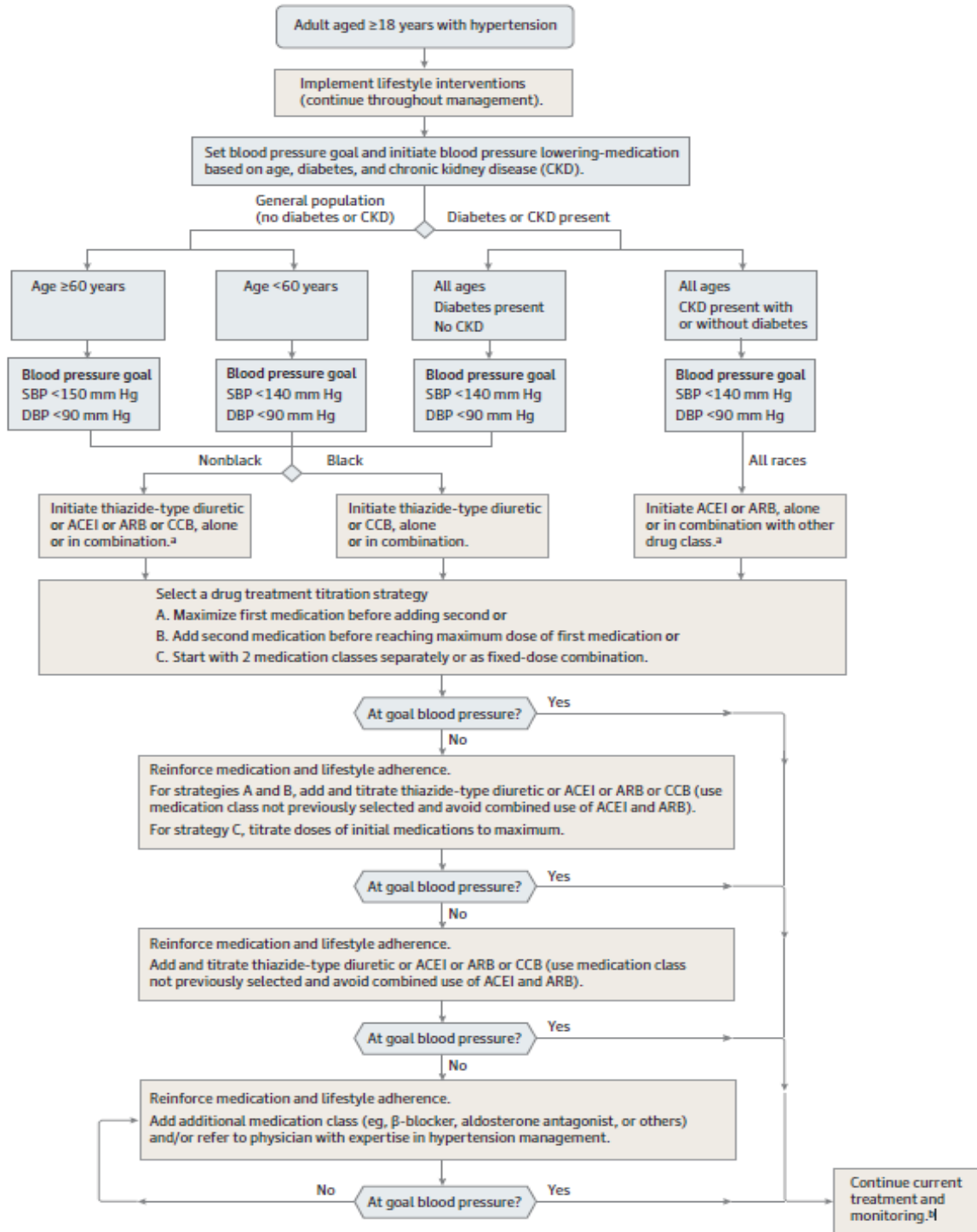
6. Indicate the percentage of error of an ovulation test.

7. What are the factors that may interfere with ovulation tests results?



C. Blood Pressure Measurement

- I. **About Blood pressure:** Find below the updated 2014 hypertension management algorithm.



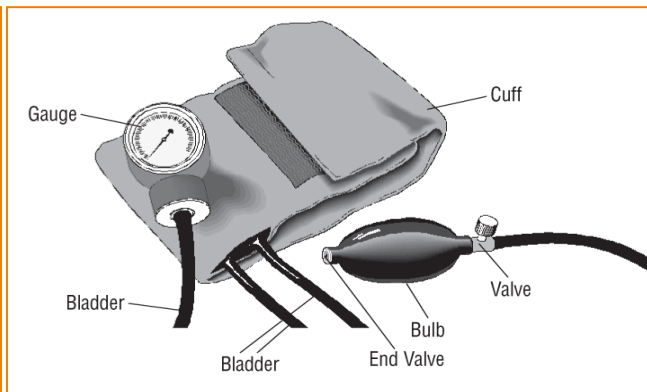
SBP indicates systolic blood pressure; DBP, diastolic blood pressure; ACEI, angiotensin-converting enzyme; ARB, angiotensin receptor blocker; and CCB, calcium channel blocker; CKD, chronic kidney disease

a. Based on the above algorithm, indicate the blood pressure goal for different patient characteristics.

1. What are the types of blood pressure monitors?

2. Please fill in the table below according to devices available at your pharmacy:

Brand name	ALPK2®		Omron Mx 3 Plus	
Type of device				Manual, Mercury
Place of cuff measurement		Wrist monitor R6		
Manufacturer				
Accuracy				
Price				



3. Compare the instructions of use of ALPK2[®] and Wrist blood pressure monitor R6:

ALPK2 [®]	Wrist blood pressure monitor R6

4. Compare the advantages and disadvantages of ALPK2[®] and Wrist blood pressure monitor R6

ALPK2 [®]	Wrist blood pressure monitor R6

5. Interpretation of the results:
 - a. What are the sounds heard using the sphygmomanometer and stethoscope?

 - b. What are the upper and lower values recorded on the electronic device?

6. What are patient counseling techniques and requirements to increase accuracy of BP measurement?
 - a. What should you counsel the patient before BP measurement?

 - b. What are some techniques to increase accuracy?

 - c. What are the optimal BP monitoring intervals, time and schedule?

7. What is ambulatory blood pressure monitoring?

8. What factors can influence blood pressure measurement variability?

D. Self Monitoring of Blood Glucose

I. About blood glucose:

1. What is the normal fasting blood glucose?

2. What are the signs and symptoms of hyper or hypoglycemia?

Hypoglycemia	Hyperglycemia

3. What is glycosylated hemoglobin? What is the normal cut-off value?

II. Diabetes monitoring tests:

1. Give three brand names available at your pharmacy and fill in the following table:

2. Please compare the below two devices:

Brand			
Manufacturer			
Cost			

	Accu Check®	One Touch®
Type of test		
Components of device		
Advantages		
Disadvantages		
Different meter systems	Ex: Accu Check Performa®	

3. A 40 year old male presents to the pharmacy for a regular blood glucose monitoring. The glucometer used in the pharmacy is AccuCheck Performa®. Give a detailed instruction of use.

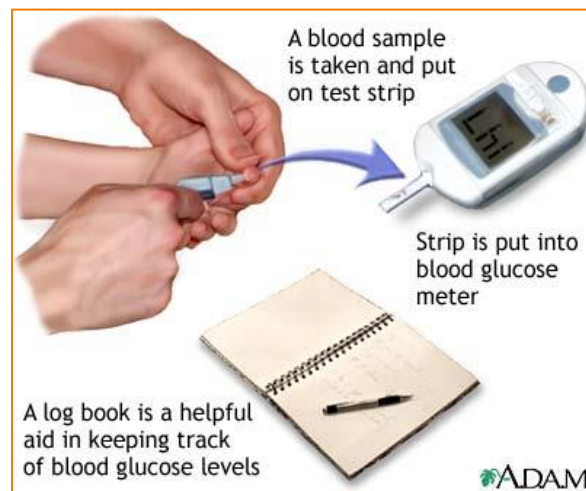
4. The patient has the same machine at home. He presents one day complaining that his machine indicates “code error” on the screen. What is the reason behind this and how do you solve it?
Explain Monitor Calibration Requirements.

5. Please compare the following lancets devices: *Softclix* and *multiclix*:

6. What are other recently approved blood glucose monitoring devices?

7. What factors can affect glucose meter performance?

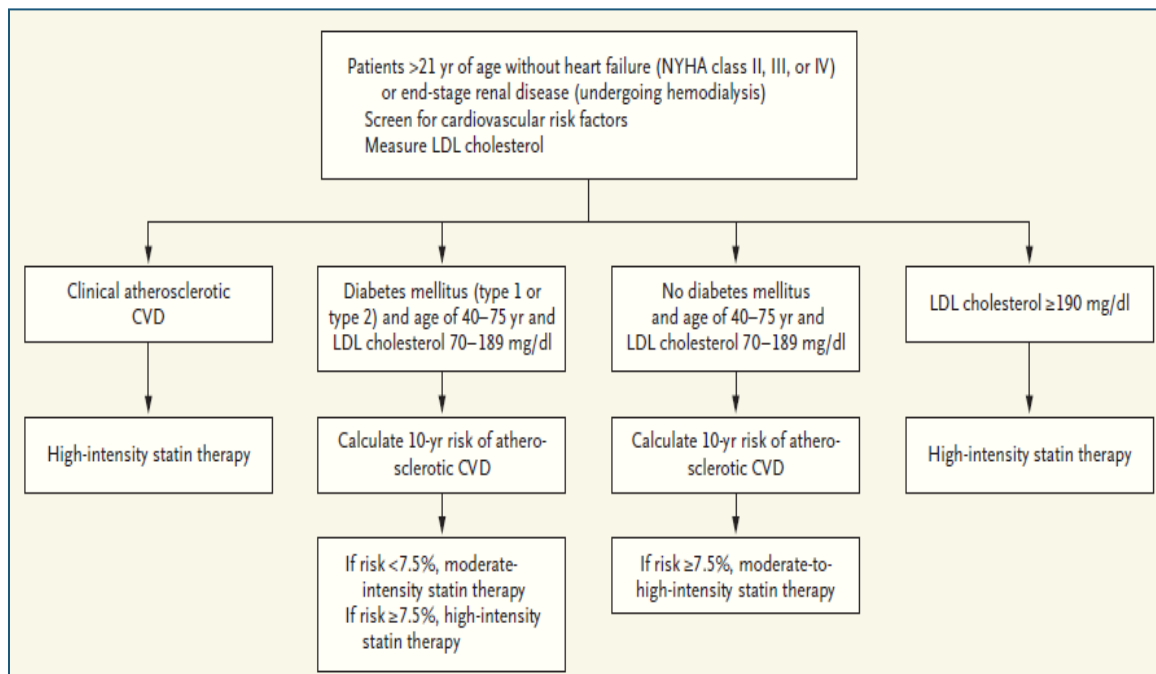
8. How do you compare your home test glucose values with the laboratory values?



E. Cholesterol /Triglyceride testing**I. About lipids:**

Briefly differentiate and define “Good” and “Bad” Cholesterol.

Find below the 2013 American College of Cardiology–American Heart Association Guidelines for Use of Statin Therapy in Patients at Increased Cardiovascular Risk

**High-intensity statin therapy**

Daily dose lowers LDL cholesterol level by approximately ≥50% on average

Recommended: atorvastatin, 40 to 80 mg; rosuvastatin, 20 to 40 mg

Moderate-intensity statin therapy

Daily dose lowers LDL cholesterol level by approximately 30 to <50% on average

Recommended: atorvastatin, 10 to 20 mg; rosuvastatin, 5 to 10 mg; simvastatin, 20 to 40 mg; pravastatin, 40 to 80 mg; lovastatin, 40 mg; extended-release fluvastatin, 80 mg; fluvastatin, 40 mg twice a day; pitavastatin, 2 to 4 mg

II. About Lipid Meters:

1. Give two brand names available at your pharmacy and fill in the following table:

Brand		
Manufacturer		
Cost		
Type of test		
Components		



2. Give the instructions on the use of ONE of the above devices.

3. How often do you need to test cholesterol and triglycerides?

4. What are the calibration requirements?

5. What factors may temporarily alter the results?

F. Temperature Measurement

1. What is the normal human body temperature?
2. What are the different routes used to determine the body temperature? Indicate the equivalent body temperature using these different sites.
3. What are the types of thermometers?
4. Give the advantages and disadvantages of the different types of thermometers?
5. What is the mechanism of action of the previously mentioned types?
6. Which type of thermometer and which route is the most accurate?
7. Give three brand names available at your pharmacy and fill in the following table:

Brand name			
Type of test			
Route			
Manufacturer			
Accuracy			
Price			

8. Give the instructions on the use of both of the below thermometers indicating the correct placement, the specific recommendations, the duration and the appropriate time of the day for measurement:

- *OMRON® PROTEMP 3-WAY*
- *ARTSANA® Clinical thermometer*

9. How should you clean a thermometer?

10. Results may be affected by some factors:

a. What factors may cause a normal increase in temperature?

b. What medications may cause fever?



Topic 2: OTC Contraceptive Agents:


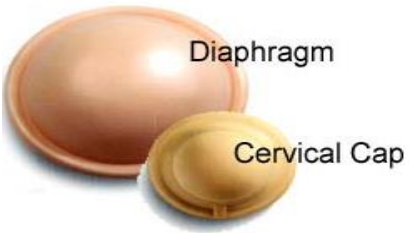

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Acquire knowledge about methods of contraception: non-pharmacological, mechanical barriers and others...
- ❖ Learn about the instructions of use and patient counseling
- ❖ Choose between methods of contraception and collect information for patient education
- ❖ Be familiar with different brands available at the Yemen market

OTC contraceptive agents

1. What are the non-pharmacological ways of contraception? Fill in the following table based on their availability at your pharmacy.

Mechanical Barrier	Picture	Brand Name (s) Available
Male Condoms		
Female Condoms		
Cervical Cap		
Diaphragm		
Spermicidal Agents		

2. Give three brand names of male condoms available at your pharmacy. Give the characteristics of each one by identifying the different types of each brand and the main constituents. Fill in the table below to answer the above question.

Type	Characteristics	Main Constituents
ExtraSafe	Thicker	

3. Give instructions on the use of one of them and the counseling that should be provided to the patients (include information about latex allergy).

Topic 3: Baby Care Products:

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Identify the different types of milk formulas, specific indications and instructions
- ❖ Identify the oral rehydration solutions and different preparations of Vitamins
- ❖ Be familiar with food supplements, diapers and other baby care products
- ❖ Learn the proper management of: infant colic, teething and nasal irrigation
- ❖ Be familiar with the available brands at the Yemen market.



A. Infant formula Products**1. Infant formula Versus Breast milk:****a. How does the composition differ?**

Type of Milk	Infant formula	Breast milk
Composition		

b. When is infant formula recommended over breast milk feeding?**c. Why it is not recommended to give whole cow milk before the age of 1 year?****d. When do we stop giving infant formula?**

2. Please fill in the table below. Give at least 5 brand names available at your pharmacy (as possible).

Type of milk	Brand name	Indications and Components
Regular milk formula	Ex: Novalac®	
Fortified milk formula		
Lactose-free formula		
Milk product used in case of regurgitation		

3. What is the difference between Novalac 1® and Novalac 2®, or any other brand name milk?

4. **Special conditions: What do you recommend in case the baby has the following special conditions? Give at least 3 brand names available at your pharmacy (as possible)**

Special Condition	Recommendation	Special Composition	Brand names
Lactose intolerant			
Diarrhea			
Anemia			
Premature			

5. **Differentiate the following types of milk formulas. Give at least 3 brand names available at your pharmacy (as possible)**

Type of Milk	Composition	Brand names available
Cow milk Based Formula		
Soy based formula		
Casein Hydrolysate		
Elemental		

B. Food Supplements

1. Give 3 brand names of food supplements and the types of food available under each brand.

Brand name of food supplement	Types of food available
Ex: Bledina	Ex: Rice, Carrots, ...

C. Diapers and baby care products

Give 2 brand names for each of the following baby care products available at your pharmacy.

Baby Care Product	Brand names	
Diapers		
Baby wipes		
Baby shampoo		
Baby powder		



D. Teething

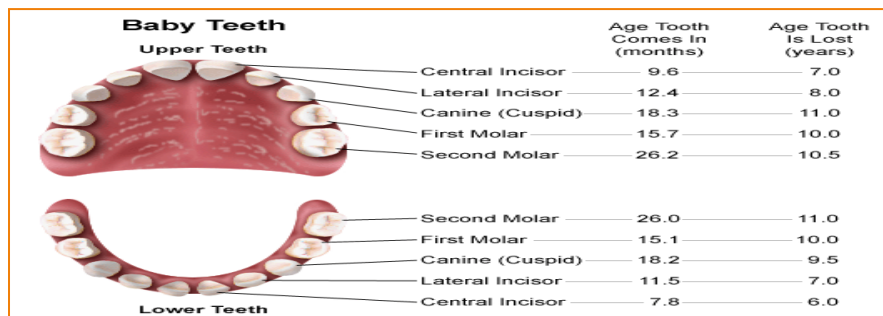
1. What are the classical signs and symptoms of teething? Describe ways to soothe sore gums.

2. Give examples of OTC remedies used to soothe teething, available at your pharmacy, and fill in the table below:

OTC Remedy	Ingredient	Brand	Dosage Form	Application
		Ex: Dentinox®		

3. What is the hazard associated with teething medications?

4. When should we start considering fluoride supplements? With what other supplements does Fluoride interact?



E. Vitamins

1. What are the recommended vitamins for babies?

2. Describe some of these vitamin supplements and fill in the following table:

Brand	Indication	Composition	Dosage form
Pediavit D®			
Pediavit DHA®			
Pediafer®			
Ferrate®			
Pedimax®			
Vitaday Junior®			
Others; please specify			



F. Nasal washes and irrigation

1. Why should you do a nasal wash?
2. What is the correct wash technique?
3. What is the correct position for nasal wash?
4. Give four examples of brands of nasal washes for irrigation and fill in the following table:

Brand				
Composition				
Dosage form				

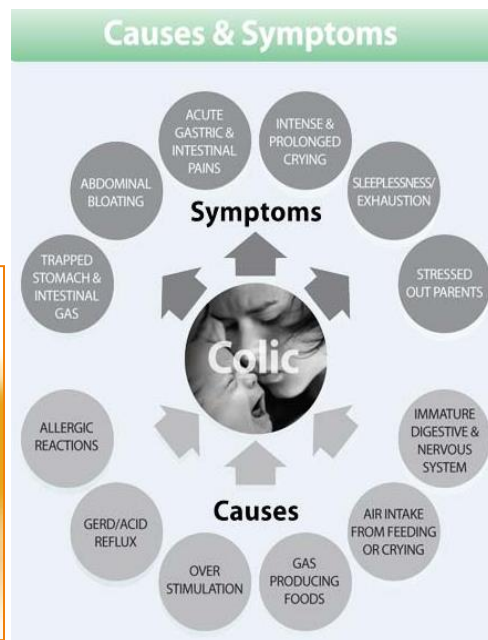


G. Infant colic

1. What is infant colic? What might be the possible etiologies that might manifest as infant colic?

2. Give four examples of brands of medications available for infant colic and fill in the table below:

Brand				
Composition				
Dosage form				



Topic 4: Miscellaneous Parapharmaceuticals**Learning Outcomes:****At the end of this topic, students must be able to:**

- ❖ Learn about the parapharmaceutical devices for hospital use
- ❖ Become familiar with the different types, indication, sizes of the devices

A. Syringes**Fill in the table below regarding the syringes available at the pharmacy.**

Kinds of syringes	Volume	Indication/ use in:
Syringe 0.5 cc	0.5 ml	Insulin administration



B. Serum

Fill in the following table regarding the serum bags available at the pharmacy:

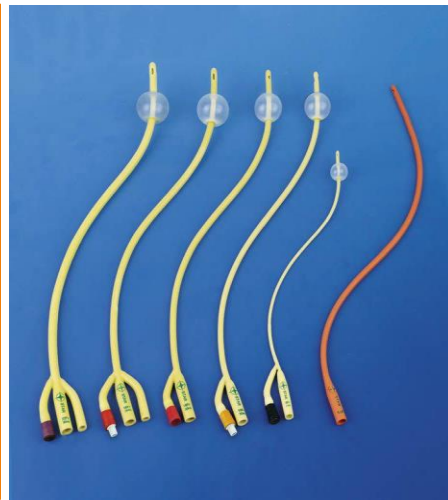
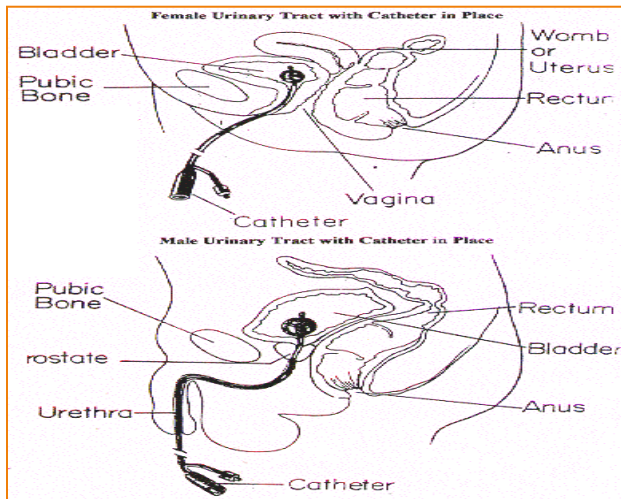
Type of Serum	Composition and Concentration	Volume
Simple	NaCl 0.9%	1L, 500ml, 250 ml, 100ml, 5 ml
Mixte	NaCl 0.9% , Dextrose 5%	1L, 500ml, 250 ml, 100ml, 5 ml



C. Foley Catheters

What are the different sizes of Foley catheter available? Fill in the table below with the different sizes:

	Size	
Foley Catheter		



D. Gloves

What are the different types of gloves available at your pharmacy? Fill in the table below with the following:

Brand	Type or formulation	Size

MODULE 2

MODULE 2: PHARMACY MANAGEMENT, HERBAL PRODUCTS, AND NUTRITIONAL SUPPLEMENTS

Topic 1: Pharmacy Management

With the changing dynamics of the pharmacy profession, specifically in the community practice settings, students need strong interpersonal and management skills in addition to their clinical knowledge. Moreover, knowing that in any general discussion of management, business management first comes to mind. Accordingly, this module will shed light on many aspects of community pharmacy management including:

- ❖ Managing Goods and Services
- ❖ Managing Operations
- ❖ Managing Money
- ❖ Managing Purchasing
- ❖ Technology

Learning Outcomes:

At the end of this topic module, students will be able to:

- ❖ **Manage the goods and services** in the pharmacy by learning about the pharmacy layout and display of items and their effect on the sales
- ❖ **Manage operations** in the pharmacy by learning about:
 - Books and references that should be kept in the pharmacy
 - Controlled prescriptions and drug operations in a pharmacy
- ❖ **Manage money** in the pharmacy by learning about:
 - Employees who have access to the cash drawer
 - Management of the inventory
 - Pricing policy for drugs and parapharmaceuticals
- ❖ **Manage purchasing** in the pharmacy by learning about wholesalers, agents, suppliers, expiry dates, and reorder points
- ❖ Learn about the **technology** use in the pharmacy including the software, search engines, daily transactions, and invoices
- ❖ Understand the concept of **profitability** that has historically carried a negative connotation in the minds of students, which in fact, should be viewed as a means of providing good quality patient care.

B. Managing Operations

1. What books or equipments is the pharmacy supposed to have by the law set by the Order of Pharmacists in Yemen ?

Books	Equipments

2. What is the controlled prescription? Are they filled by date or by drug? What are the related laws?

3. Where does the pharmacist store controlled substances? Who is allowed to access such substances? How are they ordered? Describe the different books and invoices required to order such substances.

D. Managing Purchasing

1. What is the difference between an agent (وكيل) and a drugstore (droguerie)?

2. List all agents that the pharmacy deals with. (You can get the list of all agents in Yemen from the Order of Pharmacists website so you can choose from it; website: www.opl.org.lb)

Example: Mersaco

3. List all drugstores that the pharmacy deals with. (You can get the list of all drugstores in Yemen from the Order of Pharmacists website so you can choose from it; website: www.opl.org.lb)

Example: Nouvelle

4. On what basis does the pharmacist choose a wholesaler? Are there any discount promotions or bonus policies applied?

5. What are the invoice payment procedures? What is the expiry dates product return policy regarding the wholesaler/agent versus a drugstore?

6. Fill in the following table with the appropriate agent and example of drugs corresponding to each of the following scientific laboratories available in Yemen.

#	Scientific Laboratory	Agent that they deal with	Example of <u>3 DRUGS</u> that they distribute
1	A.P.M.		
2	Abbot		
3	Alcon		
4	Algorithm		
5	Bayer Schering Pharma		
6	Berna		
7	Boehringer Ingelheim		
8	Bristol Myers Squibb		
9	Fresenius Medical Care		
10	Glaxo Smithkline		
11	Grunenthal		
12	Hikma		
13	Janssen - Cilag		
14	Julphar		
15	Lederle		
16	Leo		
17	Lilly		

#	Scientific Laboratory	Agent that they deal with	Example of <u>3 DRUGS</u> that they distribute
18	Merck Sharp & Dohme (M.S.D.)		
19	Novartis Consumer Health		
20	Novartis Pharma		
21	Organon		
22	Parke Davis		
23	Pfizer		
24	Pharmaline		
25	Pierre Fabre		
26	Roche		
27	Sanofi Aventis		
28	Sanofi Pasteur		
29	Sanofi Synthelabo		
30	Schering		
31	Serono		
32	Servier		
33	Solvay		
34	Yamanouchi		

E. Technology

1. What is the search engine that you use to look for products at your pharmacy?

2. How are products (drugs and parapharmaceuticals) identified by the software used in the pharmacy?

3. What are the daily transactions carried out by the software used?

4. Can the software help in the financial control? How?

5. What are the three forms of invoices that the software can make?

6. When an order arrives to the pharmacy, what should the pharmacist do then?

Topic 2: Herbal Products and Nutritional Supplements

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Identify examples on brands and generics available at the pharmacy along with their corresponding prices
- ❖ Identify their therapeutic indications and different uses
- ❖ Identify the recommended dietary allowance of each
- ❖ Identify the most important side effects for each
- ❖ Identify any kind of interaction, whether with drugs, food, alcohol, or any others
- ❖ Identify the maximum allowed dose of selected herbs nutritional supplements, over which toxicity might occur

Fill in the tables in the following pages.

A. Herbal Products and other supplements

	2 Brand Names	Indication	Side Effects	Major Drug Interactions
Aloe Vera				
Carnitine				
Cranberry				
Echinacea				
Fish Oil				
Garlic				
Ginger				
Ginkgo Biloba				
Ginseng				
Glucosamine / Chondroitin				
Grapefruit				
Saw Palmetto				
Valerian				

B. Nutritional Supplements: Minerals and Vitamins

Minerals				
	Brand Names	Therapeutic Indication / Use	RDA	Side Effects
Calcium				
Fluoride				
Magnesium				
Iron				
Zinc				

Vitamins						
	Vitamin	Name	Brand Names	Deficiency Related Use	Hyper-vitaminosis related Use	Side Effects
Lipid Soluble	A	Retinol				
	D	Calciferol				
	E	Tocopherol				
	K	Phylloquinone				
Water Soluble	Vitamin B Combos					
	C	Ascorbic Acid				

MODULE 3

MODULE 3: DERMATOLOGY AND COSMETOLOGY

Introduction

Mild dermatologic conditions are one of the most frequent ailments for which patients seek counseling from the community pharmacist. This module introduces students to the main pharmaceutical ingredients and preparations used for the management of common dermatological disorders, with focus on available products in the Yemen market, their proper method of use, and relevant patient education.

Moreover, and because personal hygiene and cosmetic elegance form a discipline which pharmacists are frequently asked about, a second part of the module is dedicated to the review of pharmaceutical cosmetology and cosmeceuticals. The purpose of this part is to help students acquire a professional, healthcare-oriented approach to the selection of cosmetic products. It also helps them to apply basic skills learnt in the didactic cosmetology course in cosmetic-related pharmacy practice.

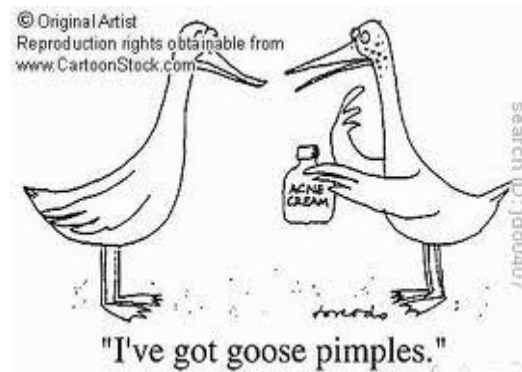
Topic 1: Dermatology

A. Acneiform eruptions

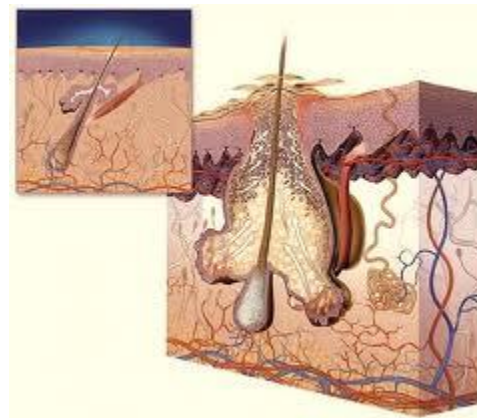
Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Identify mild, moderate, and severe cases of acne vulgaris presenting to the pharmacy, and differentiate between two main types: open and closed comedones
- ❖ Educate and explain to patients nondrug measures that help in alleviating the problem
- ❖ Compare and contrast between different products available in Yemen for topical acne vulgaris management, and their available formulations, dosage forms, and strengths
- ❖ Be familiar with topical and systemic, prescription-only treatment options used for management of acne vulgaris
- ❖ Recommend, for each product, appropriate doses, duration of treatment, administration guidelines, side effects, and relevant patient counseling
- ❖ Differentiate acne rosacea from acne vulgaris and know the available treatment options of the former condition
- ❖ Select the optimum treatment based upon patient factors



1. Among the various stages of acne vulgaris, you can easily identify two main types of acne lesions in patients presenting to the pharmacy: closed comedones (white heads) and open comedones (black heads). Please identify and differentiate between these two types.



2. Formulate a list of hereditary, personal, medical, and lifestyle factors proved to contribute to acne development. How can you use these factors in patient counseling?

3. The non-pharmacological management of acne is based upon gentle cleansing of the skin. Educate patients about the proper method of cleansing.



4. Compare between the different non-prescription products for the treatment of acne:

	Brief mechanism of action	Administration guidelines	Frequency and period of use	Adverse effects
Salicylic acid				
Benzoyl peroxide				

5. Formulate a list of topical acne products available in the Yemen market and compare between them according to the following table:

Trade name	Generic name	Dosage form	Concentration

6. Compare the different prescription products available for the management of acne according to the following table:

Drug	Brief mechanism of action	Adverse effects	Concentration & dose	Yemen brand name (if available)
<u>Topical agents</u>				
Tretinoin				
Adapalene				
Tazarotene				
Erthyromycin solution				
<u>Systemic agents</u>				
Lymecycline/ Doxycycline				
Cyproterone acetate+ethinyl estradiol				
Isotretinoin				

7. List the important criteria that the pharmacist must check before dispensing isotretinoin (Roaccutane®, Isosupra®, etc...). What are the important life style modifications, drug side effects and precautions that should be explained to the patient? Describe the teratogenic potential of this drug.



"Honest, I'm not a toad - I'm a frog with a skin condition."

8. Give examples from the pharmacy on products used to reduce black heads. What are the active ingredients of such products?

9. Another type of acneiform eruptions is acne rosacea (adult acne).

a. Briefly differentiate between acne vulgaris and acne rosacea

Acne vulgaris	Acne rosacea

b. Identify some acne rosacea treatments present in the pharmacy and fill in the table below:

Drug	Brand name	Strength	Method of application
Topical metronidazole			
Topical azelaic acid			

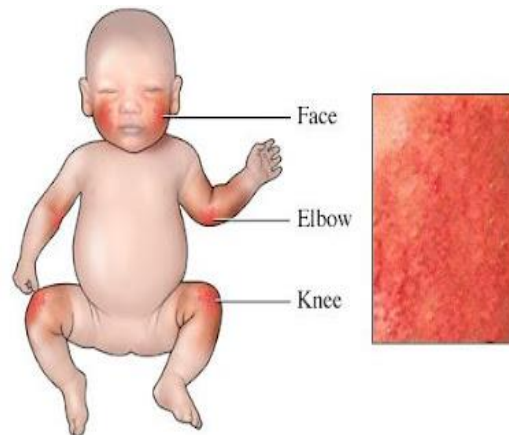
B. Dermatitis

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Be familiar with topical products available for the treatment of various types of dermatitis
- ❖ Know the proper use and side effects of such products

1. One of the key steps to alleviate dermatitis is to keep skin hydrated. Please give examples of emollients available in the pharmacy for skin moisturization, and list the important ingredients in these products.



Emollient	Ingredients

2. Give at least one brand of cold cream used for moisturization of skin. What does this formulation contain?

3. List important topical steroids used for the management of dermatitis flare-ups, according to the table below:

Steroid ingredient	Brand name(s)	Strength(s) (%)	Dosage form(s)
	Hydracort®		
Clobetasole propionate			
Triamcinolone acetonide			
Fluocinolone acetonide			
Betamethasone dipropionate			
Mometasone			

4. Educate patients about proper use of steroids in dermatitis. What are the most important side effects of these products?

Skin checks for dermatitis



5. At the final end of the dermatitis spectrum, lies the condition of psoriasis. Please identify the following products for psoriasis management available at the pharmacy:

Product	Brand name(s)	Dose or frequency of administration	Side effects
Topical products			
Tazarotene			
Calcipotriol			
Calcipotriol+betamethasone			
Systemic products			
Methotrexate			

C. Diaper dermatitis (diaper rash)

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Elaborate suitable practices for prevention of diaper dermatitis
- ❖ Compare between different products that can be used for the management of this condition
- ❖ Counsel parents/caregivers on the appropriate use of these products
- ❖ Identify common pitfalls in the management of this condition



1. What are the signs and symptoms of the diaper dermatitis?

2. Counsel a parent on nonpharmacological measures used to minimize the problem, and familiarize yourself with the various parapharmaceutical products including disposable diapers and wipes. Is the use of commercially available wipes during diaper rash episodes recommended? Justify.



Diaper rash

#ADAM

3. Skin protectants are the cornerstone for diaper rash control. Compare different skin protectants according to the following table:

Skin protectant	Concentration	Brands in Yemen market
Zinc oxide		
Calamine		
Dimethicone		

4. Is it possible to use of steroid-containing topical preparations for the management of diaper rash? Why?

5. What is adult incontinence dermatitis?

At the end of this topic, students must be able to:

- ❖ Recall the important skin infections for which the pharmacist is referred
- ❖ Know the important topical anti-infectives and their proper use

1. Review the basic infective agents that cause skin infections in patients presenting to the community pharmacy, according to the following classification:

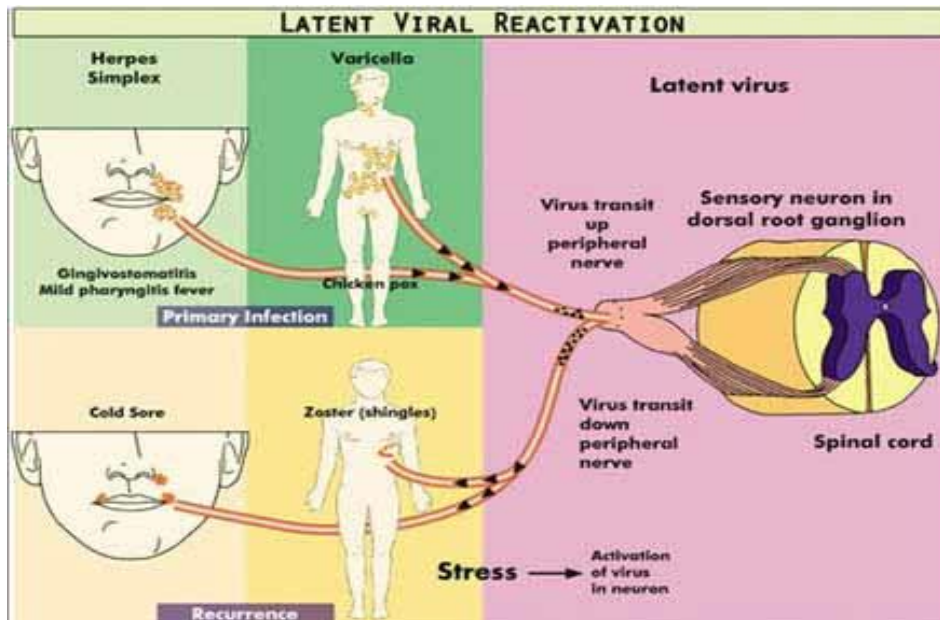
Infective pathogens	Most important examples of skin infections
Staphylococci and streptococci	
Herpes simplex type 1	
<i>Candida</i>	
Dermatophytes of body	
Dermatophytes of feet	
Dermatophytes of scalp	
Dermatophytes of nails	

2. Identify the pharmaceutical products used for topical management of skin infections, according to the following table:

Active ingredient	Brand name(s)	Dosage form
Topical antibacterials		
Fucidic acid		
Mupirocin		
Erythromycin		
Tetracyclin		
Topical antivirals		
	Zovirax [®] , Cylovex [®] , Supraviran [®]	
	Viru-Merz [®]	
Topical antifungals		
Clotrimazole		
Miconazole		
Ketoconazole		
Terbinafine		

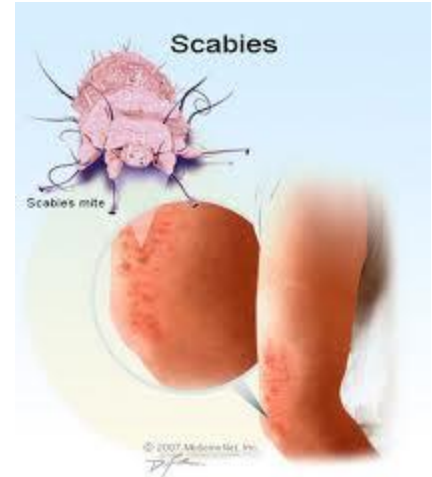
3. Identify the following systemic antifungals used for the management of onychomycosis:

Systemic antifungal	Fluconazole	Itraconazole	Terbinafine
Trade name(s)			
Appropriate dose for onychomycosis			
Appropriate therapy duration for onychomycosis			
Side effects			
Drug-drug interactions			



F. Parasitic skin infestations**Learning Outcomes:****At the end of this topic, students must be able to:**

- ❖ Define **scabies**, understand and elaborate treatment options
- ❖ Regard the problem of **head lice** as a common condition handled by the pharmacist
- ❖ Be familiar with both OTC and prescription-only products use to treat lice, with particular focus on those available in the Yemen market
- ❖ Elaborate the proper method of use of the above products
- ❖ Be able to counsel patients on appropriate pharmacological as well as nonpharmacological measures needed to ameliorate parasitic infestations
- ❖ Promote against the development of resistance against pediculicides



1. **Scabies is a contagious parasitic infection of skin, caused by a small mite that burrows in the stratum corneum, where the females start to deposit eggs. What are the most common sites of infection and characteristic symptoms?**



2. **The commonly used preparations for the treatment of scabies contain benzyl benzoate. Give commercial names of products containing benzyl benzoate. How are they used?**
3. **If a person is infected and is being treated against scabies, what are the hygienic and preventive measures for the households and people living in the same environment?**

4. Pediculosis is a skin infestation produced by blood-sucking lice. Three types of lice that infect humans: head, body and pubic lice. Briefly describe the age and seasonal incidence, and transmission of head lice infestation.

5. What are the signs and symptoms observed in patients presenting with head lice infestation?

6. Identify in the pharmacy nit combs and their proper use.

7. Compare and contrast between the different non-prescription medicated shampoos used for head lice infestation treatment, and counsel patients about their correct use, according to the table below.

Product	Permethrin
Brand names	
Method of application	
Recommended treatment period for maximum effectiveness	
Side effects and precautions	

8. Compare and contrast the prescription-only pediculicides according to the table below:

Product	Method of application	Recommended treatment period for maximum effectiveness	Side effects	Brand names in Yemen market (if available)
Malathion				
Lindane				

9. Educate your patient about lice treatment and prevention (transmission through personal items, use of nit combs, cleaning and disinfection of household items using detergents and sunlight exposure, etc.).

10. What is the minimum age for use of the above products?

11. Are the above products compatible with pregnancy and lactation?

12. Can pediculicides be prescribed by the community pharmacist for prophylaxis against lice infestation? Why?



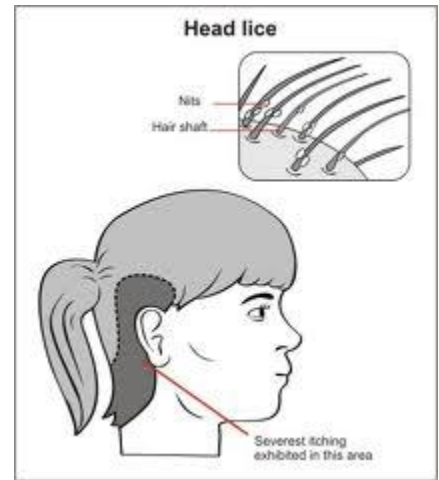
"You're too skeptical. Think of all those heads out there - how CAN there be only life on ours?"

13. The oral antibiotic combination trimethoprim-sulfamethoxazole is claimed in some small studies to be effective against head lice.

- What are the available trade names in Yemen?

- What is the rationale behind the above use?

14. Properly advise a mother, presenting to your counter, about her 5-year old son reported by his school to suffer head lice infestation.



G. Minor Wound Care**Learning Outcomes:****At the end of this topic, students must be able to:**

- ❖ Differentiate minor wounds that the patient can self-manage with the help of the pharmacist
- ❖ Know the antiseptics available for minor wound care and elaborate their correct utilization

For limited, minor wounds that can be self-managed, complete the following table:

Ingredient	Strength	Use
Normal saline		
Hydrogen peroxide		
Iodine tincture		
Betadine (various dosage forms)		
Ethyl alcohol		
Isopropyl alcohol		

H. Corns

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Compare and contrast different treatment products for corns
- ❖ Select appropriate non-pharmacological therapy and patient counseling
- ❖ Be familiar with available brands at the Yemen market



1. The soles of the feet are the most common positions for corn development. What are the predisposing factors to this problem? Advise a patient on how it can be avoided.

2. Salicylic acid is a keratolytic agent marketed as a nonprescription product for treatment of corns. Describe its use according to the following table:

Salicylic acid dosage forms	Solution (collodion)	Plaster
Brand(s)		
Description of the dosage form		
Administration frequency and counseling		
Concentration		
Contraindications		

I. Insect bites**Learning Outcomes:****At the end of this topic, students must be able to:**

- ❖ Properly regard insect bites as a common problem especially during summer outdoor activities
- ❖ Comprehend nonpharmacological management of insect bites including avoidance of insects and use of insect repellants
- ❖ Be familiar with nonprescription therapy of minor insect bites.
- ❖ Elaborate commonly used prescription-only products for management of this common condition

1. The FDA-approved insect repellants are listed in the table below; please compare and contrast between them.

Insect repellent	Dosage forms	Frequency of topical application	Minimum age for safe use	Side effects	Yemen brands (if available)
DEET					
Picaridin					

2. Mention other ingredients of natural origin, available in insect repellent products

3. How can you advice a patient about avoiding insect bites other than by application of topical repellants?

4. Ice packs and cold compresses can be used to relieve pain associated with insect bites, if placed over them for about 10 minutes. Find samples from these in the pharmacy and educate patients about using them.

5. Describe the following agents used for insect bite management:

Generic name	Trade name (s)	Application frequency
Dimenhydrinate gel		
Calamine lotion		
Dimenhydrinate tablets		
	Histamed F [®] tablets	

6. What should be done if infection develops at the site of the bite or if anaphylaxis occurs?
7. Malaria is a disease transmitted by an insect bite and endemic in Africa. How do you advise a Yemen patient traveling to Africa about avoidance of malaria (mention both the prophylactic oral drug of choice and the nonpharmacological options).

Topic 2: Cosmetology

A. Sunscreens, sun less tanning products and de-pigmenting agents

Learning Outcomes:

At the end of this topic, students must be able to:

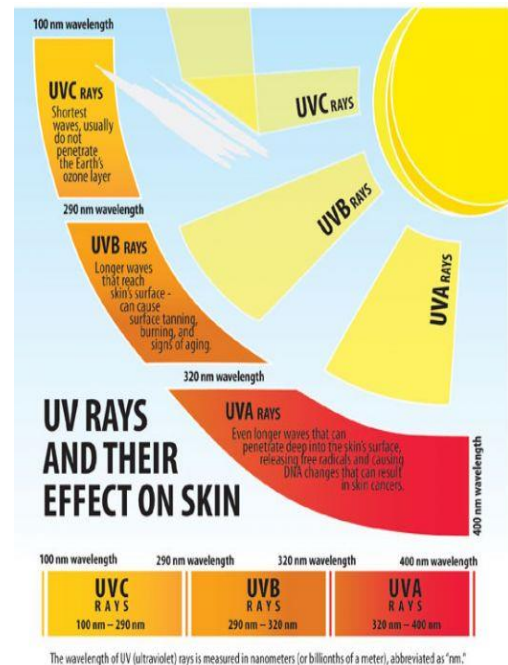
- ❖ Explain to patients the importance of skin protection against sun exposure
- ❖ Be familiar with different classes of sun-protecting (sunscreen/sunblock) agents
- ❖ Understand sun tanning and evaluate different artificial tanning agents
- ❖ Educate the patient about the way to protect his skin from sunlight
- ❖ Discuss the different types of drug induced photosensitivity reactions

Sunscreens

1. People protect their skin against harmful ultra violet light by avoiding exposure and applying sunscreens. The ability of sunscreen products to protect skin against UVB depends upon its sun protection factor (SPF). What is SPF? How it is calculated?

2. What is the minimum SPF for adults and children?

3. Some sunblockers claim having a broad spectrum protection. What does that mean?



4. Educate patients about exposure to UV radiation and corresponding skin damage, i.e. time of the day, season, altitude, environmental, and genetic factors.



5. Ingredients used in sunscreen have different characteristics. They are usually classified into 2 main groups: Physical blockers (sunblock) and chemical absorbers (sunscreens). Explain the difference between both groups. Describe selected sunblock and sunscreen products available in Yemen (at least 5), according to the table below:

Brand name	Ingredients		Protection		Dosage form
	sunblock	sunscreen	SPF	Broad Spectrum	
1-					
2-					
3-					
4-					
5-					

6. Explain to patients when and how frequently they should apply sun-protectant.

7. What formulation of sun-protectant would you recommend for dry skin and for oily skin?

8. Who should apply products with highest SPF: individuals with dark, medium, or fair skin?

9. Classify the skin phototype and give the characteristics of each one:

Phototype	Skin color	Skin color upon sun exposure	Skin reaction upon sun exposure
I			
II			
III			
IV			
V			
VI			

Sunless tanning products



1. Give examples from the pharmacy of the following products and specify their main active ingredients:

Product	Brand name ®	2 Main Active ingredients	Mechanism of action
Suntan products			
Oral pigmenting agents			
Topical pigmenting agents			

2. What will be the advice and recommendation that you may give to your consumer when using such products?

Depigmenting agents



1. Explain the mechanism or pathway of skin pigmentation and list the types of skin hyperpigmentation.

2. What are the main factors that induce and accelerate skin pigmentation?

3. List the most important photosensitive drugs that induce skin pigmentation.

4. What are the available OTC products that treat hyperpigmentation? Give 2 examples; identify their active ingredients and their mechanism of action.

OTC Product	Active ingredients	Mechanism of Action

5. List 5 available cosmetic whitening agents available in the Yemen market and specify the active ingredients of each one.

Cosmetic whitening agents	Active ingredients

6. Counsel your consumers about the appropriate use of whitening agents (advice, how to use the products, recommendations)



B. Hair Care, Hair loss and depilatory agents**Learning Outcomes:****At the end of this topic, students must be able to:**

- ❖ Identify the specific type of hair loss
- ❖ Understand the main causes of hair loss
- ❖ Have an idea about available products that treat hair loss
- ❖ Counsel the consumer about the practices that may induce or enhance hair loss and how to take care of their hair

1. What is the duration of the hair growth cycle?

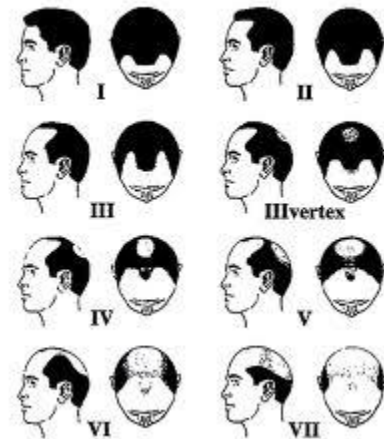
2. List the different types of hair loss.

3. What are the main causes of hair loss?

4. Define androgenic alopecia and give the appropriate FDA approved treatment.

5. What are the symptoms of alopecia areata and the available treatments?

Norwood's Classification of Male Pattern Alopecia



6. List the available oral supplements for hair loss. Do they help? Justify your answer.

Brand name ®	Active components	Claims of the manufacturer
1-		
2-		
3-		
4-		
5-		

7. Depilatory agents: main active ingredient and their mode of action.



C. Anti aging products

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Understand the mechanism of action of anti-wrinkle products
- ❖ Counsel patients about wrinkles and to prevent their formation
- ❖ Differentiate between different type of anti-wrinkle products
- ❖ Be more familiar with the components having anti-wrinkle benefits

1. List the main factors influencing and accelerating skin aging.



2. How we can escape aging? Is there any preventive treatment?

3. A 50 years old lady came to the community pharmacy asking for an effective anti-wrinkle product. She claimed that she tried a number of cosmetic products without any proven efficacy. What do you suggest and what will be your recommendation and advice?



4. Fulfill the table below with the available anti-wrinkle products available in the community pharmacy. (8 examples)

Brand name ®	Main anti-wrinkle component	Specific claims
1-		
2-		
3-		
4-		
5-		
6-		
7-		
8-		

D. Specific daily care products for men

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Be familiar with specific cosmetological products for men,
- ❖ Guide their consumer about the correct use of such products

Fill in the following table about daily products for men:

Product	Brand®	Main components	Activity
Hydrating products			
Anti-wrinkle products			
Eye care products			

E. Specific daily care products for near normal skin (dry/oily skin)

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Advice patients about appropriate management of skin care
- ❖ How to manage oily skin and prevent acne
- ❖ How to manage dry skin and prevent xerosis

1. Specific hydrating products (moisturizers)for dry skin:



Brand®	Specific components
1-	
2-	
3-	
4-	

2. Specific hydrating products for oily skin (non-comedogenics):

Brand®	Specific components
1-	
2-	
3-	
4-	

F. Cellulite**Learning Outcomes:****At the end of this topic, students must be able to:**

- ❖ Mechanism of action of anti-cellulite products
- ❖ How to use anti-cellulite products
- ❖ Available anti-cellulite products in the Yemen market

1. Define cellulite.**2. List 5 examples of anti-cellulite agents used nowadays and specify their mechanism of action**

Anti-cellulite Agent	Mechanism of action
1-	
2-	
3-	
4-	
5-	

3. List some examples of topical anti-cellulite cosmetic products available in your pharmacy.

Topical anti-cellulite	Main active components	Claims of the products
1-		
2-		
3-		
4-		
5-		
6-		

4. Counsel your consumers about the appropriate use of anti-cellulite products.

5. Do you think topical anti-cellulite products are effective? Justify your answer.

G. Eye care products

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Understand the difference between different eye care products such anti-wrinkle, hydrating or even anti-dark circle products.



	Brand name®	Main component(s)	Activity
Dark circles			
Hydrating			
Anti-wrinkles			

Module 4

MODULE 4: OTC AGENTS FOR COUGH, COLD, AND SORE THROAT/ OTC ANALGESICS AND ANTIPYRETICS / ORS / ALLERGIC RHINITIS

Topic 1: OTC products for cough and cold

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Differentiate between the two main cough types: wet and dry
- ❖ Comprehend various modes of action of cough products
- ❖ Be familiar with different brands available at the Yemen market for cough management & consider their ingredients, dosage forms & doses
- ❖ Identify the symptoms of common cold and their definite sequence of development, and assess the relevance of OTC treatment
- ❖ List non-pharmacological approaches for common cold and formulate appropriate patient counseling
- ❖ Individualize patient therapy for common cold
- ❖ Be familiar with the available products & combinations for common cold management at the Yemen market, taking into account their dosage forms, ingredients & doses
- ❖ Differentiate between decongestants and be familiarized with available products found on the Yemen market
- ❖ Discourage the inappropriate use of antibiotics in the management of cough and common colds

1. Specify all dosage forms available, active ingredients and therapeutic class (mucolytic, expectorant, cough sedative) of each of the following commercially available cough products listed in the table below:

Product [®]	Dosage form	Active ingredient	Therapeutic class	Compatibility		
				Diabetes Mellitus	Hypertension	Pregnancy
Sinecod [®]						
Rhinathiol [®]						
Toplexil [®]						
Trophires [®]						
Rectoplexil [®]						
Bisolvon [®]						
Mucosolvan [®] / Mucum [®]						
Neo-codion [®]						
Alergical expectorante [®]						
Bronchicum [®]						
ACC [®] /Flumicil [®]						
Fluibron [®]						
Prospan [®]						
Alpen Kraft [®]						

2. Explain to a patient the important non-pharmacological measures that help in the alleviation of symptoms of common cold.

3. OTC products dispensed to patients with common colds include topical and systemic decongestants, cough suppressants, and analgesics; many of these are available in combination. Please specify examples of these products from the community pharmacy according to the following table:

Product [®]	Active ingredients	Administration (dosing and frequency)	Counseling
Advil sinus tablets			
Panadol sinus tabs			
Panadol cold and flu (yellow)			
Panadol cold and flu (green)			
Uniflu tablets			
Citramin tablets			
123 tablets			
123 liquid			
Coldin tablets			
Coldin liquid			
Novagesic tablets			
Otrivin nasal drops/spray			
Vibrocil nasal drops/spray/gel			

Topic 2: OTC products for sore throat**Learning Outcomes:****At the end of this topic, students must be able to:**

- ❖ Identify sore throat symptoms and their relationship to upper respiratory tract infections
- ❖ Identify commercial products for the management of sore throat in the Yemen market

1. Mention the generic names of some lozenges used for sore throat relief according to the following table:

Product Brand name	Generic name	Dosage form
Orofar		
Anginova		
Trachisan		
Vicks drops		
Strepsils		
Drill		
Decatlen		

2. Counsel patients on the proper use of these products.

Topic 3: OTC analgesics and antipyretics**Learning Outcomes:****At the end of this topic, students must be able to:**

- ❖ Select the appropriate antipyretic/analgesic for each patient according to his/her age, pregnancy and disease condition
- ❖ Be familiar with different analgesics/antipyretics available at the Yemen market considering their ingredients and dosage forms
- ❖ Be familiar with different combinations available at the Yemen market considering their ingredient and dosage forms
- ❖ Identify Reye's syndrome

1. Please fill in the following table for different non-steroidal anti-inflammatory drugs (NSAIDs) that are available on the Yemen market.

Generic name	Brand name	Dosage form (oral, rectal, injection; specify both immediate and sustained release formulations)	Contraindications	Minimum age limit
Aspirin				
Enteric coated aspirin				
Acetaminophen				
Ibuprofen				
Ketoprofen				
Naproxen sodium				
Tiaprofenic acid				

Mefenamic acid				
Diclofenac sodium				
Diclofenac potassium				
Meloxicam				
Piroxicam				
Celecoxib				

- 2. What are the differences between regular aspirin and enteric-coated aspirin?**
- 3. What is the maximum daily dose of acetaminophen?**
- 4. What is Reye's syndrome? With which of the above drugs is it associated?**
- 5. Which of the above drugs is considered a safe analgesic during pregnancy?**

- 6. Which of the above drug(s) is safe for a 2-year old child suffering fever and a viral infection? How would you calculate the dose of the drug(s) for this child?**

- 7. How do you counsel patients to use NSAIDS in relation to meals?**

- 8. Are NSAIDs safe in patients with hypertension?**

- 9. Which NSAID is the safest to use in a patient with cardiovascular diseases?**

- 10. Which of the NSAIDs listed above is considered mostly safe for a patient with gastritis or peptic ulcer disease? Why?**

- 11. Which of the NSAIDs listed above is approved for children?**

- 12. What is the difference between Voltaren® 50 mg and Voltaren® 50 mg D?**

- 13. What is the difference between Doclofenac® and Cataflam®?**

14. Fill in the following table for combination analgesics/antipyretics from the Yemen market:

Brand name®	Ingredients	Contraindications
Panadol Extra/Adol extra		
Panadol Night		
Solpadeine		
Excederin		
Maxifen		

Learning Outcomes:

At the end of this topic, students must be able to:

- ❖ Recognize signs/symptoms and triggers of allergic rhinitis
- ❖ Formulate a patient-specific and symptom-specific therapeutic plan
- ❖ Know the antihistamines available on the market, dosage forms, side effects and monitoring
- ❖ Know all options available for allergic rhinitis
- ❖ Counsel the patient on pharmacologic and non-pharmacologic therapies

Fill in the tables in the following pages.

Systemic Antihistamine

Generic	Brands available	Side Effects and Major Counseling tips
First Generation Systemic Antihistamine		
Dexbrompheniramine		
Dexchlorpheniramine		
Diphenhydramine		
	Atarax®	
Promethazine		
Triprolidine	Actifed®	
Clorpheniramine		
	Fenistil ®	
	Histamed F®	
	Primalan ®	
Others		
Second Generation Systemic Antihistamine		
Cetirizine		
	Xyzal®	
	Aerius®	
	Telfast®	
Loratidine		
Others		

Nasal Antihistamine		
Generic	Brands available	Side Effects and Major Counseling tips
	Allergodil®	

Systemic decongestants

Generic	Brands available	Side Effects and Major Counseling tips
Phenylephrine		
Pseudoephedrine		
Topical decongestants (drops or spray)		
Short acting (up to 4 hours)		
Phenylephrine		
Intermediate acting (4-6 hours)		
	Rino Fluimucil ®	
Xylometazoline		
Long acting (up to 12 hours)		
	Nasivin ®	

Nasal Steroids		
Generic	Brands available	Side Effects and Major Counseling tips
Beclomethasone		
	Rhinocort®	
Fluticasone propionate		
	Avamys ®	
Mometasone		
	Nasocort®	
Others		

APPENDIX

