2024 -2025

University of Basrah

College of Pharmacy

STUDY CURRICULUM

COLLEGE OF PHARMACY

Study Subjects Distribution

By:

Levels

المواد الدراسية لكلية الصيدلة - جامعة البصرة - لعام 2024 -2025 (التحديث الثالث)

ت	الفرع	المرحلة	الفصل	اسم المادة	الوحدات		Codes
					النظري	العملي	
1	العلوم المختبرية السريرية	Stage 1	الأول	Human Biology	2	1	BSPH11121
2	الكيمياء الصيدلانية	Stage 1	الأول	Analytical chemistry	3	1	BSPH11231
3	الصيدلانيات	Stage 1	الأول	Principles of pharmacy practice	2	0	BSPH11320
4	العقاقير والعلوم الساندة	Stage 1	الأول	Mathematics & Biostatistics	3	0	BSPH11430
5	الادوية والسموم	Stage 1	الأول	Medical terminology	1	0	BSPH11510
6	العقاقير والعلوم الساندة	Stage 1	الأول	Human rights & Democracy	2	0	UOB11620
7	العقاقير والعلوم الساندة	Stage 1	الثاني	Computer sciences	2	1	UOBS12721
8	العلوم المختبرية السريرية	Stage 1	الثاني	Histology	2	1	BSPH12121
9	العقاقير والعلوم الساندة	Stage 1	الثاني	Medical Physics	2	1	BSPH12221
10	الكيمياء الصيدلانية	Stage 1	الثاني	Organic Chemistry I	3	1	BSPH12331
11	العلوم المختبرية السريرية	Stage 1	الثاني	Human Anatomy	1	1	BSPH12411
12	الصيدلانيات	Stage 1	الثاني	Pharmaceutical calculations	2	1	BSPH12621
13	العقاقير والعلوم الساندة	Stage 1	الثاني	English language	2	0	UOBS12721
14	العلوم المختبرية السريرية	Stage 2	الأول	Medical Microbiology I	3	1	BSPH21131
15	الكيمياء الصيدلانية	Stage 2	الأول	Organic Chemistry II	3	1	BSPH21231
16	الادوية والسموم	Stage 2	الأول	Physiology I	3	1	BSPH21331
17	العقاقير والعلوم الساندة	Stage 2	الأول	Ba'ath Crimes	2	0	UOBS21411
18	الصيدلانيات	Stage 2	الأول	Physical pharmacy I	3	1	BSPH21531
19	العقاقير والعلوم الساندة	Stage 2	الثاني	Pharmacognosy I	3	1	BSPH22131
20	الكيمياء الصيدلانية	Stage 2	الثاني	Organic Chemistry III	3	1	BSPH22231
21	العلوم المختبرية السريرية	Stage 2	الثاني	Medical microbiology II	3	1	BSPH22331
22	الادوية والسموم	Stage 2	الثاني	Physiology II	3	1	BSPH22431
23	الصيدلانيات	Stage 2	الثاني	Physical pharmacy II	3	1	BSPH22531
24	العقاقير والعلوم الساندة	Stage 2	الثاني	Arabic language	2	0	UOBS22720
25	الكيمياء الصيدلانية	Stage 3	الأول	InOrganic Pharmaceutical Chemistry I	2	1	BSPH31121
26	الصيدلانيات	Stage 3	الأول	Pharmaceutical technology I	3	1	BSPH31231
27	العقاقير والعلوم الساندة	Stage 3	الأول	Pharmacognosy II	2	1	BSPH31321
28	الادوية والسموم	Stage 3	الأول	Pathophysiology	3	1	BSPH31431
29	العلوم المختبرية السريرية	Stage 3	الأول	Biochemistry I	3	1	BSPH31531
30	الكيمياء الصيدلانية	Stage 3	الثاني	Organic Pharmaceutical Chemistry I	3	1	BSPH32131
31	الصيدلانيات	Stage 3	الثاني	Pharmaceutical technology II	3	1	BSPH32231
32	الادوية والسموم	Stage 3	الثاني	Pharmacology I	3	0	BSPH32330
33	العقاقير والعلوم الساندة	Stage 3	الثاني	Pharmacognosy III	2	1	BSPH32421
34	العلوم المختبرية السريرية	Stage 3	الثاني	Biochemistry II	3	1	BSPH32531
35	الصيدلة السريرية	Stage 3	الثاني	Pharmaceutical Ethics	1	0	BSPH32610
36	الادوية والسموم	Stage 4	الأول	Pharmacology II	3	1	BSPH41131
37	الصيدلة السريرية	Stage 4	الأول	Public Health	2	0	BSPH41220
38	الصيدلانيات	Stage 4	الأول	Biopharmacy	2	1	BSPH41321
39	الصيدلة السريرية	Stage 4	الأول	Clinical Pharmacy I	2	1	BSPH41421
40	الكيمياء الصيدلانية	Stage 4	الأول	Organic Pharmaceutical Chemistry II	3	1	BSPH41531
41	الصيدلانيات	Stage 4	الثاني	Industrial Pharmacy I	3	1	BSPH42131
42	الادوية والسموم	Stage 4	الثاني	Pharmacology III	2	0	BSPH42220
43	الادوية والسموم	Stage 4	الثاني	General Toxicology	2	1	BSPH42321
44	الصيدلة السريرية	Stage 4	الثاني	Clinical Pharmacy II	2	1	BSPH42421
45	الكيمياء الصيدلانية	Stage 4	الثاني	Organic Pharmaceutical Chemistry III	3	1	BSPH42531
46	الصيدلة السريرية	Stage 4	الثاني	Communication skills	2	0	BSPH42620

المواد الدراسية لكلية الصيدلة - جامعة البصرة - لعام 2024 -2025 (التحديث الثالث)

ت	الفرع	المرحلة	الفصل	اسم المادة	الوحدات		Codes
					النظري	العملي	
47	الصيدلة السريرية	Stage 5	الأول	Therapeutics I	3	0	BSPH51130
48	العلوم المختبرية السريرية	Stage 5	الأول	Clinical Chemistry	3	1	BSPH51231
49	الكيمياء الصيدلانية	Stage 5	الأول	Organic Pharmaceutical Chemistry IV	2	0	BSPH51320
50	الصيدلانيات	Stage 5	الأول	Industrial Pharmacy II	3	1	BSPH51431
51	العلوم المختبرية السريرية	Stage 5	الأول	Clinical Lab. Training	0	2	BSPH51502
52	الادوية والسموم	Stage 5	الأول	Clinical Toxicology	2	1	BSPH51621
53		Stage 5	الأول	Graduation project	0	1	BSPH51701
54	الصيدلة السريرية	Stage 5	الثاني	Therapeutic Drug Monitoring (TDM)	2	1	BSPH52121
55	الصيدلة السريرية	Stage 5	الثاني	Pharmaco-economy	2	0	BSPH52220
56	الصيدلة السريرية	Stage 5	الثاني	Therapeutics II	2	1	BSPH52321
57	الصيدلانيات	Stage 5	الثاني	Dosage Forms design	2	0	BSPH52420
58	الكيمياء الصيدلانية	Stage 5	الثاني	Advanced Pharmaceutical analysis	3	1	BSPH52531
59	الصيدلانيات	Stage 5	الثاني	Pharmaceutical Biotechnology	1	0	BSPH52610
60	الصيدلة السريرية	Stage 5	الثاني	Hospital Training	0	1	BSPH52802
		المجموع		60	137	44	

seq	الفرع			عدد الدروس	مجموع الوحدات		
					النظري	العملي	
2	الصيدلة السريرية			10	18	5	
3	الصيدلانيات			11	27	8	
4	الكيمياء الصيدلانية			10	28	9	
5	العلوم المختبرية السريرية			9	20	10	
6	الادوية والسموم			9	22	6	
7	العقاقير والعلوم الساندة			10	22	5	
		المجموع		60	137	44	181

COLLEGE OF PHARMACY

Study Subjects Distribution

By:

Departments

المواد الدراسية لكلية الصيدلة - جامعة البصرة - لعام 2024 -2025 (التحديث الثالث) - حسب الفروع

ت	الفرع	المرحلة	الفصل	اسم المادة	الوحدات	
					النظري	العملي
1	الصيدلانيات	Stage 1	الأول	Principles of pharmacy practice	2	0
2	الصيدلانيات	Stage 1	الثاني	Pharmaceutical calculations	2	1
3	الصيدلانيات	Stage 2	الأول	Physical pharmacy I	3	1
4	الصيدلانيات	Stage 2	الثاني	Physical pharmacy II	3	1
5	الصيدلانيات	Stage 3	الأول	Pharmaceutical technology I	3	1
6	الصيدلانيات	Stage 3	الثاني	Pharmaceutical technology II	3	1
7	الصيدلانيات	Stage 4	الأول	Biopharmacy	2	1
8	الصيدلانيات	Stage 4	الثاني	Industrial Pharmacy I	3	1
9	الصيدلانيات	Stage 5	الأول	Industrial Pharmacy II	3	1
10		Stage 5	الأول	Graduation project	0	1
11	الصيدلانيات	Stage 5	الثاني	Dosage Forms design	2	0
12	الصيدلانيات	Stage 5	الثاني	Pharmaceutical Bio-technology	1	0

ت	الفرع	المرحلة	الفصل	اسم المادة	الوحدات	
					النظري	العملي
1	الصيدلة السريرية	Stage 3	الثاني	Pharmaceutical Ethics	1	0
2	الصيدلة السريرية	Stage 4	الأول	Public Health	2	0
3	الصيدلة السريرية	Stage 4	الأول	Clinical Pharmacy I	2	1
4	الصيدلة السريرية	Stage 4	الثاني	Clinical Pharmacy II	2	1
5	الصيدلة السريرية	Stage 4	الثاني	Communication skills	2	0
6	الصيدلة السريرية	Stage 5	الأول	Therapeutics I	3	0
7		Stage 5	الأول	Graduation project	0	1
8	الصيدلة السريرية	Stage 5	الثاني	TDM	2	1
9	الصيدلة السريرية	Stage 5	الثاني	Pharmaco-economy	2	0
10	الصيدلة السريرية	Stage 5	الثاني	Therapeutics II	2	1
11	الصيدلة السريرية	Stage 5	الثاني	Hospital Training	0	1

ت	الفرع	المرحلة	الفصل	اسم المادة	الوحدات	
					النظري	العملي
1	الكيمياء الصيدلانية	Stage 1	الأول	Analytical chemistry	3	1
2	الكيمياء الصيدلانية	Stage 1	الثاني	Organic Chemistry I	3	1
3	الكيمياء الصيدلانية	Stage 2	الأول	Organic Chemistry II	3	1
4	الكيمياء الصيدلانية	Stage 2	الثاني	Organic Chemistry III	2	1
5	الكيمياء الصيدلانية	Stage 3	الأول	InOrganic Pharmaceutical Chemistry I	2	1
6	الكيمياء الصيدلانية	Stage 3	الثاني	Organic Pharmaceutical Chemistry I	3	1
7	الكيمياء الصيدلانية	Stage 4	الأول	Organic Pharmaceutical Chemistry II	3	1
8	الكيمياء الصيدلانية	Stage 4	الثاني	Organic Pharmaceutical Chemistry III	3	1
9	الكيمياء الصيدلانية	Stage 5	الأول	Organic Pharmaceutical Chemistry IV	2	0
10		Stage 5	الأول	Graduation project	0	1
11	الكيمياء الصيدلانية	Stage 5	الثاني	Advanced Pharmaceutical analysis	3	1

المواد الدراسية لكلية الصيدلة - جامعة البصرة - لعام 2024 -2025 (التحديث الثالث) - حسب الفروع

ت	الفرع	المرحلة	الفصل	اسم المادة	الوحدات	
					النظري	العملي
1	الادوية والسموم	Stage 1	الأول	Medical terminology	1	0
2	الادوية والسموم	Stage 2	الأول	Physiology I	3	1
3	الادوية والسموم	Stage 2	الثاني	Physiology II	3	1
4	الادوية والسموم	Stage 3	الأول	Pathophysiology	3	1
5	الادوية والسموم	Stage 3	الثاني	Pharmacology I	3	0
6	الادوية والسموم	Stage 4	الأول	Pharmacology II	3	1
7	الادوية والسموم	Stage 4	الثاني	Pharmacology III	3	1
8	الادوية والسموم	Stage 4	الثاني	Toxicology	2	1
9	الادوية والسموم	Stage 5	الأول	Clinical Toxicology	2	1
10		Stage 5	الأول	Graduation project	0	1

ت	الفرع	المرحلة	الفصل	اسم المادة	الوحدات	
					النظري	العملي
1	العلوم المختبرية السريرية	Stage 1	الأول	Human Biology	2	1
2	العلوم المختبرية السريرية	Stage 1	الثاني	Histology	2	1
3	العلوم المختبرية السريرية	Stage 1	الثاني	Human Anatomy	1	1
4	العلوم المختبرية السريرية	Stage 2	الأول	Medical Microbiology I	3	1
5	العلوم المختبرية السريرية	Stage 2	الثاني	Medical microbiology II	3	1
6	العلوم المختبرية السريرية	Stage 3	الأول	Biochemistry I	3	1
7	العلوم المختبرية السريرية	Stage 3	الثاني	Biochemistry II	3	1
8	العلوم المختبرية السريرية	Stage 5	الأول	Clinical Chemistry	3	1
9	العلوم المختبرية السريرية	Stage 5	الأول	Lab Training	0	2
10		Stage 5	الأول	Graduation project	0	1

ت	الفرع	المرحلة	الفصل	اسم المادة	الوحدات	
					النظري	العملي
1	العقاقير والعلوم الساندة	Stage 1	الأول	Mathematics & Biostatistics	3	0
2	العقاقير والعلوم الساندة	Stage 1	الأول	Human rights & Democracy	2	0
3	العقاقير والعلوم الساندة	Stage 1	الثاني	Computer sciences	2	1
4	العقاقير والعلوم الساندة	Stage 1	الثاني	Medical Physics	2	1
5	العقاقير والعلوم الساندة	Stage 2	الثاني	English language	2	0
6	العقاقير والعلوم الساندة	Stage 2	الأول	Ba'ath Crimes	2	0
7	العقاقير والعلوم الساندة	Stage 2	الثاني	Pharmacognosy I	3	1
8	العقاقير والعلوم الساندة	Stage 2	الثاني	Arabic language	2	0
9	العقاقير والعلوم الساندة	Stage 3	الأول	Pharmacognosy II	2	1
10	العقاقير والعلوم الساندة	Stage 3	الثاني	Pharmacognosy III	2	1
11		Stage 5	الأول	Graduation project	0	1

seq	الفرع			عدد الدروس	مجموع الوحدات	
					النظري	العملي
21	الصيدلة السريرية			10	18	5
22	الصيدلانيات			11	27	8
23	الكيمياء الصيدلانية			10	27	9
24	العلوم المختبرية السريرية			3	20	10
25	الادوية والسموم			9	23	7
26	العقاقير والعلوم الساندة			0	22	5
		المجموع		44	137	44

COLLEGE OF PHARMACY

Study Curriculum

Stage 1

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Laboratory Sciences**	**العلوم المختبرية السريرية**
Level	**Stage 1**	
Semster	**1st Semester**	**الأول**
Title of Course	**Human Biology**	
Code	**BSPH11121**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Johnks and Lnglis (eds.), Text Book of Human Biology, latest edition	
Objectives	Study the human body composition, types of cell structures, types of tissues, bone, skeleton, joints and muscle as well as the nutrition. Human biology also explains in details the different body systems and human genetics. At the end of the course the student should be able to describe the human body composition, body systems structure and function, and human genetics such as the mendelain inheritance, division of chromosomes, and terms such as allel, locus homo and heterozygous.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Biology	**2**
2	Cell	**2**
3	Tissues, bone and cartilages	**3**
4	Nervous system (central & peripheral)	**4**
5	Nutrition	**2**
6	Digestive system (Mouth, Esophagus, Stomach)	**2**
7	Digestive system (intestine)	**1**
8	Excretory system & respiration	**3**
9	Human genetics (chromosomes & semi-lethal genes)	**3**
10	Skin	**2**
11	Circulatory system	**3**
12	Immunity (Inflammation, immunity & the blood , immunity to disease)	**3**

Lab Works			
Title of Course	**Human Biology**		
Level	**Stage 1**	**Semster**	**1st Semester**
Department	**Clinical Laboratory Sciences**		
References	Lab Manual for Practical Human Biology Adopted by the Department		
Objectives	Study the human body composition, types of cell structures, types of tissues, bone, skeleton, joints and muscle as well as the nutrition. Human biology also explains in details the different body systems and human genetics. At the end of the course the student should be able to describe the human body composition, body systems structure and function, and human genetics such as the Mendelian inheritance, division of chromosomes, and terms such as allele, locus, homo and heterozygous.		

Lecture No.	Subjects	Hours
1	The microscope	**2**
2	The cells	**2**
3	Cell division (Mitosis)	**2**
4	Cell division (Meiosis)	**2**
5	The tissues (Single epithelial tissue)	**2**
6	Connective tissue	**2**
7	Muscular tissue	**2**
8	Nervous tissue	**2**
9	Bone & Cartilage	**2**
10	Digestive system (digestion)	**2**
11	Digestive system (Small & Large intestine)	**2**
12	Blood	**2**
13	The Chromosome	**2**
14	Excretory system	**2**
15	Skin	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 1**	
Semster	**1st Semester**	**الأول**
Title of Course	**Analytical chemistry**	
Code	**BSPH11231**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Fundamentals of Analytical Chemistry by Stook and West, latest edition	
Objectives	To provide students with a sound theoretical back ground in chemical principles that is essential to practice chemical analysis. It enables students to understand the importance of judging the accuracy and precision of experimental data and techniques of quantitative analysis, and also to show that theory frequently serves as a useful guide to the solution of analytical problems.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Review of elementary concept important to analytical chemistry: Strong and weak electrolytes; important weight and concentration	4
2	The evaluation of analytical data: Definition of terms.	1
3	An introduction to gravimetric analysis: Statistical analysis of data; rejection of data; precipitation methods; gravimetric factor.	9
4	The scope of applications of gravimetric analysis: Inorganic precipitating agents; organic precipitating agents.	4
5	An introduction to volumetric methods of analysis: Volumetric calculations; acid-base equilibria and pH calculations.	5
6	Buffer solutions: Theory of neutralization titrations of simple system.	3
7	Theory of neutralization titrations of complex system; Precipitation titrations.	5
8	Calculation of pH in complex system; Volumetric methods based on complex system.	4
9	Equilibria in oxidation-reduction system; theory of oxidation-reduction titrations.	6
10	Spectrophotometric analysis: An introduction to optical methods of analysis; Methods based on absorption of radiation.	4

Lab Works			
Title of Course	**Analytical chemistry**		
Level	**Stage 1**	**Semster**	**1st Semester**
Department	**Pharmaceutical Chemistry**		
References	Hand book for Analytical Chemistry lab adopted by department		
Objectives	To provide students with a sound theoretical back ground in chemical principles that is essential to practice chemical analysis. It enables students to understand the importance of judging the accuracy and precision of experimental data and techniques of quantitative analysis, and also to show that theory frequently serves as a useful guide to the solution of analytical problems.		

Lecture No.	Subjects	Hours
1	Demonstration of some laboratory equipments.	2
2	Separation and identification of group 1 cations (individual test).	2
3	Analysis of group 1 cataions mixture.	4
4	Preparation and standardization of an acid.	2
5	Determination of the percentage of acetic acid.	2
6	Analysis of sodium carbonate and sodium hydroxide mixture.	2
7	Determination of chloride by the Mohr method.	2
8	Determination of chloride by the Volhard method.	2
9	Preparation and standardization of 0.1N KMnO4.	4
10	Determination of ferrous form of iron in Mohr's salt.	2
11	Determination of total hardness in tab water.	2
12	Gravimetric determination of Nickel.	4

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 1**	
Semster	**1st Semester**	**الأول**
Title of Course	**Principles of pharmacy practice**	
Code	**BSPH11320**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☐ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	Pharmaceutical Calculation by Stoklosa, latest edition	
Objectives	Involves brief information about old pharmacy. It teaches kinds of numbers, abbreviations that are commonly used in prescriptions and their meanings. In this course the students will understand the components of typical prescription, the different unit systems and the relation between these systems. Students will also be familiar with the methods and tools of measuring weights and volumes, and how to calculate doses on different bases and know how to reduce or enlarge formulas; they will be able to describe values in percentage and ratio strength.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Some fundamentals of measurements and calculations.	4
2	Interpretation of prescription or medication orders.	4
3	The metric system.	4
4	Calculation of doses.	4
5	Reducing and enlarging formulas.	4
6	Density, specific gravity and specific volume.	4
7	Percentage and ratio strength calculation.	6

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 1**	
Semster	**1st Semester**	**الأول**
Title of Course	**Mathematics & Biostatistics**	
Code	**BSPH11430**	
Theory-Credits	**3**	
Practical Credits	**0**	
Total credits	**3**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☐ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	1.Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry, latest edition 2.Daniel WW (ED.), Foundation for Analysis in the Health Science, latest edition	
Objectives	Gives students the ability to deal with the concept of Mathematics and Statistic, emphasizes the knowledge and skill required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic Mathematics and application of Biostatistics in the medical field. Upon completion of the course students will be able to understand the applications of statistics in medical field.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Mathematics: General concepts; coordinate and graph in plane; inequality; absolute value or magnitude; function and their graphs; displacement function; slope and equation for lines.	**6**
2	Limits and continuity: Limits; theorem of limits; limit involving infinity; continuity; continuity conditions.	**4**
3	Derivatives: Line tangent and derivatives; differentiation rules; derivative of trigonometric function; practice exercises.	**6**
4	Integration: Indefinite integrals; rules for indefinite integrals; integration formulas for basic trigonometric function; definite integrals; properties of definite ntegrals; practice exercises.	**6**
5	Biostatistics: General concepts of statistics; statistical methods; statistical theory; applied statistics; statistical operations.	**2**
6	Probability concepts: Properties of probability; Set theory and set notation (basic notation); counting techniques- permutations and combinations; calculating the probability of an events; probability distribution of discrete variable; binomial distribution, Poisson distribution; continues probability distribution and normal distribution, review questions and exercises.	**6**
7	The concept of central tendency: Mean of sample and mean of population; median; mode; measure of central tendency; review questions and exercises.	**6**
8	standard deviation and variance; coefficient of variations; standard error; correlation analysis.(regression model and sample regression equation); application of statistic in medical field; review questions and exercises.	**9**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacology & Toxicology**	**الادوية والسموم**
Level	**Stage 1**	
Semster	**1st Semester**	**الأول**
Title of Course	**Medical terminology**	
Code	**BSPH11510**	
Theory-Credits	**1**	
Practical Credits	**0**	
Total credits	**1**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☐ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	Edward CC, (Ed.); A Short Course in Medical Terminology; Lippincott Williams and Wilkins, latest edition	
Objectives	In this course, students will learn to pronounce, spell, and define medical and pharmaceutical terms used in health care settings. It will use a word-building strategy that helps them discover connections and relationships among word roots, prefixes, and suffixes. They will learn the meaning of each part of a complex medical and pharmaceutical term and be able to put the parts together and define the term.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Basic word roots and common suffixes	**1**
2	More word roots, suffixes and prefixes related to pharmaceutical sciences (pharmacognosy, clinical pharmacy, pharmaceutics,…etc)	**1**
3	Basic anatomical terms and abnormal conditions	**2**
4	The genitals and urinary tract	**1**
5	The gastrointestinal tract	**1**
6	The heart and cardiovascular system	**1**
7	Symptoms, diagnoses, treatments, communication qualifiers, and statistics	**2**
8	Growth and development, and body orientation	**1**
9	Gynecology, pregnancy, and childbirth	**1**
10	The eye and the respiratory tract	**1**
11	The nervous system and behavioral disorders	**2**
12	Blood and immunity	**1**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 1**	
Semster	**1st Semester**	**الأول**
Title of Course	**Human rights & Democracy**	
Code	**UOB11620**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☐ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	سن، أمارتيا. الديمقراطية وحقوق الإنسان. ترجمة: فايز الصياغ. بيروت: المنظمة العربية للترجمة، 2009. المفوضية السامية للأمم المتحدة لحقوق الإنسان. حقوق الإنسان: أسس ومفاهيم. جنيف: الأمم المتحدة، 2016.	
Objectives	help students understand the fundamental principles of human dignity, equality, and freedom, alongside the values of participation, accountability, and rule of law that shape democratic societies. It seeks to build awareness of historical and legal foundations, international conventions, and national frameworks that protect rights, while also encouraging critical thinking about challenges such as discrimination, corruption, and authoritarianism. Through this subject, learners are guided to become responsible, active citizens who respect diversity, promote justice, and contribute meaningfully to the protection and advancement of human rights and democratic values.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Understanding the Relationship Between Islam and Democracy ,Origin and Evolution of Democracy	2
2	Forms of Democratic Governance;Fundamental Elements of Democracy	2
3	Characteristics of a Democratic State; Diversity in a Democratic Society	2
4	Elections and Democracy; Democratic Ethics and Committed Opposition	2
5	Culture of Democracy; Democracy, Education, and Training	2
6	Democratic Governance;Presidents and Prime Ministers in Democratic Systems; Parliamentary and Presidential Systems	2
7	Economic Policies and Pluralism; Political Parties; The Role of Media in a Democratic System	2
8	Human Rights in Ancient Civilizations (Greek and Roman); The Stance of Divine Laws on Human Rights	2
9	Legal Sources of Human Rights in the UK; USA; France; French Constitutions and Declarations post 1789	2
10	United Nations Charter; International Organizations and Human Rights Bodies; The Arab Charter on Human Rights	2
11	The International Committee of the Red Cross; Arab Organization for Human Rights; The Role of International NGOs in Human Rights	2
12	Concept and Historical Development of International Humanitarian Law; The Convergence of International Humanitarian Law and Human	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 1**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Computer sciences**	
Code	**UOBS12721**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☑ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	Computer Science: An Overview – J. Glenn Brookshear & Dennis Brylow (Pearson, 13th Edition, 2023).	
Objectives	equip students with a solid foundation in algorithms, programming, data structures, computer systems, and theoretical principles, while fostering problem-solving, analytical, and computational thinking skills. It also seeks to develop the ability to design and implement efficient software and systems, apply technology ethically and responsibly, and prepare learners for innovation, research, and professional careers in the rapidly evolving field of computing.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	**Word:** Working with Documents: Open, close a word processing application. Save a document to a location on a drive. Save a document under another name to a location on a drive. Save a document as another file type like: text file, Rich Text Format, template, software specific file extension, version number.	2
2	Set basic options/preferences in the application: user name, default folder to open, save documents. Use available Help functions. Enter text into a document. Insert symbols or special characters like: ©, ®, ™. Display, hide non-printing formatting marks like: spaces, paragraph marks, manual line break marks, tab characters	2
3	Use a simple replace command for a specific word, phrase. Copy, move text within a document, between open documents. Delete text. Use the undo, redo command. Change text formatting: font sizes, font types. Apply text formatting: bold, italic, underline.	2
4	Create, merge paragraph(s). Insert, remove soft carriage return (line break). Recognize good practice in aligning text: use align, indent, tab tools rather than inserting spaces. Align text left, centre, right, justified. Indent paragraphs: left, right, first line. Set, remove and use tabs: left, centre, right, decimal.	2
5	**Excel:** Understand that a cell in a worksheet should contain only one element of data, (for example, first name detail in one cell, surname detail in adjacent cell),Recognize good practice in creating lists: avoid blank rows and columns in the main body of list, insert blank row before Total row, ensure cells bordering list are blank, Enter a number, date, text in a cell. Select a cell, range of adjacent cells, range of non-adjacent cells, entire worksheet.	2

6	Sort a cell range by one criterion in ascending, descending numeric order, ascending, descending alphabetic order. Copy the content of a cell, cell range within a worksheet; Insert, delete rows and columns, Modify column widths, row heights to a specified value, to optimal width or height, Insert a new worksheet, delete a worksheet. Create formulas using cell references and arithmetic operators (addition, subtraction, multiplication, division).	**4**
7	Use sum, average, minimum, maximum, count, counta, round functions. Apply text wrapping to contents within a cell, cell range. Align cell contents: horizontally, vertically. Adjust cell content orientation. Print a selected cell range from a worksheet, an entire worksheet, number of copies of a worksheet, the entire spreadsheet, a selected chart.	**2**
8	**Internet:** Internet communication types Understand the concept of online storage solutions and identify common examples. Identify the limitations of online storage like: size limit, time limit, sharing restrictions	**2**
9	Identify features of web-based productivity applications: allows files to be updated by multiple users in real-time, allows files to be shared. Create, edit and save files online Share, unshare a file, folder to allow other users to view, edit, own a file, folder	**2**
10	Share a calendar. Grant permission to view, edit a shared calendar. Show, hide shared calendars, Invite, uninvite people, resources to an event. Accept, decline an invitation. Edit, cancel an existing event	**2**
11	Email(using and managing)	**2**

Lab Works			
Title of Course	**Computer sciences**		
Level	**Stage 1**	**Semster**	**2nd Semester**
Department	**Pharmacognosy & allied sciences**		
References	Hand book for Analytical Chemistry lab adopted by department		
Objectives	equip students with a solid foundation in algorithms, programming, data structures, computer systems, and theoretical principles, while fostering problem-solving, analytical, and computational thinking skills. It also seeks to develop the ability to design and implement efficient software and systems, apply technology ethically and responsibly, and prepare learners for innovation, research, and professional careers in the rapidly evolving field of computing.		

Lecture No.	**Subjects**	**Hours**
1	Excel Home Tab	**2**
2	Insert Tab	**2**
3	Chart and Illusteration	**4**
4	Data and formula tab	**2**
5	Functions	**4**
6	Formula editng	**2**
7	Calculations	**2**
8	Data analysis	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Laboratory Sciences**	**العلوم المختبرية السريرية**
Level	**Stage 1**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Histology**	
Code	**BSPH12121**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Basic Histology by Luiz Carlos; last Edition	
Objectives	To study the histological structure of the human body. It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness. At the end of the course the student should be familiar with the histological description of the human body.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	**Circulatory system:** Structure of the vascular system (Heart wall, Arteries, Veins & Capillaries)	2
2	**Circulatory system:** Structure of the lymphatic system (Lymphatic capillary).	1
3	**Lymphoid System:** Structure & function of the (Thymus gland, Spleen & Lymph nodes) Lymphoid nodule (MALT) & Tonsils	2
4	**Nervous System:** Central & Peripheral nervous system	3
5	**Respiratory System:** Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles); Respiratory portion (Lung)	3
6	**Digestive System:** Digestive steps; -General structure of the digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach); Small intestine, Large intestine, Rectum & Anus.	4
7	**Digestive System:** Glands associated with the digestive tract (Salivary glands, Pancreas, Liver & Gall bladder0..	1
8	**Endocrine system:** General structure of the pituitary gland; Histophysiologies of the pituitary gland.	1
9	**Endocrine system:** General structure of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands	2
10	**Male Reproductive System:** General structure of the testes; Stages of spermatogenesis.	1
11	**Female reproductive system:** General structure of ovary, Oviduct, Uterus & Vagina. Stages of follicle development; Ovulation	3
12	**Urinary system**: Structure & Function of the (kidney & nephrone); Histology of the nephrone (filtration, absorption & excretion); Structure of the (Ureter, Bladder & Urethra).	3
13	**Skin :** Thick & Thin skin	2

Lab Works			
Title of Course	**Histology**		
Level	**Stage 1**	**Semster**	**2nd Semester**
Department	**Clinical Laboratory Sciences**		
References	DiFiore's Atlas of Histology with Functional Correlations; last edition		
Objectives	To study the histological structure of the human body. It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness. At the end of the course the student should be familiar with the histological description of the human body.		

Lecture No.	Subjects	Hours
1	Circulatory system (Artery & Vein)	**2**
2	Lymphatic system (Thymus gland & spleen)	**2**
3	Lymphatic system (Lymph node & Islet of Langerhans)	**2**
4	Nervous system (Cerebral & cerebrum cortex)	**2**
5	Nervous system (Spinal cord)	**2**
6	Respiratory system (Trachea & lung)	**2**
7	Digestive system (Tongue, Esophagus & Stomach)	**2**
8	Digestive system (Small & Large intestine)	**2**
9	Digestive system Digestive system & Accessory glands of the digestive system (liver & Pancreas)	**2**
10	Endocrine system (Pituitary & Thyroid gland)	**2**
11	Endocrine system (Adrenal & pineal gland)	**2**
12	Male reproductive system (Testes & prostate gland)	**2**
13	Female reproductive system (Ovary & Uterus)	**2**
14	Urinary system (Kidney & Urinary bladder)	**2**
15	Skin (Thick & Thin skin)	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 1**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Medical Physics**	
Code	**BSPH12221**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Fundemental Of Physics By Halliday, Latest Edition	
Objectives	Give students the ability to deal with the concepts of physics, emphasizes the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic physics and application of physics in the medical field. Upon completion of the course the students will be able to understand the physical terminology and abbreviation used to describe the lecture, and the application in medical field.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	**General concepts:** Method of physics and standards; thermodynamics system and system properties; conservation of energy principle; application of thermodynamics; the Zeroth law.	3
2	Pressure; temperature and temperature scales (Celsius, Fahrenheit, Kelvin); equation of state; ideal gas and real gas; general law of gases; clauses equation and Vander Waales equation; equilibrium and types of equilibrium; compressibility factor, coefficient of volume expansion, elastic coefficient (bulk modulus).	6
3	Heat and energy; work and mechanical forms of work; power; the 1st law of thermodynamics; Boyles and Charles law; practice exercises.	3
4	The 2nd law of thermodynamics; reversible and irreversible process; entropy and enthalpy; internal energy; heat capacity and adiabatic process; the relation between pressure, volume, and temperature in adiabatic process.	6
5	Fundamental of physics: Kinetic theory of a gas; electromagnetic waves; Maxwell equations; physical optics.	6
6	**Radiation:** Kirshoffs law; planks law; Stefan-Boltzman law; Wiens law; Black body and Albedo; Heat transfer (radiation, convection, conduction).	6
7	Production of X-Ray and X-Ray spectra; absorption of X-Ray; U.V and IR effects; medical and biological effects of radiation; radiotherapy.	3

Lab Works			
Title of Course	**Medical Physics**		
Level	**Stage 1**	**Semster**	**2nd Semester**
Department	**Pharmacognosy & allied sciences**		
References	Lab manaual provided by Department; Medical Physics for Pharmacy Students;Ahmed N. Al-jamal		
Objectives	Give students the ability to deal with the concepts of physics, emphasizes the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic physics and application of physics in the medical field. Upon completion of the course the students will be able to understand the physical terminology and abbreviation used to describe the lecture, and the application in medical field.		

Lecture No.	Subjects	Hours
1	Explain how to plot graph and make laboratory report.	**2**
2	Optical Fiber Loss (bend) Measurement.	**2**
3	Simple pendulum.	**2**
4	Spectral photometric	**2**
5	Density of liquid.	**2**
6	The focal length of convex lens.	**2**
7	application computer in medical physics	**2**
8	Measurement of Viscosity of liquids.	**2**
9	Ostwald´s Viscometer: find viscosity of unknown; find the molecular weight; find concentration of unknown substance.	**4**
10	Measuring surface tension (by capillary rise method and traveling microscope).	**2**
11	Measuring surface tension (differential height capillary method).	**2**
12	Decay curve and half life.	**2**
13	Boyle's Law.	**2**
14	Speed of sound.	**2**
15	Laser application for measurement of single slit.	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 1**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Organic Chemistry I**	
Code	**BSPH12331**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1- Organic Chemistry by Robert T. Morrison and Robert N. Boyd. , Latest Edition; 2- Organic Chemistry by McCurry; . Thomason learning; CA,USA; , Latest Edition	
Objectives	To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds. It includes understanding the basic structure and properties of alkanes, alkenes and alkynes, in addition to the principles of stereochemistry and features of aromatic compounds.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction.	**3**
2	Alkanes and methane.	**6**
3	Alkenes I and II	**5**
4	Alkynes and dienes.	**5**
5	Stereochemistry I & II	**8**
6	Alcohols and ethers.	**8**
7	Alkyl halides.	**6**
8	Cycloalkanes.	**4**

Lab Works			
Title of Course	**Organic Chemistry I**		
Level	**Stage 1**	**Semster**	**2nd Semester**
Department	**Pharmaceutical Chemistry**		
References	HandBook for practical organic chemistry		
Objectives	To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds. It includes understanding the basic structure and properties of alkanes, alkenes and alkynes, in addition to the principles of stereochemistry and features of aromatic compounds.		

Lecture No.	Subjects	Hours
1	Determination of melting point (Known sample).	**2**
2	Determination of melting point (quiz and unknown).	**2**
3	Determination of boiling point (known sample).	**2**
4	Determination of boiling point (quiz and unknown).	**2**
5	Elemental analysis (explanation of basic concepts).	**2**
6	Elemental analysis (known quantity and quality sample).	**2**
7	Solution and filtration techniques (explanation of basic concepts).	**2**
8	Re-crystallization (known sample).	**2**
9	Re-crystallization (quiz and unknown sample).	**2**
10	Extraction technique (known sample).	**2**
11	Extraction technique (quiz and unknown).	**2**
12	Distillation techniques (known samples).	**2**
13	Distillation techniques (quiz and unknown).	**2**
14	Sublimation technique (known sample).	**2**
15	Sublimation technique (quiz and unknown).	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Laboratory Sciences**	**العلوم المختبرية السريرية**
Level	**Stage 1**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Human Anatomy**	
Code	**BSPH12411**	
Theory-Credits	**1**	
Practical Credits	**1**	
Total credits	**2**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Clinical anatomy by regions (Richard S. Snell), latest edition	
Objectives	To study the positions of differents organs in thoracic and abdominatl cavity.including digestive, circulatory,lymphatic, respiratory, urinary, reproductive, endocrine, nervous systems and skin	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	**Circulatory system:** location of the vascular system (Heart , Arteries, &Veins)	1
2	**Circulatory system:** location of the lymphatic system (Lymphatic capillary).	1
3	**Lymphoid System:** location & function of the (Thymus gland, Spleen & Lymph nodes);Lymphoid nodule (MALT) & Tonsils	2
4	**Nervous System:** Central & Peripheral nervous system by location	1
5	**Respiratory System:** Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles); Respiratory portion (Lung)	1
6	**Digestive System:** Digestive steps; General location of the digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach); Small intestine, Large intestine, Rectum & Anus.	1
7	**Digestive System:** Glands associated with the digestive tract (Salivary glands, Pancreas, Liver & Gall bladder)	1
8	**Endocrine system:** General locationof the pituitary gland thyroid parathyroid ,adrenal gland pineal gland and islet of langerhans	1
9	**Male Reproductive System:** General locationof the testes. Excretory genital ducts-Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands)	1
10	**Male Reproductive System:** General structure of the testes; Stages of spermatogenesis.	2
11	**Female reproductive system:** General locationof ovary, Oviduct, Uterus & Vagina.	2
12	**Urinary system**: Location of (kidney & nephrone); (Ureter, Bladder & Urethra).	1

Lab Works			
Title of Course	**Human Anatomy**		
Level	**Stage 1**	**Semster**	**2nd Semester**
Department	**Clinical Laboratory Sciences**		
References	DiFiore's Atlas of Histology with Functional Correlations; last edition		
Objectives	To study the positions of differents organs in thoracic and abdominatl cavity.including digestive, circulatory,lymphatic, respiratory, urinary, reproductive, endocrine, nervous systems and skin		

Lecture No.	Subjects	Hours
1	**Circulatory system:** location of the vascular system (Heart , Arteries, &Veins)	2
2	**Circulatory system:** location of the lymphatic system (Lymphatic capillary).	2
3	**Lymphoid System:** location & function of the (Thymus gland, Spleen & Lymph nodes);Lymphoid nodule (MALT) & Tonsils	2
4	**Nervous System:** Central & Peripheral nervous system by location	2
5	**Respiratory System:** Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles); Respiratory portion (Lung)	2
6	**Digestive System:** Digestive steps; General location of the digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach); Small intestine, Large intestine, Rectum & Anus.	2
7	**Digestive System:** Glands associated with the digestive tract (Salivary glands, Pancreas, Liver & Gall bladder)	2
8	**Endocrine system:** General locationof the pituitary gland thyroid parathyroid ,adrenal gland pineal gland and islet of langerhans	2
9	**Male Reproductive System:** General locationof the testes. Excretory genital ducts-Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands)	2
10	**Male Reproductive System:** General structure of the testes; Stages of spermatogenesis.	2
11	**Female reproductive system:** General locationof ovary, Oviduct, Uterus & Vagina.	2
12	**Urinary system**: Location of (kidney & nephrone); (Ureter, Bladder & Urethra).	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 1**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Pharmaceutical calculations**	
Code	**BSPH12621**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Pharmaceutical Calculations by Stoklosa, latest edition	
Objectives	It involves computation of pharmaceutical ingredients, dosage forms, pharmaceutical formulations of extemporaneous compounding, and biological parameters of drug substances. The course teaches calculations for dilution and concentration of different types of liquids and those involved in preparing isotonic solutions, electrolyte solutions and intravenous admixtures.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Dilution and concentration of pharmaceutical preparations.	10
2	Isotonic solutions.	6
3	Electrolyte solutions (milliequivalents, millimoles and milliosmoles).	6
4	Constituted solutions, I.V admixtures and flow rate calculations.	8

Lab Works			
Title of Course	**Pharmaceutical calculations**		
Level	**Stage 1**	**Semster**	**2nd Semester**
Department	**Pharmaceutics**		
References	HandBook for practical organic chemistry		
Objectives	It involves computation of pharmaceutical ingredients, dosage forms, pharmaceutical formulations of extemporaneous compounding, and biological parameters of drug substances. The course teaches calculations for dilution and concentration of different types of liquids and those involved in preparing isotonic solutions, electrolyte solutions and intravenous admixtures.		

Lecture No.	Subjects	Hours
1	Demonstration of different glass wares and equipments used in the field of pharmacy.	2
2	Pharmaceutical measurements.	2
3	Volume measurements.	2
4	Preparation of aromatic waters.	4
5	Preparation of simple solutions.	4
6	Reducing and enlarging prescription contents.	6
7	Percentages in calculating prescription contents.	4
8	Stock solutions and dilution technique during dispensing technique.	6

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 1**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**English language**	
Code	**UOBS12721**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑Lectures ☐Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	John and Liz Soars, New Headway Plus, Oxford: Oxford	
Objectives	To develop pharmacy students' communication skills in English for academic, professional, and clinical settings.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Hello	**2**
2	Your world	**2**
3	All about you	**2**
4	Family and friends	**2**
5	The way I live	**2**
6	Every day	**2**
7	My favorites	**2**
8	Where I live	**2**
9	Times past	**2**
10	We had a great time	**2**
11	I can do that	**2**
12	Please and thank you	**2**
13	Here and now	**2**
14	It's time to	**2**
15	Good Bye	**2**

COLLEGE OF PHARMACY

Study Curriculum

Stage 2

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Laboratory Sciences**	**العلوم المختبرية السريرية**
Level	**Stage 2**	
Semster	**1st Semester**	**الأول**
Title of Course	**Medical Microbiology I**	
Code	**BSPH21131**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1.Medical Microbiology by Patrick R. Murray,last Edition ; 2.Jawetz Melnick & Adelbergs Medical Microbiology ,Latest Edition	
Objectives	provide a basic understanding of the morphology, anatomy, physiology and genetics of bacteria in addition, the methods of handling, visualizing, characterizing identifying of bacterial disease.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Importance of microbiology, History of microbiology	2
2	Anatomy of bacteria: Surface appendage, Capsule, Cell wall of G.+ve & G –ve bacteria, Cytoplasmic membrane.	2
3	Bacterial physiology: Physical and chemical growth determinate, growth and growth curves, bacterial reproduction.	2
4	Genetics: Definition, genetic, element, mutation (spontaneous, gene transfer, transformation, conjugation, and gene transduction).	2
5	Recombinant DNA biotechnology.	2
6	Sporulation and germination.	2
7	Sterilization (chemical + physical Methods).	2
8	Chemotherapy.	2
9	Morphology of Bacteria, Staining and Classification.	1
10	Staphylococci species: Streptococcus pyogenes; Streptococcus pneumoniae	3
11	Aerobic Spore-forming bacteria Bacillus species (B. anthracis, B.subtilis, B. ceseus).	1
12	Clostridium perfringens; Clostridium tetani; Clostridium botuliun	3
13	Corynebacterium diphtheriae	1
14	Propionibacterium acnes, Listeria	1
15	Mycobacterium tuberculosis; M. Leprae	1
16	Chlamyadiae; Actinomycetes	2
17	Identification & classification of G -ve bacteria	1
18	Enterobacteriaceae: E. coli; Klebsiella spp.; Cilrobacte , Sertalia,	4

Lab Works			
Title of Course	**Medical Microbiology I**		
Level	**Stage 2**	**Semster**	**1st Semester**
Department	**Clinical Laboratory Sciences** العلوم المختبرية السريرية		
References	Lab Manual for Practical Medical Microbiology Adopted by the Department.		
Objectives	Provides a basic understanding of the morphology, anatomy, physiology and genetics of bacteria in addition, the methods of handling, visualizing, characterizing identifying of bacterial disease		

Lecture No.	Subjects	Hours
1	Orientation to the laboratory. Rules of conduct and general safety. Microscopic techniques. Bright-field light microscope.	2
2	Examination of stained microorganisms; Smear preparation and simple staining; Gram staining.	2
3	The hanging drop slide and bacterial motility; Acid-fast staining procedure.	2
4	Bacterial spores and endospores staining; Microbiological culture media and sterilization; Methods of inoculation and isolation of pure culture.	2
5	Action of dyes and antibiotics; Enzymes assays for some specific microbial enzymes.	2
6	Assays for specific metabolic activities; Acid and gas production from: Carbohydrate fermentation; Triple sugar iron agar test; IMVIC tests.	2
7	Systemic bacteriology: Staphylococci spp.	2
8	Streptococci species.	2
9	Salmonella species.	2
10	Shigella species.	2
11	Pseudomonas species.	2
12	Proteus species.	2
13	Escherichia coli	2
14	Klebsiella species.	2
15	Candida albicans.	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 2**	
Semster	**1st Semester**	**الأول**
Title of Course	**Organic Chemistry II**	
Code	**BSPH21231**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☑ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	1- Organic Chemistry by Robert T. Morrison and Robert N. Boyd. ,latest Edition ;2- Organic Chemistry by McCurry; Latest Edition.; Thomason learning; CA,USA	
Objectives	To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds. It includes understanding the basic structure and properties of organic halides, carboxylic acids, aldehydes, ketones and amines, in addition to the principles and application of stereochemistry on these compounds.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Aromatic Hydrocarbons (includes benzene, electrophilic aromatic substitution, arenas and their derivatives).	**10**
2	Carboxylic acids: properties and reactions.	**5**
3	Functional derivatives of carboxylic acids.	**7**
4	Amines I and II.	**6**
5	Aldehydes and ketones (include also aldol and Claisen condensation); Classification, reactions and properties.	**12**
6	Phenols.	**5**

Lab Works			
Title of Course	**Organic Chemistry II**		
Level	**Stage 2**	**Semster**	**1st Semester**
Department	**Pharmaceutical Chemistry** الكيمياء الصيدلانية		
References	Lab Manual for Practical Medical Microbiology Adopted by the Department.		
Objectives	To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds. It includes understanding the basic structure and properties of organic halides, carboxylic acids, aldehydes, ketones and amines, in addition to the principles and application of stereochemistry on these compounds.		

Lecture No.	Subjects	Hours
1	Determination of melting point (Known sample).	2
2	Determination of melting point (quiz and unknown).	2
3	Determination of boiling point (known sample).	2
4	Determination of boiling point (quiz and unknown).	2
5	Elemental analysis (explanation of basic concepts).	2
6	Elemental analysis (known quantity and quality sample).	2
7	Solution and filtration techniques (explanation of basic concepts).	2
8	Re-crystallization (known sample).	2
9	Re-crystallization (quiz and unknown sample).	2
10	Extraction technique (known sample).	2
11	Extraction technique (quiz and unknown).	2
12	Distillation techniques (known samples).	2
13	Distillation techniques (quiz and unknown).	2
14	Sublimation technique (known sample).	2
15	Sublimation technique (quiz and unknown).	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacology & Toxicology**	**الادوية والسموم**
Level	**Stage 2**	
Semster	**1st Semester**	**الأول**
Title of Course	**Physiology I**	
Code	**BSPH21331**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☑ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	Review of Medical Physiology; Ganong W.F (Ed.); latest edition. and Textbook of Medical Physiology by Guyton AC; latest edition.	
Objectives	To enable students understanding the basic principles of physiological functions of different tissues and organs of the human being, and how to evaluate these functions and correlate them with the normal and abnormal conditions. It also emphasizes on the role of homeostatic and hemodynamic changes in the integration of physiological status.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	The general and cellular basis of medical physiology.	**5**
2	Physiology of nerves and muscles: Nerve cells; excitation and conduction; Properties of mixed nerves; glia; neurotrophins; Nerve fiber types and functions; Muscles: Skeletal muscle; smooth muscle; cardiac muscle. Synaptic transmission: Reflexes; cutaneous, deep and visceral sensations; alert behavior, sleep and electrical activity of the brain; control of posture and movement; higher function of the nervous system; central regulation of visceral function; the autonomic nervous system.	**16**
3	Respiration: Respiratory zones; Mechanics of respiration; air volumes; respiratory muscles; compliance of the lungs and chest wall; surfactants; differences in ventilation and blood flow in deferent parts of the lung; Dead space and uneven ventilation; Pulmonary circulation: Pressure, volume and flow. Gas transport between the lungs and tissue; Regulation of respiration: Neural control of breathing; Respiratory centers; Regulation of respiratory activity: Chemical factors; non chemical factors; Respiratory adjustment in health and disease; Effect of exercise; Hypoxia; Emphysema; Asthma.	**8**
4	Renal Physiology: Introduction; innervations of the renal vessels; renal clearance; renal blood flow; glomerular filtration rate (GFR): Measurements; factor affecting GFR; Filtration fraction; reabsorption of Na+, Cl – and glucose. Tubuloglomerular feedback and glomerulotubular balance; water excretion in: proximal tubules; loop of henle; distal tubules; collecting ducts; the counter current mechanism; role of urea; water diuresis and osmotic diuresis; acidification of the urine: H+ secretion; reaction with buffers; ammonia secretion; factors affecting acid secretion; bicarbonate execration; regulation of Na+, K+ and Cl – excretion; uremia; acidosis; micturition.	**8**

5	Cardiovascular system: origin and spread of cardiac excitation; the electrocardiogram; cardiac arrhythmias; electrographic findings in cardiac diseases; mechanical events of the cardiac cycle; cardiac output; cardiovascular regulatory mechanisms: Local regulatory mechanisms; systemic regulation by the nervous system; systemic regulation by hormones; Coronary circulation; Hypertension; Heart failure; Angina pectoris.	**8**

Lab Works			
Title of Course	**Physiology I**		
Level	**Stage 2**	**Semster**	**1st Semester**
Department	**Pharmacology & Toxicology** الادوية والسموم		
References	Lab Manual for Practical Physiology Adopted by the Department		
Objectives	To enable students understanding the basic principles of physiological functions of different tissues and organs of the human being, and how to evaluate these functions and correlate them with the normal and abnormal conditions. It also emphasizes on the role of homeostatic and hemodynamic changes in the integration of physiological status.		

Lecture No.	Subjects	Hours
1	Experiments on respiratory system (respiratory rate and volumes).	**4**
2	Introduction to blood physiology.	**2**
3	Blood typing and blood transfusion.	**2**
4	Tutorial.	**2**
5	Packed cell volume.	**2**
6	Determination of hemoglobin concentration.	**2**
7	Blood indecies.	**2**
8	Determination of bleeding time and clotting time.	**2**
9	Tutorial.	**2**
10	Blood pressure.	**2**
11	Effect of exercise on blood pressure.	**4**
12	Electrocardiogram (ECG).	**2**
13	Tutorial and review.	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 2**	
Semster	**1st Semester**	**الأول**
Title of Course	**Ba'ath Crimes**	
Code	**UOB21411**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☐ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	كتيب الوزارى حول جرائم البعث المحظور 2023	
Objectives	اطلاع وتثقيف الطلبة حول جرائم حزب البعث والنظام البائد التي ارتكبها على مدى مدى 40 عاما من الحكم	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	الانتهاكات للحقوق والحريات	10
2	الممارسات على الميدان النفسي والاجتماعي والدينى وعلى أسس الدولة وعسكرة المجتمع	10
3	اثر القمع السكان والبيئة والمجتمع	8

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 2**	
Semster	**1st Semester**	**الأول**
Title of Course	**Physical pharmacy I**	
Code	**BSPH21531**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Physical Pharmacy by Alfred Martin et al,Latest Edition	
Objectives	To understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. It aids the pharmacists in their attempt to predict the solubility, compatibility and biological activity of drug products. As a result of this knowledge it will help in the development of new drugs and dosage forms as well as in improvement of various modes of administration.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	States of matter, binding forces between molecules, gases, liquids, solid and crystalline matters; phase equilibria and phase rule; thermal analysis.	**10**
2	Thermodynamics, first law, thermochemistry, second law, third law, free energy function and applications.	**8**
3	Solutions of non-electrolytes, properties, ideal and real colligative properties, molecular weight determination.	**7**
4	Solution of electrolytes, properties, Arrhenius theory of dissociation, theory of strong electrolytes, ionic strength, Debye-Huchle theory, coefficients for expressing colligative properties.	**5**
5	Ionic equilibria, modern theories of acids, bases and salts, acid-base equilibria, calculation of pH, acidity constants, the effect of ionic strength and free energy.	**8**
6	Buffered and isotonic solutions: Buffer equation; buffer capacity; methods of adjusting tonicity and pH; buffer and biological system.	**7**

Lab Works			
Title of Course	**Physical pharmacy I**		
Level	**Stage 2**	**Semster**	**1st Semester**
Department	**Pharmaceutics** الصيدلانيات		
References	Lab manual for Practical Physical Pharmacy Adopted by the Department.		
Objectives	To understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. It aids the pharmacists in their attempt to predict the solubility, compatibility and biological activity of drug products. As a result of this knowledge it will help in the development of new drugs and dosage forms as well as in improvement of various modes of administration.		

Lecture No.	Subjects	Hours
1	Introduction to physical pharmacy	**2**
2	Expression of concentrations in pharmaceutical preparations.	**6**
3	Two component systems containing liquid phases.	**6**
4	Three component systems.	**4**
5	Tie linear for three component systems.	**6**
6	Buffer solutions	**6**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 2**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Pharmacognosy I**	
Code	**BSPH22131**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Trease and Evans Pharmacognosy; Latest Edition	
Objectives	This course is intended to study the scope of pharmacognosy, Medicinal plant nomenclature, classification of natural products, phytochemistry which include extraction and isolation of active constituents from natural sources.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	General Introduction: The Scope of Pharmacognosy, definitions and basic principles.	3
2	Drugs from natural sources, crud drugs, official and non-official drugs.	1
3	Classification of natural products.	2
4	Plant nomenclature and taxonomy.	2
5	Production of crude drugs: Cultivation, collection, drying and storage.	3
6	Deterioration of crude natural products.	1
7	Chemistry of natural drug products.	3
8	Quality control: Evaluation of natural products; macroscopical evaluation; physical evaluation; chemical evaluation; biological evaluation; spectroscopical evaluation.	4
9	Phytochemical investigation of herbal products: Extraction of the plant material; Separation and isolation of constituents; characterization of the isolated compounds.	4
10	Separation technique: Introduction; Mechanisms of separation and classification based on the type of technique; paper chromatography; Thin layer chromatography; Ion-exchange chromatography; Gel filtration chromatography; Column chromatography; Gas chromatography; HPLC; Electrophoresis; Affinity chromatography.	15
11	Traditional plant medicines as a source of new drugs. Bioassay-guided fractionation	3
12	Tissue culture of medicinal plant: Introduction and history; laboratory of the plant tissue culture; aseptic techniques Application of the plant tissue culture; environmental and biological control; plant growth regulators.	4

Lab Works			
Title of Course	**Pharmacognosy I**		
Level	**Stage 2**	**Semster**	**2nd Semester**
Department	**Pharmacognosy & allied sciences** العقاقير والعلوم الساندة		
References	Lab manual for PracticalPharmacognosy Adopted by the Department.		
Objectives	To enable students practicing the techniques of extraction, separation, and identification of constituents isolated from natural sources, using microscopes and chromatographic methods.		

Lecture No.	Subjects	Hours
1	Micro measurement and magnification.	**2**
2	Microscopical identification of crude drugs and cell contents.	**4**
3	Extraction and separation techniques.	**4**
4	Chromatography.	**4**
5	Paper chromatography (circular and horizontal paper chromatography)	**4**
6	Introduction to tin-layer chromatography.	**2**
7	TLC on microscope slides.	**4**
8	Partition chromatography for the separation of volatile oils.	**4**
9	Effect of activity of adsorbents on Rf values.	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 2**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Organic Chemistry III**	
Code	**BSPH22231**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☑ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	1- Organic Chemistry by Robert T. Morrison and Robert N. Boyed, latest edition. 2- Organic Chemistry by J. McMurry, latest ed., Thomason learning, CA, USA. 3. An introduction to the chemistry of heterocyclic compound by Acheson, R. M. latest ed.	
Objectives	To teach students the principles of heterocyclic chemistry including the fundamental principles and the features, classes and reactions of heterocyclic compounds; it enable students to apply these principles in complicated reactions that involve heteroatoms.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medicinal products.	**5**
2	Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen.	**3**
3	Source of pyrrole, furan and thiophen.	**2**
4	Electrophilic substitution in pyrrole, furan and thiophen: Reactivity and orientation.	**5**
5	Six-membered ring heterocyclic compounds: Structure & reactions of pyridine.	**4**
6	Saturated five-membered heterocyclic compounds.	**6**
7	Heterocyclic of five & six member rings with two & three heteroatoms.	**5**

Lab Works			
Title of Course	**Organic Chemistry III**		
Level	**Stage 2**	**Semster**	**2nd Semester**
Department	**Pharmaceutical Chemistry**		**الكيمياء الصيدلانية**
References	Lab manual for Practical Organic Chemistry Adopted by the Department.		
Objectives	To teach students the principles of heterocyclic chemistry including the fundamental principles and the features, classes and reactions of heterocyclic compounds; it enable students to apply these principles in complicated reactions that involve heteroatoms.		

Lecture No.	Subjects	Hours
1	Determination of solubility class (known sample).	2
2	Determination of solubility class (quiz and unknown).	2
3	Identification of alcohols (known sample, quiz and unknown).	2
4	Identification of phenols (known samples).	2
5	Identification of phenols (quiz and unknown).	2
6	Identification of aldehydes and ketons (explanation of concepts andqui	2
7	Identification of aldehydes and ketons (known sample).	2
8	Identification of aldehydes and ketons (quiz and unknown).	2
9	Identification of carboxylic acid (explanation of concepts).	2
10	Identification of carboxylic acid (known sample).	2
11	Identification of carboxylic acid (quiz and unknown).	2
12	Salts of carboxylic acids (known sample).	2
13	Salts of carboxylic acids (quiz and unknown).	2
14	Classification of reactions of amines (known sample).	2
15	Classification of reactions of amines (quiz and unknown).	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Laboratory Sciences**	**العلوم المختبرية السريرية**
Level	**Stage 2**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Medical microbiology II**	
Code	**BSPH22331**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1.Animal Agents and Vectors of Human Disease. P.C. Beaver & R.C. Jung, Latest edition 2.Medical Parasitology,Ninth Edition.David T. John, William A. Petri,Latest edition 3.Diagnosing medical parasites:A Public Health Officers Guide to Assisting Laboratory and Medical Officers Compiled and edited by: Michael J. Cuomo, Maj, Latest Edition	
Objectives	To provide the student with knowledge of the pathogenesis, morphology, laboratory diagnosis, identification, pathology, and clinical features of medically important parasitic and viral diseases and the basic concepts of immunizing procedure against these diseases.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction.	1
2	Intestinal protozoa (Amoeba, Balantidium, Giardia, Chilomastix)	4
3	Haemo flagella	3
4	Sporozoa: Malarial parasites of human; Toxoplasma.	3
5	**Helminthes:** Classification, Flukes: Hepatic flukes, Blood flukes (Schistosoma spp).Tap worms: Taenia spp., Echinococcus (Hydatid cyst).Nematods: Ascaris, Entrobius.	4
6	**Virology:** Introduction, Comparison between viruses and bacteria and other microbes; Classification of viruses; Replication; Chemotherapy; Herpes viridae; Orthomyxo viruses; Paramyxo viruses; Retro viruses; Hepato viruses; Oncogenic viruses.	15
7	**Imunnology:** General introduction	1
8	innate & adaptive immunity	2
9	antigen characteristics	1
10	B & Tcells	2
11	complements	1
12	Hypersensitivity types	2
13	Oncogenic immunity	3
14	Auto immune diseases	2
15	Immune deficiency diseases	1

Lab Works			
Title of Course	**Medical microbiology II**		
Level	**Stage 2**	**Semster**	**2nd Semester**
Department	**Clinical Laboratory Sciences**		**العلوم المختبرية السريرية**
References	Lab manual for Practical Medical Mcrobiology Adopted by the Department.		
Objectives	To provide the student with knowledge of the pathogenesis, morphology, laboratory diagnosis, identification, pathology, and clinical features of medically important parasitic and viral diseases and the basic concepts of immunizing procedure against these diseases.		

Lecture No.	Subjects	Hours
1	Introduction and classification of the human parasites.	2
2	Intestinal protozoa: Entamoeba histolytica.	2
3	Commensal amoeba; Entamoeba coli; Endolimax nana; Iodomoeba buetschillii.	2
4	Flagellate of digestive tract: Giardia lamblia; Chilomastix mesenili.	2
5	Flagellate of genital organs: Trichomonas vaginalis; Ciliate protozoa; Balantidium coli.	2
6	Flagellate of blood and tissues: Leishmania donovani; Leishmania tropica.	2
7	Trypanosoma gambiens; Trypanosome rhodesiense; Trypanosoma cruzi.	2
8	Malarial parasite: Life cycle of Plasmodium species; Plasmodium vivax; Plasmodium falciparum.	2
9	Plasmodium malariae; Plasmodium ovali.	2
10	Toxoplasma gondii; Cestoidea; Taenia saginata; Taenia solium.	2
11	Hymenolepis nana; Echinococcus granulosus; Echinococcus multilocularis.	2
12	Trematoda: Life cycle of Schistoma species; Schistoma japonicum; Schistoma mansoni; Schistoma haematobium.	2
13	Nematoda: Trichurs trichuira; Entrobius vermicularis.	2
14	Ascaris lumbricoides; Ancylostoma duodenale.	2
15	Methods of diagnosis of parasites.	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacology & Toxicology**	**الادوية والسموم**
Level	**Stage 2**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Physiology II**	
Code	**BSPH22431**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Review of Medical Physiology; Ganong W.F (Ed.); latest edition. and Textbook of Medical Physiology by Guyton AC; latest edition.	
Objectives	To enable students understanding the basic principles of physiological functions of different tissues and organs of the human being, and how to evaluate these functions and correlate them with the normal and abnormal conditions. It also emphasizes on the role of homeostatic and hemodynamic changes in the integration of physiological status.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	**Gastrointestinal function:** Digestion and absorption of carbohydrates; proteins; lipids; absorption of water and electrolytes; vitamins and minerals; regulation of gastrointestinal function: Introduction; gastrointestinal hormones; mouth and esophagus; stomach; exocrine portion of the pancreas; liver and biliary system; small intestine; colon.	10
2	**Circulatory body fluid:** Introduction; blood; bone marrow; white blood cells; immunity; platelets; red blood cells; anemia; polycythemia; blood group and Rh factor; hemostasis: The clotting mechanism / blood coagulation tests; anti clotting mechanism; the plasma; the lymph; abnormalities of hemostasis.	15
3	**Endocrinology:** Introduction; energy balance, metabolism and nutrition; the pituitary gland; the thyroid gland; the gonads: development and function of the reproductive system; the adrenal medulla and adrenal cortex; hormonal control of calcium metabolism and the physiology of the bone; endocrine functions of the pancreas and regulation of carbohydrate metabolism.	20

Lab Works			
Title of Course	**Physiology II**		
Level	**Stage 2**	**Semster**	**2nd Semester**
Department	**Pharmacology & Toxicology** الادوية والسموم		
References	Lab manual for Practical Medical Physiology Adopted by the Department.		
Objectives	To enable students understanding the basic principles of physiological functions of different tissues and organs of the human being, and how to evaluate these functions and correlate them with the normal and abnormal conditions. It also emphasizes on the role of homeostatic and hemodynamic changes in the integration of physiological status.		

Lecture No.	Subjects	Hours
1	Differential W.B.C count	**4**
2	Total W.B.C. count	**2**
3	Tutorial	**4**
4	Red blood cell counting	**2**
5	Platelets counting	**2**
6	Erythrocyte sedimentation rate (ESR)	**2**
7	Tutorial	**4**
8	Insulin regulation of blood glucose	**2**
9	Renal physiology	**2**
10	Some experiments on vision	**2**
11	Tutorial and review	**4**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 2**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Physical pharmacy II**	
Code	**BSPH22531**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Physical Pharmacy by Alfred Martin et al.; latest edition.	
Objectives	To understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. It aids the pharmacists in their attempt to predict the solubility, compatibility and biological activity of drug products. As a result of this knowledge it will help in the development of new drugs and dosage forms as well as in improvement of various modes of administration.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Solubility and distribution phenomena, solvent-solute interactions, solubility of gases in liquids, solubility of liquids in liquids, solubility of non-ionic solids in liquids, distribution of solutes between immiscible solvents.	10
2	Complexation, classification of complexes, methods of analysis, thermodynamic treatment of stability constants.	5
3	Kinetics, rate and orders of reactions, influence of temperature and other factors on reactions rate, decomposition of medicinal agents and accelerated stability analysis.	9
4	Interfacial phenomena, liquid interfaces, surface free energy, measurement of interfacial tension, spreading coefficient, surface active agents and wetting phenomena.	5
5	Colloids, dispersed system and its pharmaceutical application, types of colloidal systems, kinetic properties, diffusion, zeta potential, solubilization.	5
6	Micrometrics, particle size, methods of determining particle size, particle shape and surface area, porosity, density.	3
7	Rheology, Newtonian systems, thixotropy measurement, negative thixotropy, determination of thixotropy.	5
8	Polymer science, definitions pharmaceutical applications, molecular weight averages.	3

Lab Works			
Title of Course	**Physical pharmacy II**		
Level	**Stage 2**	**Semster**	**2nd Semester**
Department	**Pharmaceutics**		**الصيدلانيات**
References	Lab manual for Practical Physical Pharmacy Adopted by the Department.		
Objectives	To understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. It aids the pharmacists in their attempt to predict the solubility, compatibility and biological activity of drug products. As a result of this knowledge it will help in the development of new drugs and dosage forms as well as in improvement of various modes of administration.		

Lecture No.	Subjects	Hours
1	Solubility	2
2	Solubilization by complexation.	2
3	Solubilization by surface active agents	4
4	Determination of solubility product constant	2
5	determination of partition coffecient	4
6	Kinetics	8
7	Measurment of surface tension	2
8	Viscosity	6

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 2**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Arabic language**	
Code	**BSPH22720**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☐ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☐ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	مصادر مختلفة	
Objectives	اطلاع الطلبة على مفاهيم اللغة العربية واهميتها واساليب الكتابة والكلام	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	أهمية اللغة العربية ووظيفتها	3
2	أهم النظريات نشأة اللغة	3
3	الالف الفارقة	3
4	رسم الهمزة	3
5	العدد والمعدود	3
6	التفريق بين الضاد والظاء	2
7	علامات الترقيم	2
8	علامة الاستفهام	1
9	مراجعة شاملة للادب النصوص الشعرية	10

COLLEGE OF PHARMACY

Study Curriculum

Stage 3

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 3**	
Semster	**1st Semester**	**الأول**
Title of Course	**InOrganic Pharmaceutical Chemistry I**	
Code	**BSPH31121**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑ Lectures ☑ Seminars ☑ Home works ☑ Field Practice	
Evalaution technique	☑ Mid Term Exam ☑ Quizes ☑ Lab works Scores ☑ Extra Activities scores ☑ Final Exam	
Total scores	**100**	
References	1. Inorganic Medicinal and Pharmaceutical Chemistry by Block, Roche Soine and Wilson, latest edition 2. Wilson and Gisvold; Textbook of Organic medicinal and Pharmaceutical chemistry; Delgado JN, Remers WA, (eds); latest edition	
Objectives	To present a review of the principles of inorganic chemistry that applied to medicinal and /or pharmaceutical chemistry. It includes understanding atomic and molecular structures, and explanation of atomic structures and the relationship with binding forces and complexation. It also describes inorganic products used as pharmaceutical preparations or diagnostic tools.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Atomic and molecular structure / Complexation.	**6**
2	Essential and trace ions: Iron, copper, sulfur, iodine.	**3**
3	Non essential ions: Fluoride, bromide, lithium, gold, silver and mercury	**2**
4	Gastrointestinal agents: Acidifying agents.	**1**
5	Antacids.	**2**
6	Protective adsorbents.	**1**
7	Topical agents.	**2**
8	Dental agents.	**1**
9	Radiopharmaceutical preparations.	**6**
10	Radio opaque and contrast media.	**6**

Lab Works			
Title of Course	**InOrganic Pharmaceutical Chemistry I**		
Level	**Stage 3**	**Semster**	**1st Semester**
Department	**Pharmaceutical Chemistry**		**الكيمياء الصيدلانية**
References	Lab manual for Practical InOrganic Pharm. Chemistry Adopted by the Department.		
Objectives	To present a review of the principles of inorganic chemistry that applied to medicinal and /or pharmaceutical chemistry. It includes understanding atomic and molecular structures, and explanation of atomic structures and the relationship with binding forces and complexation. It also describes inorganic products used as pharmaceutical preparations or diagnostic tools.		

Lecture No.	Subjects	Hours
1	Preparation and standardization of 1N HCl (known sample).	**2**
2	Preparation and standardization of 1N HCl (quiz and unknown).	**2**
3	Preparation and standardization of 1N 1NaOH (known sample).	**2**
4	Preparation and standardization of 1N NaOH (quiz and unknown).	**2**
5	Assay of NaOH solution (known sample).	**2**
6	Assay of NaOH solution (unknown sample).	**2**
7	Assay of sodium benzoate (known sample).	**2**
8	Assay of sodium benzoate (quiz and unknown).	**2**
9	Assay of Borax (explanation of basic concepts).	**2**
10	Assay of Borax (quiz and unknown).	**2**
11	Assay of citric acid (known sample).	**2**
12	Assay of citric acid (unknown sample).	**2**
13	Assay of magnesium hydroxide (known sample).	**2**
14	Assay of magnesium hydroxide (quiz and unknown).	**2**
15	Assay of ammoniated mercury (unknown sample).	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 3**	
Semster	**1st Semester**	**الأول**
Title of Course	**Pharmaceutical technology I**	
Code	**BSPH31231**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Pharmaceutical Dosage forms and Drug Delivery Systems By Haward A. Ansel; latest edition. and Sprowel's American Pharmacy.	
Objectives	To teach theoretical bases for the technology of preparing different dosage forms with respect to their raw materials, compositions, methods of preparation, stability, storage and uses.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	**Dispersed systems:** their classification; comparisons between different systems.	2
2	**Solutions** and types of solutions.	2
3	**Solubility:** Factors affecting solubility; expression of dissolution; dissolution rate versus solubility; preparation of solutions containing non-volatile materials.	4
4	**Official solutions**; classification of official solutions; preparation and uses.	4
5	Aqueous solutions containing aromatic principles; aromatic waters; methods of preparations; stability.	4
6	**Syrups:** sugar based syrups; artificial and sorbitol based syrups; stability of syrups.	4
7	Definition and methods of clarification; filter aids in clarification.	3
8	Preparation of solutions using mixed solvent systems; spirits, and elixirs.	3
9	Extraction; maceration and percolation.	3
10	Tinctures; fluid extracts; extracts of resins and oleoresins.	4
11	Colloidal dispersions; lyophilic; lyophobic.	6
12	Coarse dispersion; suspensions.	6

Lab Works			
Title of Course	**Pharmaceutical technology I**		
Level	**Stage 3**	**Semster**	**1st Semester**
Department	**Pharmaceutics**		**الصيدلانيات**
References	Lab manual for Practical Pharmaceutical Technology Adopted by the Department.		
Objectives	To teach theoretical bases for the technology of preparing different dosage forms with respect to their raw materials, compositions, methods of preparation, stability, storage and uses.		

Lecture No.	Subjects	Hours
1	Solutions (into body cavity, oral and external use).	**4**
2	Syrups: Preparation techniques and quality evaluation.	**6**
3	Elixirs: Preparation techniques and quality evaluation.	**4**
4	Spirits: Preparation techniques and quality evaluation.	**6**
5	Suspensions: Preparation techniques and quality evaluation.	**4**
6	Dispersion of oils in inhalations.	**6**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 3**	
Semester	**1st Semester**	**الأول**
Title of Course	**Pharmacognosy II**	
Code	**BSPH31321**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Robbers JE, Speedie MK, Tyler VE (Eds.); Pharmacognosy and Pharmacobiotechnology; the latest edition.	
Objectives	This course is intended to study chemistry of some natural products their possible pharmacological effects.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction: General biosynthesis pathways of secondary metabolites	2
2	Carbohydrates.	2
3	Glycosides: Biosynthesis, physical and chemical properties; cardiac glycosides; saponin glycosides; anthraquinone glycosides; flavonoid glycosides; cyanophore lycosides.	5
4	Glycosides: Isothiocyanate glycosides; aldehyde glycosides; alcoholic glycosides; phenolic glycosides; lactone glycosides; coumarins and chromones.	5
5	Resins and resin combination; tannins.	2
6	Lipids: fixed oils and waxes.	3
7	Volatile oils: Introduction; chemistry of volatile oils; biosynthesis of volatile oils; hydrocarbons as volatile oils; alcohols as volatile oils; aldehydes as volatile oils.	4
8	Ketones as volatile oils; Phenols as volatile oils; Oxides as volatile oils; Ester as volatile oils; Phenolic ethers as volatile oils.	3
9	Non- medicinal toxic plants.	2
10	Vitamins and Amino acids.	2

Lab Works			
Title of Course	**Pharmacognosy II**		
Level	**Stage 3**	**Semester**	**1st Semester**
Department	**Pharmacognosy & allied sciences** العقاقير والعلوم الساندة		
References	Lab manual for Practical Pharmacognosy Adopted by the Department.		
Objectives	To enable students practicing the techniques of extraction, separation, and identification of constituents isolated from natural sources, using microscopes and chromatographic methods		

Lecture No.	Subjects	Hours
1	Cardio-active glycosides	**4**
2	Anthraquinone glycosides.	**4**
3	Saponin glycosides.	**4**
4	Tannins.	**2**
5	Volatile oils	**4**
6	Isolation of pipenine from black pepper.	**4**
7	Isolation of belladonna alkaloids and their identification.	**4**
8	Isolation of caffeine from tea.	**4**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacology & Toxicology**	**الادوية والسموم**
Level	**Stage 3**	
Semester	**1st Semester**	**الأول**
Title of Course	**Pathophysiology**	
Code	**BSPH31431**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Essentials in Pathophysiology by: Carol Mattson Porth, latest edition.	
Objectives	Describe the basic concepts of pathophysiology at the cellular level related to injury, the self-defense mechanism, mutation, and cellular proliferation. Outline basic pathological factors that influence the disease process. Describe the impact and abnormal functions upon the organ (s) associated with the disease process of targeted body systems. Describe clinical manifestations associated with the diseased organ(s).	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction.	1
2	Cell injury and tissue response; Degeneration; Necrosis; Atrophy; Hypertrophy; Metaplasia and Calcification; Inflammation and Repair.	6
3	Disorders of electrolytes and water and acid–base balances: Hyper and Hyponatremia; Hyper and Hypokalemia; Syndrome of inappropriate secretion of ADH; Diabetes insipidus; Metabolic acidosis and alkalosis; Respiratory acidosis and alkalosis.	4
4	Disorders of cardiovascular system: Hyperemia; Congestion and edema; Thrombosis; embolism and infarction; Shock; Coronary heart disease and MI; Rheumatic heart disease; Heart failure; Acute pulmonary edema; Essential hypertension; Secondary hypertension; Malignant hypertension; Hypotension; Aneurysm versus varicose veins;	5
5	Disorders of respiratory system: Pneumonias; Tuberculosis; Respiratory distress syndrome; Bronchial asthma; Emphysema and bronchiectasis; Cystic fibrosis; Pulmonary embolism; Pulmonary hypertension.	3
6	Disorders of the renal system: Nephrotic syndrome; Glomerulonephritis; Diabetic glomerulosclerosis; Hypertensive glomerular disease; Pyelonephritis; Drug related nephropathies; Acute renal failure; Chronic renal failure.	4
7	Disorders of GI and hepatobiliary systems: Peptic ulcer and Zollinger – Ellison syndrome; Irritable bowel syndrome; Crohn's disease; Diarrhea; Celiac disease; Viral hepatitis; Primary biliary cirrhosis; Liver failure; Cholelithiasis.	4
8	Disorders of thyroid function: Hypothyroidism.Hyperthyroidism. Graves's disease.Thyrotoxicosis.	2

9	Disorders of adrenal function: Cushing syndrome. Adrenal cortical insufficiency (primary and secondary). Congenital adrenal hyperplasia. Pheochromocytoma.	**2**
10	Diabetes mellitus and metabolic syndrome; Dyslipoproteinemia.	**5**

Lab Works			
Title of Course	**Pathophysiology**		
Level	**Stage 3**	**Semester**	**1st Semester**
Department	**Pharmacology & Toxicology** الادوية والسموم		
References	Lab manual for Practical Pathophsiology Adopted by the Department.		
Objectives	Describe the basic concepts of pathophysiology at the cellular level related to injury, the self-defense mechanism, mutation, and cellular proliferation. Outline basic pathological factors that influence the disease process. Describe the impact and abnormal functions upon the organ (s) associated with the disease process of targeted body systems. Describe clinical manifestations associated with the diseased organ(s).		

Lecture No.	Subjects	Hours
1	General introduction and slide preparation.	**2**
2	Cell injury and degenerations.	**2**
3	Growth disturbances.	**2**
4	Inflammation.	**2**
5	Thrombosis.	**2**
6	Neoplasia.	**2**
7	Disorders of respiratory system.	**2**
8	Disorders of the cardiovascular system	**2**
9	Disorders of renal system.	**2**
10	Liver disorders.	**2**
11	Disorders of the gastrointestinal tract.	**2**
12	Disorders of the central nervous system.	**2**
13	Disorders of the reproductive system.	**2**
14	Disorders of skeletomuscular system.	**2**
15	Disorders of endocrine system.	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Laboratory Sciences**	**العلوم المختبرية السريرية**
Level	**Stage 3**	
Semester	**1st Semester**	**الأول**
Title of Course	**Biochemistry I**	
Code	**BSPH31531**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Harper's Illustrated Biochemistry, latest edition.	
Objectives	To integrate key concepts describing the traditional core topics of Biochemistry: structure and metabolism. At the end of the semester the students should be able to understand the chemical structure, and function of all biomolecules present in the living organisms.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction to the macromolecules biochemistry: Definitions and terms; proteins, enzymes, DNA; Clinical value.	**2**
2	Amino acids: Structures of A.A (table of standard A.A abbreviation and side chain); Classification, properties, isomerism.	**3**
3	Amino acids: Chemical reactions, Zwitter ions, titration curve calculating isoelectric point values. Examples and questions. Non standards A.A: Structures, existence and clinical value.	**3**
4	Peptides: Peptide bond, resonance forms, isomers, physical properties and chemical reactions. Essential poly peptides in human body, structures, roles and clinical values.	**3**
5	Proteins: Structure and conformations of proteins, Primary structure, Secondary structure (4 helix, 5 sheet), tertiary structure, quaternary structure. Classification, synthesis, cellular functions (Enzymes, cell signaling, and ligand transport, structural proteins), protein in nutrition.	**3**
6	Denaturation of proteins and protein sequencing: Determining A.A composition, N- terminal A.A analysis, C- terminal A.A analysis, Edman degradation, prediction protein sequence from DNA/ RNA sequences. Methods of protein study: Protein purification, cellular localization, proteomics and bioinformatics, structure predication and simulation.	**3**
7	Carbohydrates: Chemistry and classification, biomedical importance, classification of CHO, Stereochemistry of monosaccharides, metabolism of CHO; Physiologically important monosaccharides, glycosides, disaccharides, polysaccharides.	**3**

8	Lipids: Introduction, classification of lipids, fatty acids (F.A), nomenclature of F.A, saturated F.A, unsaturated F.A, physical and physiological properties of F.A, metabolism of lipids. Phospholipids, lipid peroxidation and antioxidants, separation and identification of lipids, amphipathic lipids.	**3**
9	Enzymes: Structures and mechanism, nomenclature, classification, mechanisms of catalysis, thermodynamics, specificity, lock and key model, induced fit model, transition state stabilization, dynamics and function, allosteric modulation. Biological function, cofactors, coenzymes, involvement in disease.	**3**
10	Kinetics: General principles, factors effecting enzyme rates (substrate conc., pH, temperature, etc), single-substrate reaction (Michaelis- Menten kinetics), kinetic constants. Examples of kinetic questions and solutions.	**2**
11	Enzyme inhibition: Reversible inhibitors, competitive and non competitive inhibition, mixed-type inhibition, Irreversible inhibition. Inhibition kinetics and binding affinities (ki), questions and solutions.	**1**
12	Control of activity and uses of inactivators; multi-substrate reactions, ternary-complex mechanisms, ping-pong mechanisms, non-Michaelis- Menten kinetics, pre-steady-state kinetics, chemical mechanisms.	**1**
13	Nucleic Acid: Chemical structure, nucleic acid components, nucleic acid bases, nucleotides and deoxynucleotides (Properties, base pairing, sense and antisense, super-coiling, alternative structures, quadruple structures.	**3**
14	Biological functions of DNA: Genes and genomes, transcription and translation, replication.	**2**
15	Biochemistry of extracellular and intracellular communication: Plasma membrane structure and function; Biomedical importance, membrane proteins associated with lipid bilayer, membranes protein composition, dynamic structures of membranes, a symmetric structures of membranes.	**3**
16	Artificial membranes model, the fluid mosaic model, membrane selectivity, physiological functions of plasma membranes.	**1**
17	Biochemistry of the endocrine system: Classification of hormones, biomedical importance, the target cell concept and hormone receptors, biochemistry of hormone signal transduction.	**3**
18	Special topics: Nutrition, digestion, and absorption. Biomedical importance, digestion and absorption of carbohydrates, lipids, proteins, vitamins and minerals; energy balance. Biochemistry of hemostasis and clot formation.	**3**

Lab Works			
Title of Course	**Biochemistry I**		
Level	**Stage 3**	**Semester**	**1st Semester**
Department	**Clinical Laboratory Sciences** العلوم المختبرية السريرية		
References	Lab manual for Practical Biochemistry Adopted by the Department.		
Objectives	To integrate key concepts describing the traditional core topics of Biochemistry: structure and metabolism. At the end of the semester the students should be able to understand the chemical structure, and function of all biomolecules present in the living organisms		

Lecture No.	Subjects	Hours
1	Effects of acids on carbohydrates: Molish test; Bials test; Anthron test; Seliwanoffs test; Mucic acid test.	2
2	Classification of carbohydrates according to reducing properties: Benedicts test; Fehlings test; Barfoed test.	2
3	Classification of carbohydrates according to reducing properties: Iodine test; Ozasone test.	2
4	Determination of unknown carbohydrates sample.	2
5	Color reactions of proteins: Biuret test; Ninhydrin test.	2
6	Color reactions of proteins: Millons test; Hopkins-Cole test; unoxidized sulfur test.	2
7	Solubility of proteins (effects of acid, neutral salts, heavy metals, and alkaloidal reagents).	2
8	Determination of unknown sample of proteins.	2
9	Experiments on solubility of lipids.	2
10	Acrolin test for lipids; Soap; Studying properties of soap.	2
11	Determination of saponification number.	2
12	Properties of lipids: Iodine test for lipids.	2
13	Properties of enzymes: Effects of heat on enzymes.	2
14	Properties of enzymes: Effect of concentration of enzyme (salivary amylase) on reaction velocity.	2
15	Properties of enzymes: Effect of pH on enzymatic activity.	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 3**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Organic Pharmaceutical Chemistry I**	
Code	**BSPH32131**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Wilson and Gisvold; Textbook of Organic medicinal and Pharmaceutical chemistry; Delgado JN, Remers WA, (eds); latest edition	
Objectives	To enable understanding mechanisms of drug action at molecular level, and the role of medicinal chemistry in the discovery and development of synthetic therapeutic agents. It also enables students to understand the concept of structure-activity relationship and its application in design and synthesis of new compounds or derivatives	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Drug distribution.	**4**
2	Acid- base properties.	**3**
3	Statistical prediction of pharmacological activity.	**3**
4	QSAR models.	**2**
5	Molecular modeling (Computer aided drug design).	**1**
6	Drug receptor interaction: force involved.	**1**
7	Steric features of drugs.	**2**
8	Optical isomerism and biological activity.	**1**
9	Calculated conformation.	**1**
10	Three- dimensional quantitative structure activity relationships and databases.	**1**
11	Isosterism.	**1**
12	Drug-receptor interaction and subsequent events.	**1**
13	General pathways of drug metabolism: Sites of drug biotransformation; Role of cytochrome P450 mono-oxygenases in oxidative biotransformation; Oxidative reactions; Reductive reactions; Hydrolytic reactions; Phase II reactions.	**22**
14	Factors affecting drug metabolism.	**2**

Lab Works			
Title of Course	**Organic Pharmaceutical Chemistry I**		
Level	**Stage 3**	**Semster**	**2nd Semester**
Department	**Pharmaceutical Chemistry**		**الكيمياء الصيدلانية**
References	Lab manual for Practical Organic Pharm. Chemistry Adopted by the Department.		
Objectives	To enable understanding mechanisms of drug action at molecular level, and the role of medicinal chemistry in the discovery and development of synthetic therapeutic agents. It also enables students to understand the concept of structure-activity relationship and its application in design and synthesis of new compounds or derivatives		

Lecture No.	Subjects	Hours
1	Preparation and standardization of 0.1N KMnO4 (known sample).	2
2	Preparation and standardization of 0.1N KMno4 (quiz and unknown).	2
3	Assay of hydrogen peroxide solution (known sample).	2
4	Assay of hydrogen peroxide solution (quiz and unknown sample).	2
5	Assay of ferrous sulfate (known sample).	2
6	Assay of ferrous sulfate (unknown sample).	2
7	Preparation and standardization of 0.1Na2S2O4 solution	2
8	Preparation and standardization of 0.1Na2S2O4 solution (unknown).	2
9	Assay of copper sulfate (known sample).	2
10	Assay of copper sulfate (unknown sample).	2
11	Assay of Chlorinated Lime (known sample).	2
12	Assay of Chlorinated Lime (quiz and unknown).	2
13	Preparation and assay of Lugol's Solution (known sample).	2
14	Preparation and assay of Lugol's Solution (quiz and unknown).	2
15	Assay of Alum (unknown sample).	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 3**	
Semster	**2nd Semester**	**الثاني**
Title of Course	**Pharmaceutical technology II**	
Code	**BSPH32231**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Pharmaceutical Dosage forms and Drug Delivery Systems By Haward A. Ansel; latest edition. and Sprowel's American Pharmacy.	
Objectives	To teach theoretical bases for the technology of preparing different dosage forms with respect to their raw materials, compositions, methods of preparation, stability, storage and uses; in addition to define and characterize the possible incompatibilities that may occur in dosage forms.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Emulsions; purpose of emulsification; methods of emulsification; emulsifying agents; HLB system; stability of emulsions.	**10**
2	Lotions; liniments and collodions.	**5**
3	Suppositories.	**6**
4	Powdered dosage forms.	**10**
5	Semisolid dosage forms.	**10**
6	Incompatibilities in pharmaceutical dosage forms.	**4**

Lab Works			
Title of Course	**Pharmaceutical technology II**		
Level	**Stage 3**	**Semster**	**2nd Semester**
Department	**Pharmaceutics**		**الصيدلانيات**
References	Lab manual for Practical Pharmaceutical Technology Adopted by the Department.		
Objectives	To teach theoretical bases for the technology of preparing different dosage forms with respect to their raw materials, compositions, methods of preparation, stability, storage and uses; in addition to define and characterize the possible incompatibilities that may occur in dosage forms.		

Lecture No.	Subjects	Hours
1	**Emulsions:** Preparation techniques and quality evaluation.	6
2	**Suppositories:** Preparation techniques and quality evaluation.	6
3	**Powders:** Preparation techniques and quality evaluation.	6
4	**Capsules:** Preparation techniques and quality evaluation.	6
5	**Semisolid dosage forms:** Preparation techniques and quality evaluation.	6

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacology & Toxicology**	**الادوية والسموم**
Level	**Stage 3**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Pharmacology I**	
Code	**BSPH32330**	
Theory-Credits	**3**	
Practical Credits	**0**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Lipincott Pharmacology, latest edition.	
Objectives	To introduce the pharmacy students to the basis of general pharmacology. The student will learn about various body systems and drugs used to affect them in health and disease. Moreover the course will cover the drugs used to treat microbial infections.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	General introduction to Pharmacology.	2
2	Pharmacokinetics.	4
3	Drug Receptor interaction and Pharmacodynamics.	4
4	The autonomic nervous system (ANS).	2
5	Cholinergic system.	6
6	Adrenergic system.	6
7	Principal of antimicrobial therapy.	2
8	β- lactam and other cell wall synthesis inhibitor antibiotics	4
9	Protien synthesis inhibitors	4
10	Quinolones, Folate antagonists, and urinary tract antiseptics.	3
11	Antimycobacterium drugs	2
12	Antifungal drugs.	2
13	Antiprotozoal drugs.	1
14	Anthelmintic drugs.	2
15	Antiviral drugs.	1

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacognosy & allied sciences**	**العقاقير والعلوم الساندة**
Level	**Stage 3**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Pharmacognosy III**	
Code	**BSPH32421**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1. Robbers JE, Speedie MK, Tyler VE (Eds.); Pharmacognosy and Pharmacobiotechnology; the latest edition. 2. Michael Heinrich, Joanne Barnes; Fundamentals of Pharmacognosy & Phytotherapy. the latest edition	
Objectives	This course is intended to study chemistry of other natural products namely alkaloids and antibiotics. Also this course includes studying phytotherapy & tissue culture techniques utilized for production of natural products.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Alkaloids: Introduction; Physical and chemical properties; pyridine, piperidine alkaloids; tropane alkaloids.	**5**
2	Alkaloids: Quinoline tropan alkaloids; iso-quinoline alkaloids; imidazole alkaloids; indole alkaloids.	**5**
3	Alkaloids: Steroidal alkaloids; lupinane alkaloids; alkaloidal amines; purine alkaloids.	**4**
4	Antibiotics: Natural sources; biosynthetic pathways, isolation and purification.	**6**
5	.phytotherapy :Introduction , principles,medicinal plants in selected health care systems.Important natural products & phytomecines used in pharmacy & medicine	**10**

Lab Works			
Title of Course	**Pharmacognosy III**		
Level	**Stage 3**	**Semester**	**2nd Semester**
Department	**Pharmacognosy & allied sciences** العقاقير والعلوم الساندة		
References	Lab manual for Practical Pharmacognosy Adopted by the Department.		
Objectives	This course is intended to study chemistry of other natural products namely alkaloids and antibiotics. Also this course includes studying phytotherapy & tissue culture techniques utilized for production of natural products.		

Lecture No.	Subjects	Hours
1	Isolation of Peganum harmala alkaloids.	**4**
2	Preparation of Khellin.	**4**
3	Flavonoids of Ruta graveolens.	**4**
4	Extraction of hesperidin.	**4**
5	Isolation of pectin.	**2**
6	Isolation of citric acid from lemon juice.	**4**
7	Isolation of Podophyllotoxin from Podophyllum emodi; Isolation of Rotenone from Lonchocarpus Spp.	**4**
8	Isolation of Peganum harmala alkaloids.	**4**

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Laboratory Sciences**	**العلوم المختبرية السريرية**
Level	**Stage 3**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Biochemistry II**	
Code	**BSPH32531**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Harper's Illustrated Biochemistry, latest edition.	
Objectives	To provide a condensed curriculum of strong basic biochemistry and molecular biology. At the end of the semester the students should be able to understand all metabolic processes occurring in the living cell.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Bioenergetics.	2
2	Biologic oxidation.	2
3	The respiratory chain and oxidative phosphorylation.	2
4	Over view of metabolism.	2
5	Citric acid Cycle.	2
6	Glycolysis.	2
7	Metabolism of glycogen.	4
8	Gluconeogenesis.	3
9	Pentose phosphate pathway and other pathways of hexose metabolism.	3
10	Biosynthesis of fatty acids.	3
11	Oxidation of fatty acids.	2
12	Metabolism of acylglycerol and sphingolipids.	2
13	Lipid transport and storage.	2
14	Cholesterol synthesis, transport, and excretion.	2
15	Biosynthesis of the Nutritionally Nonessential Amino Acids.	3
16	Catabolism of Proteins & of Amino Acid Nitrogen	3
17	Catabolism of the Carbon Skeletons of Amino Acids.	2
18	Conversion of Amino Acids to Specialized Products.	2
19	Porphyrins & Bile Pigments	2

Lab Works			
Title of Course	**Biochemistry II**		
Level	**Stage 3**	**Semester**	**2nd Semester**
Department	**Clinical Laboratory Sciences** العلوم المختبرية السريرية		
References	Lab manual for Practical Biochemistry Adopted by the Department.		
Objectives	To provide a condensed curriculum of strong basic biochemistry and molecular biology. At the end of the semester the students should be able to understand all metabolic processes occurring in the living cell.		

Lecture No.	Subjects	Hours
1	General urine examination: Physical properties.	2
2	General urine examination: Chemical properties; Protein in urine; Sugar in urine.	2
3	General urine examination: Ketone bodies in urine (Rothera test); Bile salts in urine (Hays test); Bilirubin in urine.	2
4	General urine examination: Evaluation of unknown urine sample.	2
5	Cerebrospinal fluid analysis: Measurement of glucose in CSF.	2
6	Cerebrospinal fluid analysis: Measurement of chloride in CSF.	2
7	Cerebrospinal fluid analysis: Measurement of proteins in CSF.	2
8	Serum calcium measurement.	2
9	Blood phosphorus measurement (inorganic phosphate).	2
10	Serum total proteins (quantitative analysis).	2
11	Estimation of urea level in the blood.	2
12	Measurement of serum uric acid level.	2
13	Measurement of serum ascorbic acid level.	2
14	Gastric juice analysis: Detection of free hydrochloric acid concentration.	2
15	Gastric juice analysis: detection of free acid, total acid content.	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 3**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Pharmaceutical Ethics**	
Code	**BSPH32610**	
Theory-Credits	**1**	
Practical Credits	**0**	
Total credits	**1**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1. Ruth Rodgers, (ed.); fast track: Law and Ethics in Pharmacy Practice. Pharmaceutical Press; latest edition. 2. Joy Wingfield and David Badcott . Pharmacy Ethics and Decision Making. Pharmaceutical Press; latest edition 3.Robert J. Cipolle, Linda M. Strand, Peter C. Morley. Pharmaceutical Care Practice: The Clinician's Guide,latest edition 4. Robert m. Veatch and Amy Haddad. Case Studies in Pharmacy Ethics. Latest edition	
Objectives	The course will provides an overview of ethical issues facing practicing pharmacists in order to enable the student to understand the basic concepts of ethics which formulate the relationship of pharmacist with the patient, colleges, and other health personnel in order to deliver his pharmaceutical services in good way.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction to Pharmacy Ethics (Theoretical considerations).	2
2	Code of Ethics for Pharmacists.	1
3	Common Ethical Considerations in Pharmaceutical Care Practice (Beneficence, Autonomy, Honesty, Informed Consent, Confidentiality, Fidelity ……).	3
4	Interprofessional Relations.	2
5	Making ethical decisions.	1
6	Ethical issues related to clinical pharmacy research.	1
7	Ethical problems in the pharmacist's clinical practice.	1
8	Preventing misuse of medicines.	1
9	Case studies in pharmacy ethics.	3

COLLEGE OF PHARMACY

Study Curriculum

Stage 4

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacology & Toxicology**	**الادوية والسموم**
Level	**Stage 4**	
Semester	**1st Semester**	**الأول**
Title of Course	**Pharmacology II**	
Code	**BSPH41131**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Lipincott Pharmacology, latest edition.	
Objectives	To introduce the pharmacy students to the general pharmacology of the central nervous system and to the various drug groups used in the treatment of CNS diseases or drugs altering its function. The student will be introduced to the various drugs used in the management of cardiovascular diseases. Moreover the course will cover the drugs affecting the gastrointestinal and respiratory systems.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction to CNS pharmacology.	2
2	CNS stimulants.	2
3	Anxiolytic and Hypnotic drugs.	3
4	General and Local Anesthetics.	3
5	Antidepressant drugs.	3
6	Antipsychotic (neuroleptic) drugs.	2
7	Opioid analgesics and antagonists.	3
8	Treatment of neurodegenerative diseases.	3
9	Antiepileptic Drugs.	2
10	Diuretics.	2
11	The treatment of heart failure (HF).	2
12	Antiarrhythmic drugs.	2
13	Antianginal Drugs.	2
14	Antihypertensive drugs.	3
15	Drugs affecting the blood.	3
16	Antihyperlipidemic drugs.	2
17	Gastrointestinal and antiemetic drugs.	2
18	Drugs acting on the respiratory system.	3

Lab Works			
Title of Course	**Pharmacology II**		
Level	**Stage 4**	**Semester**	**1st Semester**
Department	**Pharmacology & Toxicology** الادوية والسموم		
References	Lab manual for Practical Pharmacology Adopted by the Department.		
Objectives	To teach students the practice of application of Pharmacological principles in animal, and to understand the bases for evaluation of the pharmacological activity of drugs and chemicals in experimental animals.		

Lecture No.	Subjects	Hours
1	Routs of drug administration	4
2	Onset and duration of drugs (Barbiturates)	2
3	Absorption and excretion of drugs	2
4	Effect of parasympathomimetics on gland secretions	2
5	Drugs and human eye.	4
6	The effects of drugs on IOP rabbits	2
7	Evaluation of opioid analgesics	2
8	Evaluation of NSAIDS	4
9	Evaluation of anti-parkinsonian drugs	2
10	Evaluation of anti- convulsant drugs	2
11	The effects of drugs and their antagonists on isolated rats ileum	2
12	The effects of drugs and their antagonists on isolated rabbits ileum	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 4**	
Semester	**1st Semester**	**الأول**
Title of Course	**Public Health**	
Code	**BSPH41220**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1. Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic,Latest Edition. 2. Lecture Notes in Pharmacy practice, Lilian M Azzopardi, 2010, Pharmaceutical Press, Pharmaceutical Press, London	
Objectives	This course enables the students to understand the principles of public health and the art of preventing disease, promoting health and prolonging life, through organized effort of society.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	General items &ICD10	2
2	Predisposing factors of infectious diseases	1
3	Cardiovascular diseases	1
4	Gastrointestinal diseases	2
5	Skin diseases	1
6	Sexually transmitted diseases	1
7	Oncogenic diseases	3
8	Respiratory infections	2
9	Familyplaninig include maternal infections, vaccination	2
10	**Introduction :** a historic background of pharmacy practice.	1
11	Pharmacy Practice and the health care system	2
12	Health promotion in community pharmacy	1
13	Introduction to Pharmaceutical care	1
14	Pharmaceutical care planning	2
15	Community pharmacy management	1
16	Hospital pharmacy service.	1
17	Biosafety in pharmacy practice	2
18	Formulary management and Regulatory affairs	2
19	Rational Use of Drugs	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 4**	
Semester	**1st Semester**	**الأول**
Title of Course	**Biopharmacy**	
Code	**BSPH41321**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Shargel L, Yu AB, (Eds.), Applied Biopharmaceutics and Pharmacokinetics.,Latest Edition.	
Objectives	The coarse deals with the physical and chemical properties of drug substance, dosage form and the biological effectiveness of the drug or drug product upon administration, including drug availability in the human or animal body from a given dosage form. The pharmacokinetic part of the coarse deals with the time-coarse of the drug in the biological system, and quantification of drug concentration pattern in normal subjects and in certain disease states.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction to biopharmaceutics.	**2**
2	Biopharmaceutic aspects of products; drug absorption; mechanisms of absorption; physicochemical factors; dissolution rate; effects of excipients; type of dosage forms.	**6**
3	One compartment open model.	**2**
4	Multicompartment models.	**2**
5	Pharmacokinetics of drug absorption.	**2**
6	Bioavailability and bioequivalence.	**2**
7	Clearance of drugs from the biological systems.	**2**
8	Hepatic elimination of drugs.	**2**
9	Protein binding of drugs.	**2**
10	Intravenous infusion	**2**
11	Multiple dosage regimens.	**2**
12	Non-linear pharmacokinetics.	**2**
13	Dosage adjustment in renal diseases.	**2**

Lab Works			
Title of Course	**Biopharmacy**		
Level	**Stage 4**	**Semester**	**1st Semester**
Department	**Pharmaceutics**		**الصيدلانيات**
References	Lab manual for Practical BioPharmacy Adopted by the Department.		
Objectives	The coarse deals with the physical and chemical properties of drug substance, dosage form and the biological effectiveness of the drug or drug product upon administration, including drug availability in the human or animal body from a given dosage form. The pharmacokinetic part of the coarse deals with the time-coarse of the drug in the biological system, and quantification of drug concentration pattern in normal subjects and in certain disease states.		

Lecture No.	Subjects	Hours
1	Preparation of calibration curve of salicylic acid	2
2	In vitro evaluation of antacid	4
3	In vitro evaluation of bulk forming laxative	4
4	Dissolution of tablet	4
5	Estimation of the area under the curve from plasma data	4
6	Determination of pharmacokinetic parameters from plasma data	6
7	Determination of pharmacokinetic parameters from urine data	6

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 4**	
Semester	**1st Semester**	**الأول**
Title of Course	**Clinical Pharmacy I**	
Code	**BSPH41421**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1. LISON BLENKINSOPP, PAUL PAXTON(eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness,Latest Edition. 2. Lor waterfield, Community Pharmacy Hand Book	
Objectives	To equip pharmacy students with the knowledge, skills, and professional attitudes necessary to provide safe, effective, and patient-centered pharmaceutical care in community pharmacy settings, including medication dispensing, counseling, health promotion, and rational use of medicines	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction to community pharmacy.	1
2	Respiratory problems: Cough, Common cold, allergic rhinitis, Otitis media, Laryngitis & Pharyngitis	3
3	G.I.T problemse: Diarrhea, Constipation, Heart burn and indigestion, IBS and Hemorrhoids	4
4	Pediatric care practice : Oral thrush, pinworms and head lice	2
5	Skin conditions: Acne, Scabies, Psoriasis, Hair loss, Fungal infection, Eczema and Dermatitis , Dandruff, Cold sore, Corns and Callus.	5
6	Women's health care: Cystitis and vaginal thrush, primary dysmenorrhea and Premenstrual syndrome.	2
7	CNS related problems: Headache, Insomnia, Motion sickness, Nausea and vomiting	3
8	Eye problems	1
9	ENT problems	1
10	Oral hygiene, mouth ulcer	1
11	Obesity and body weight control.	1
12	Pain and musculoskeletal disorders	1
13	Nicotine replacement therapy (NRT).	1
14	Dietary supplements	1
15	An update in reclassification of OTC drugs (simvastatin, Tamusotisin & azithromycin).	2
16	Medication adherence and errors.	1

Lab Works			
Title of Course	**Clinical Pharmacy I**		
Level	**Stage 4**	**Semester**	**1st Semester**
Department	**Clinical Pharmacy** الصيدلة السريرية		
References	Lab manual for Practical Clinical Pharmacy Adopted by the Department.		
Objectives	To equip pharmacy students with the knowledge, skills, and professional attitudes necessary to provide safe, effective, and patient-centered pharmaceutical care in community pharmacy settings, including medication dispensing, counseling, health promotion, and rational use of medicines		

Lecture No.	Subjects	Hours
1	Communication with patients.	2
2	Respiratory system in practice (part I): Cough.	2
3	Respiratory system in practice (part II): Common cold.	2
4	G.I.T system in practice (part I): Constipation.	2
5	G.I.T system in practice (part II): Diarrhea and IBS.	2
6	GIT system in practice (part III): GERD& indigestion.	2
7	Skin conditions in practice (part I): Hair loss; cold sore and athlete's foot.	2
8	Skin conditions in practice (part II): Dandruff, Eczema and mouth ulcer.	2
9	Skin conditions in practice (part III): warts and scabies.	2
10	Pediatrics in practice: Oral thrush; colic; pinworm and napkin rash.	2
11	Minor eye disorders in practice.	2
12	CNS system: Insomnia, motion sickness, obesity and nicotine replacement therapy (NRT).	2
13	Drug Information sources for pharmacist.	2
14	An update in reclassification of OTC drugs.	2
15	Collective practice.	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 4**	
Semester	**1st Semester**	**الأول**
Title of Course	**Organic Pharmaceutical Chemistry II**	
Code	**BSPH41531**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry; Latest Edition	
Objectives	The course is devoted to the discovery and development of new agents for treating diseases, and enables translating the drug structural formula into therapeutic effect. Additionally, it focuses on the methods of preparation for some pharmaceutical agents	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Cholinergic agents, cholinergic receptors and their subtypes.	**3**
2	Cholinergic agonists; stereochemistry and structure-activity relationships (SAR); products; cholinesterase inhibitors.	**5**
3	Cholinergic blocking agent; structure-activity relationships (SAR); Solanaceous alkaloid and analogues; synthetic cholinergic blocking agents and products; ganglionic blocking agents (neuromuscular blocking agents).	**5**
4	Analgesic agents (SAR of morphine, SAR of meperidine type molecules; SAR of methadone type compounds; N-methylbezomorphans, antagonist type analgesics in benzomorphans).	**5**
5	Analgesic receptors, endogenous opioids; Products; Antitusive agents; Anti-inflammatory analgesics.	**5**
6	Adrenergic agents (Adrenergic neurotransmitters); Adrenergic receptors; Drugs affecting Adrenergic neurotransmission; Sympathomimetic agents; Adrenergic receptor antagonists.	**8**
7	CNS depressant; Benzodiazepines and related compounds; Barbiturates; CNS depressant with skeletal muscle relaxant properties; Antipsycotics; Anticonvulsants.	**7**
8	CNS Stimulants	**3**
9	Steroidal & nonsteroidal hormones	**4**

Lab Works			
Title of Course	**Organic Pharmaceutical Chemistry II**		
Level	**Stage 4**	**Semester**	**1st Semester**
Department	**Pharmaceutical Chemistry** الكيمياء الصيدلانية		
References	Lab manual for Practical Organic Pharm, Chemistry Adopted by the Department.		
Objectives	The course is devoted to the discovery and development of new agents for treating diseases, and enables translating the drug structural formula into therapeutic effect. Additionally, it focuses on the methods of preparation for some pharmaceutical agents		

Lecture No.	Subjects	Hours
1	Preparation of salicylic acid.	2
2	Re-crystallization of salicylic acid.	2
3	Synthesis of aspirin.	2
4	Re-crystallization of aspirin.	2
5	Assay of aspirin (known sample).	2
6	Assay of aspirin (unknown sample).	2
7	Preparation of nitrobenzene.	2
8	Preparation of aniline.	2
9	Preparation of acetanilide.	2
10	Re-crystallization of acetanilide.	2
11	Chlorosulfonation of acetanilide.	2
12	Amination of p-chlorobenzene sulfonyl chloride.	2
13	Hydrolysis of p-chlorobenzene sulfonyl chloride to sulfanilamide.	2
14	Assay of sulfa drugs (known sample).	2
15	Assay of sulfa drugs (unknown sample).	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 4**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Industrial Pharmacy I**	
Code	**BSPH42131**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	The Theory and Practice of Industrial Pharmacy by Leon Lachman et al.; Latest Edition	
Objectives	The subject aim to teach pharmacy students the steps and lines upon which the preformulation processing of pharmaceutical dosage forms. This fundamental coarse provide the required principles to integrate knowledge of Pharmaceutical Technology in preformulation of perfect dosage form. It includes milling, mixing, drying and filtration, besides sterilization to achieve a proper processing of dosage forms.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Principles of pharmaceutical processing; mixing; fluid mixing; flow characteristics; mechanisms of mixing; mixing equipments; batch and continuous mixing; mixer selection; solid mixing theory and particulate solid variables; forces and mechanisms.	**7**
2	Milling; pharmaceutical application; size measurement methods; theory and energy of commenution; types of mills; factors influencing milling; selection of mill techniques; specialized drying methods.	**7**
3	Drying: definition; purpose; humidity measurement; theory of drying; drying of solids, and classification of dryer; specialized drying methods.	**7**
4	Clarification and filtration: Theory; filter media; filter aids; selection of drying method; non-sterile and sterile operations; integrity testing; equipments and systems (commercial and laboratory).	**7**
5	Sterilization; validation of methods; microbial death kinetics; methods of sterilization (thermal and non-thermal); mechanisms; evaluation.	**7**
6	Pharmaceutical dosage form design; pre-formulation; preliminary evaluation; bulk characterization; solubility and stability analysis.	**3**
7	Pharmaceutical dosage forms; sterile products; development; formulation; production; processing; quality control.	**7**

Lab Works			
Title of Course	**Industrial Pharmacy I**		
Level	**Stage 4**	**Semester**	**2nd Semester**
Department	**Pharmaceutics**		**الصيدلانيات**
References	Lab manual for Industrial Pharmacy, Chemistry Adopted by the Department.		
Objectives	The subject aim to teach pharmacy students the steps and lines upon which the preformulation processing of pharmaceutical dosage forms. This fundamental coarse provide the required principles to integrate knowledge of Pharmaceutical Technology in preformulation of perfect dosage form. It includes milling, mixing, drying and filtration, besides sterilization to achieve a proper processing of dosage forms.		

Lecture No.	Subjects	Hours
1	Introduction in industrial pharmacy and pre-formulation.	**2**
2	Effervescent granules: Preparation and characterization 1	**4**
3	Effervescent granules: Preparation and characterization. 2	**4**
4	Flow properties and rheology of granules.	**2**
5	Tablet dosage form: Preparation and characterization…1	**2**
6	Tablet dosage form: Preparation and characterization…2	**2**
7	Evaluation of tablets..1	**2**
8	Evaluation of tablets..2	**2**
9	Preparation of children aspirin by wet granulation method.	**4**
10	Sustained release dosage forms: Preparation and characterization.	**4**
11	Cosmetic Preparations	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacology & Toxicology**	**الادوية والسموم**
Level	**Stage 4**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Pharmacology III**	
Code	**BSPH42220**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Lipincott Pharmacology, latest edition.	
Objectives	To introduce the pharmacy students to various drug groups affecting endocrine systems and their use in correcting abnormalities in the endocrine functions. Moreover the course will cover the drugs used in the management of neoplastic diseases, bone disorders, obesity and erectile dysfunction. Inflammatory agents and the anti-inflammatory drugs will also be covered during this course.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Hormones of the pituitary and thyroid glands.	3
2	Insulin and oral hypoglycemic drugs.	4
3	Adreno-corticosteroids.	3
4	The gonadal hormones and inhibitors.	3
5	Autacoids and autacoid antagonists	3
6	Non-steroidal anti-inflammatory drugs (NSAIDs) and other anti-inflammatory agents.	3
7	Drugs used in erectile dysfunction.	2
8	Drugs used in osteoporosis.	2
9	Drugs used in the management of obesity.	2
10	Cancer Chemotherapy: Anticancer drugs and immunosuppressants.	5

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacology & Toxicology**	**الادوية والسموم**
Level	**Stage 4**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**General Toxicology**	
Code	**BSPH42321**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Casarett and Doull, Toxicology, the Basic Science of Poisons; latest edition	
Objectives	To study the principle of exposure to different chemicals and environmental factors, their sources, mechanisms of toxicity and their risk to human being; it enables students to understand the required measures to protect living organisms against the suspected toxic hazards.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction: general consideration; host factor, environmental factors of toxic effects.	**3**
2	Carcinogenesis.	**3**
3	Mutagenesis:	**1**
4	Target organs and systemic toxicology; Respiratory system, Liver, Kidney, Skin, Nervous system, cardiovascular system, Blood.	**16**
5	Toxic substances: Food additive and contaminants, Pesticides, Metals, Radiation and radio active materials, plants, Solvents,	**15**
6	Environmental toxicology: Air pollution, water and soil pollutants, Gases (Tear gas, Pepper spray), CO, Cyanide(H2S).	**7**

Lab Works			
Title of Course	**General Toxicology**		
Level	**Stage 4**	**Semester**	**2nd Semester**
Department	**Pharmacology & Toxicology** الادوية والسموم		
References	Lab manual for Industrial Pharmacy, Chemistry Adopted by the Department.		
Objectives	To study the principle of exposure to different chemicals and environmental factors, their sources, mechanisms of toxicity and their risk to human being; it enables students to understand the required measures to protect living organisms against the suspected toxic hazards.		

Lecture No.	Subjects	Hours
1	General introduction to practical toxicology.	2
2	Acute toxicity study, determination of LD50.	4
3	Drug toxicity on liver.	4
4	Nicotine toxicity.	4
5	Pesticide toxicity.	4
6	Metal toxicity	4
7	Blood toxicity.	4
8	Drug-induced toxicity.	4

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 4**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Clinical Pharmacy II**	
Code	**BSPH42421**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics,latest ed. Dipiro Handbook of Pharmacotherapy,12 edition	
Objectives	To equip pharmacy students with the knowledge, skills, and professional attitudes necessary to provide safe, effective, and patient-centered pharmaceutical care in community pharmacy settings, including medication dispensing, counseling, health promotion, and rational use of medicines	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Introduction to the concept of clinical pharmacy- its activities and professional responsibilities.(including current state of clinical pharmacy in Iraq) .	**1**
2	an overview of pharmaceutical care practice (the patient care process).	**1**
3	Hematologic disorders: Anemia and sickle cell disease.	**2**
4	Hypertension.	**2**
5	Ischemic heart diseases	**2**
6	Heart failure.	**2**
7	Peripheral vascular diseases.	**1**
8	Asthma.	**2**
9	Chronic obstructive pulmonary disease (COPD).	**1**
10	Diabetes mellitus & Diabetic ketoacidosis (DKA) .	**2**
11	Peptic ulcer disease.	**2**
12	Tuberculosis	**1**
13	Infective meningitis	**1**
14	Respiratory tract infections	**2**
15	GIT infections	**1**
16	Gout and hyperuricemia	**1**
17	Rheumatoid arthritis (RA) and osteoarthritis (OA)	**2**
18	Osteoporosis and other metabolic bone disease.	**1**
19	Infectious Endocarditis	**1**
20	Surgical antibiotic prophylaxis	**1**
21	Urinary tract infection (UTI)	**1**

Lab Works			
Title of Course	**Clinical Pharmacy II**		
Level	**Stage 4**	**Semester**	**2nd Semester**
Department	**Clinical Pharmacy**		الصيدلة السريرية
References	Lab manual for Practical Clinical Pharmacy Adopted by the Department.		
Objectives	To equip pharmacy students with the knowledge, skills, and professional attitudes necessary to provide safe, effective, and patient-centered pharmaceutical care in community pharmacy settings, including medication dispensing, counseling, health promotion, and rational use of medicines		

Lecture No.	Subjects	Hours
1	Communication with physician and patient counseling.	2
2	Drugs for anemia and related disorders.	2
3	Cardiovascular drugs in practice part I: diuretics, β_ blockers, ACE-inhibitors and Ag II receptor blockers.	2
4	Cardiovascular drugs in practice part II: nitrates, Ca2+-channel blockers, α-blockers, and anti-hyperlipidemic drugs.	2
5	Drugs for asthma and COPD in practice.	2
6	Antimicrobial drugsin practice part I: β-lactam antibiotics, tetracyclines and aminoglycosides.	2
7	Antimicrobial drugs in practice part II: macrolides, sulphonamides, quinolones, and other miscellaneous antibiotics.	2
8	Antimicrobial drugs in practice part III: antivirals and antifungals.	2
9	Drugs for endocrine system part I (Diabetes Mellitus).	2
10	Drugs for endocrine system part II: thyroid disorders, corticosteroids, and hormones used in gynecological disorders.	2
11	Drugs acting on CNS (antimigraine drugs, analgesics and antiemetics) and musculoskeletal disorders (NSAIDS and bisphosphonates).	2
12	Drugs for GI disorders: peptic ulcer disease and inflammatory bowel disorders.	2
13	Drugs for ENT and skin disorders.	2
14	Contraception.	2
15	Collective practice.	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 4**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Organic Pharmaceutical Chemistry III**	
Code	**BSPH42531**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry; Latest Edition	
Objectives	To enable understanding mechanisms of drug action, including antibacterial, antifungal and antiviral agents, at molecular level, and the role of medicinal chemistry in the discovery and development of synthetic therapeutic agents. It also enables students to understand the concept of structure-activity relationship and its application in design and synthesis of new chemotherapeutic agents and hormone derivatives with potential biological activity.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	β-Lactam antibiotics (Penicillins); β-Lactamase inhibitors; Cephalosporins and Monobactams.	**9**
2	Aminoglycosides and Chloramphenicol; Tetracylines; Macrolides; Lincomycins and Polypeptides; Antiviral agents (properties of viruses, viral classification, products).	**9**
3	Sulfonamides (chemistry, nomenclature, mechanism of action, resistance, toxicity, side effects, metabolism, protein binding, distribution and SAR); products; Sulfones.	**4**
4	Anti-neoplastic agents: Alkylating agents; Antimetabolites; Antibiotics; Plant products; Miscellaneous compounds.	**17**
5	Hormones and related compounds; Future anti-neoplastic agents; Monoclonal antibodies; Gene therapy of cancer.	**6**

Lab Works			
Title of Course	**Organic Pharmaceutical Chemistry III**		
Level	**Stage 4**	**Semester**	**2nd Semester**
Department	**Pharmaceutical Chemistry**		**الكيمياء الصيدلانية**
References	Lab manual for Practical Organic Pharm, Chemistry Adopted by the Department.		
Objectives	To enable understanding mechanisms of drug action, including antibacterial, antifungal and antiviral agents, at molecular level, and the role of medicinal chemistry in the discovery and development of synthetic therapeutic agents. It also enables students to understand the concept of structure-activity relationship and its application in design and synthesis of new chemotherapeutic agents and hormone derivatives with potential biological activity.		

Lecture No.	Subjects	Hours
1	Cannizaro reaction (part I).	**2**
2	Cannizaro reaction (part II).	**2**
3	Re-crystallization of benzoic acid.	**2**
4	Assay of ascorbic acid (known sample).	**2**
5	Assay of ascorbic acid (unknown sample).	**2**
6	Synthesis of Phenol.	**4**
7	Assay of phenol (known sample).	**2**
8	Assay of phenol (unknown sample).	**2**
9	Synthesis of chlorbutanol.	**4**
10	Synthesis of paracetamol.	**4**

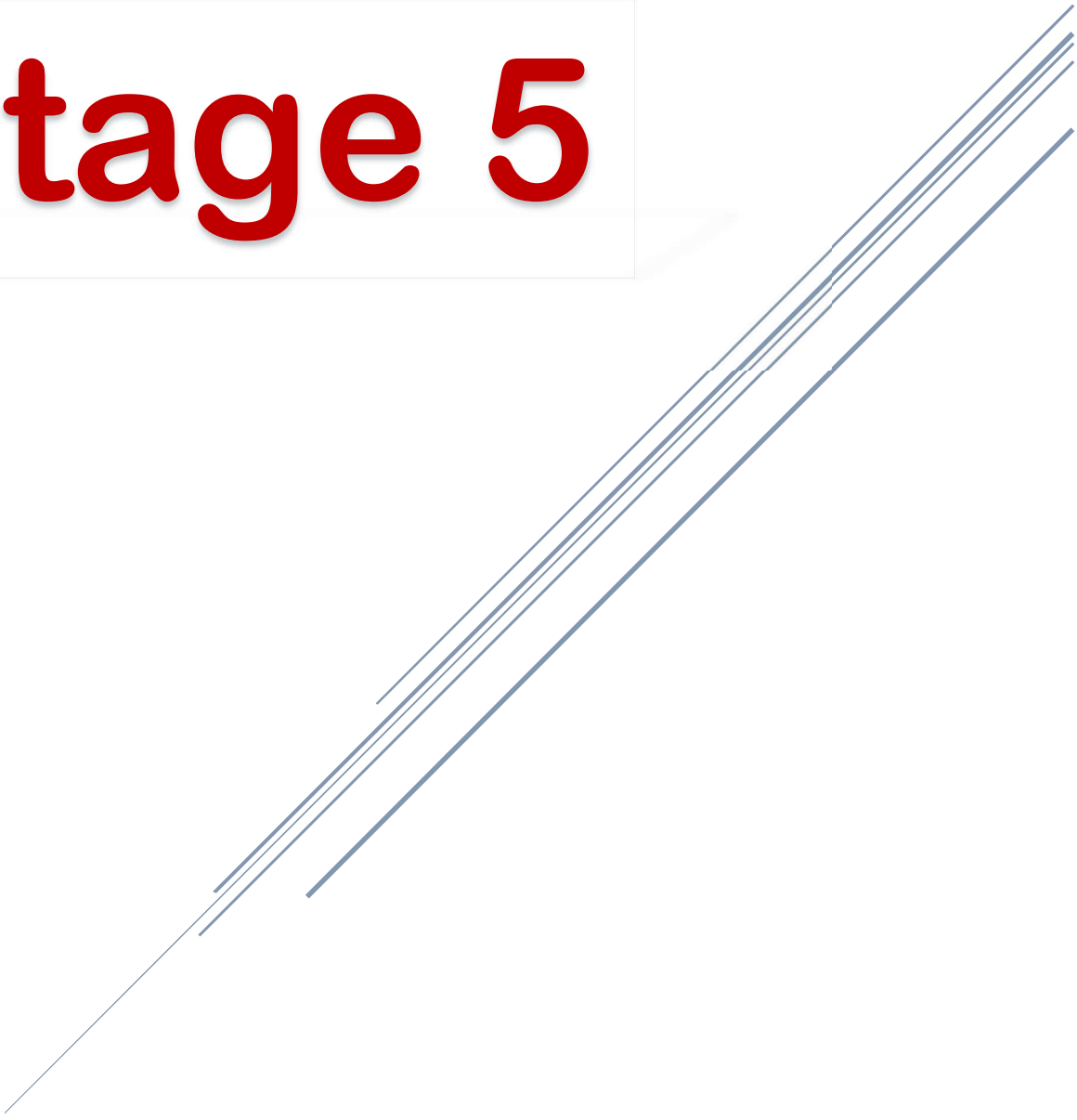
University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 4**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Communication skills**	
Code	**BSPH42620**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1-Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice; latest edition 2-Bruce A. Burger (ed.), Communication Skills for Pharmacists; American Pharmacists Association	
Objectives	Communication skill is one of the missions of pharmacy care practice, aims to develop a conventional relationship between pharmacist and patients, in which information is exchanged, hold in confidence and used to optimize patient care through appropriate drug therapy. This course is intended to pharmacist provide better care to patients, and focus on communication skills necessary to build the kind of relationship that result in improved therapeutic outcomes.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Patient-Centered Communication in Pharmacy Practice	2
2	Principles and Elements of Interpersonal Communication	2
3	Nonverbal type of communication.	2
4	Barriers to communication.	2
5	Listening and empathic responding during communication.	2
6	Assertiveness.	2
7	Interviewing and assessment.	2
8	Helping patients to manage therapeutic regimens.	2
9	Patient counseling; counseling check list; point-by-point discussion; counseling scenario.	2
10	Medication safety and communication skills.	2
11	Strategies to meet specific needs.	2
12	Communicating with children and elderly about medications.	2
13	Communication skills and inter-professional collaboration.	2
14	Electronic communication in healthcare.	2
15	Ethical behavior when communicating with patients.	2

COLLEGE OF PHARMACY

Study Curriculum

Stage 5



University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 5**	
Semester	**1st Semester**	**الأول**
Title of Course	**Therapeutics I**	
Code	**BSPH51130**	
Theory-Credits	**3**	
Practical Credits	**0**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics,latest ed. Dipiro Handbook of Pharmacotherapy,12 edition	
Objectives	To equip pharmacy students with the knowledge, skills, and professional attitudes necessary to provide safe, effective, and patient-centered pharmaceutical care in community pharmacy settings, including medication dispensing, counseling, health promotion, and rational use of medicines	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Interpretation of Lab. data.	2
2	Acute coronary syndrome.	2
3	Arrhythmias	2
4	Thrombosis	2
5	Dyslipidemia	1
6	Stroke	1
7	Shock	2
8	Liver cirrhosis	2
9	Viral hepatitis	1
10	Inflammatory bowel diseases	2
11	Acute renal failure (ARF)	1
12	Chronic renal failure (CRF)	2
13	Hemodialysis and peritoneal dialysis	1
14	Systemic lupus erythematosis (SLE)	1
15	Benign prostatic hyperplasia (BPH)	1
16	Acid – base disorders	2
17	Disorders of fluid and electrolytes	2
18	Urinary incontinence and pediatric enuresis	1
19	Epilepsy and status epilepticus	2
20	Fungal infections	1
21	Parkinson's disease	2
22	Pain management	1
23	Headache disorders	1
24	Tobacco use and dependence	1
25	Parasitic infections	1
26	Viral diseases	1
27	Parenteral nutrition	1
28	Enteral nutrition	1
29	Evidence-based pharmacy practice and medicine.	1
30	Drug distribution systems	2
31	Pharmacovigilance	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Laboratory Sciences**	**العلوم المختبرية السريرية**
Level	**Stage 5**	
Semester	**1st Semester**	**الأول**
Title of Course	**Clinical Chemistry**	
Code	**BSPH51231**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1- Clinical Chemistry & Metabolic Medicine, Crook, Latest Ed. 2- Clinical Chemistry, Kaplan, Latest Ed.	
Objectives	To exhibit knowledge of human body chemistry levels under healthy and abnormal conditions. At the end of the semester the students should be familiar with the basic and advanced information in clinical laboratory chemistry and how it relates to patient health and care	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Disorders of Carbohydrates metabolism, Hyperglycemia & Diabetes mellitus, Hypoglycemia.	3
2	Disorders of lipid metabolism.	2
3	Liver Function Tests.	4
4	Kidney Function Tests.	4
5	Diagnostic enzymology.	4
6	Hypothalamus & pituitary endocrinology, disorders of anterior pituitary hormones, disorders of adrenal gland, hypopituitrism.	8
7	Reproductive system, disorders of gonadal function in males & females, biochemical assessment during pregnancy.	5
8	Tumor markers.	4
9	Drug interaction with laboratory Tests.	2
10	Disorders of calcium metabolism	3
11	Acid- Base Disorders.	4

Lab Works			
Title of Course	**Clinical Chemistry**		
Level	**Stage 5**	**Semester**	**1st Semester**
Department	**Clinical Laboratory Sciences** العلوم المختبرية السريرية		
References	Lab manual forClinical Chemistry Adopted by the Department.		
Objectives	To exhibit knowledge of human body chemistry levels under healthy and abnormal conditions. At the end of the semester the students should be familiar with the basic and advanced information in clinical laboratory chemistry and how it relates to patient health and care		

Lecture No.	Subjects	Hours
1	Specimen collection and preservation.	2
2	Estimation of blood glucose (enzymatic method).	2
3	Oral Glucose Tolerance Test (OGTT).	2
4	Determination of blood urea nitrogen.	2
5	Determination of Creatine and Creatinine.	2
6	Estimation of serum uric acid.	2
7	Estimation of serum Bilirubin.	2
8	Estimation of serum Phosphate.	2
9	Total lipid profile: Estimation of serum cholesterol.	2
10	Total lipid profile: Estimation of LDL.	2
11	Total lipid profile: Estimation of HDL.	2
12	Total lipid profile: Estimation of Triglycerides.	2
13	Estimation of AST activity.	2
14	Estimation of ALT activity.	2
15	Estimation of CK activity.	2

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 5**	
Semester	**1st Semester**	**الأول**
Title of Course	**Organic Pharmaceutical Chemistry IV**	
Code	**BSPH51320**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry; Latest Edition	
Objectives	To give the students knowledge and experience in pro-drug and hormones as part of their medicinal and pharmaceutical field. It includes classification, synthesis, biotransformation and/or formulation of certain drugs to improve their action as well as to avoid some side effect.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Basic concept of prodrugs; Covalent bonds (cleavable); Prodrugs of functional groups; Types of prodrugs.	**6**
2	Chemical delivery systems; Polymeric prodrugs; Types and structure of polymers; Cross-linking reagents.	**6**
3	Drug targeting.	**4**
4	Project.	**4**
5	Combinatorial chemistry; Peptides and other linear structures; Drug like molecules; Support and linker; Solution-phase combinatorial chemistry.	**5**
6	Detection, purification and analgesics; Encoding combinatorial libraries; High-throughput screening; Virtual screening; Chemical diversity and library design.	**5**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 5**	
Semester	**1st Semester**	**الأول**
Title of Course	**Industrial Pharmacy II**	
Code	**BSPH51431**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	The Theory and Practice of Industrial Pharmacy by Leon Lachman et al.; Latest Edition	
Objectives	The coarse enable technical setup for coordination of standards for formulation of typical dosage forms and the principles needed to learn mass production of different pharmaceutical dosage forms. The syllabus includes different dosage forms like tablets, capsules, aerosols, emulsion, etc, besides the advanced techniques like enteric coating and micro-encapsulation.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Pharmaceutical dosage forms: Tablets; role in therapy; advantages and disadvantages; formulation; properties; evaluation; machines used in tableting; quality control; problems; granulation, and methods of production; excipients, and types of tablets.	**10**
2	Tablet coating; principles; properties; equipments; processing; types of coating (sugar and film); quality control, and problems.	**4**
3	Capsules: Hard gelatin capsules; materials; production; filling equipments; formulation; special techniques.	**3**
4	Soft gelatin capsules: Manufacturing methods; nature of capsule shell and content; processing and control; stability.	**2**
5	Micro-encapsulation; core and coating materials; stability; equipments and methodology.	**2**
6	Modified (sustained release) dosage forms; theory and concepts; evaluation and testing; formulation.	**3**
7	Liquids: Formulation; stability and equipments.	**3**
8	Suspensions: Theory; formulation and evaluation.	**3**
9	Emulsions: Theory and application; types; formulation; equipments and quality control.	**3**
10	Semisolids: Percutaneouse absorption; formulation; types of bases (vehicles) preservation; processing and evaluation.	**3**
11	Suppositories: Rectal absorption; uses of suppositories; types of bases; manufacturing processes; problems and evaluation.	**3**
12	Pharmaceutical aerosols: Propellants; containers; formulation; types and selection of components; stability; manufacturing; quality control and testing.	**6**

Lab Works			
Title of Course	**Industrial Pharmacy II**		
Level	**Stage 5**	**Semester**	**1st Semester**
Department	**Pharmaceutics**		**الصيدلانيات**
References	Lab manual for Industrial Pharmacy, Adopted by the Department.		
Objectives	The coarse enable technical setup for coordination of standards for formulation of typical dosage forms and the principles needed to learn mass production of different pharmaceutical dosage forms. The syllabus includes different dosage forms like tablets, capsules, aerosols, emulsion, etc, besides the advanced techniques like enteric coating and micro-encapsulation.		

Lecture No.	Subjects	Hours
1	Direct compression method for preparation of tablets.	**6**
2	Wet granulation method for preparation of tablets.	**6**
3	Dry granulation method for preparation of tablets.	**6**
4	Evaluation of tablets.	**4**
5	Capsules dosage form: Preparation and evaluation.	**4**
6	Parenteral dosage forms.	**4**

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Laboratory Sciences**	**العلوم المختبرية السريرية**
Level	**Stage 5**	
Semester	**1st Semester**	**الأول**
Title of Course	**Clinical Lab. Training**	
Code	**BSPH51502**	
Theory-Credits	**0**	
Practical Credits	**2**	
Total credits	**2**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
Lab Works		
References	Lab manual for Clinical Laboratory Training Adopted by the Department.	
Objectives	It provides general information about the biochemical basis of disease and about the principles of laboratory diagnosis; it supplies specific guidance on the clinical value of chemical investigations, indicating their range of application and limitations as well as relating results of laboratory tests to the process of clinical diagnosis and management as these might applied to individual patients.	

Lecture No.	Subjects	Hours
1	Diagnostic test basics, collecting &transporting specimens, venipuncture, urine specimen, stool specimen.	4
2	Biochemical tests: Fasting blood glucose, Post-prandial glucose, Oral glucose tolerance test.	4
3	Blood urea, Blood creatinine, Creatinine clearance, Uric acid.	4
4	Cholesterol, Lipoproteins, triglycerides.	4
5	Blood proteins, Bilirubin.	4
6	Calcium, Inorganic phosphate, Serum chloride	4
7	Alkaline phosphatase, Acid phosphatase, Alanine amiotransferase, Aspartate aminotransferase, Lactate dehydrogenase, Creatine phosphokinase.	4
8	Serological tests: VDRL, ASO- Titer, Hepatitis tests.	4
9	C-reactive protein test, Rheumatic factor test, Rosebengal test, Typhoid fever test(Widal test), Pregnancy Test.	4
10	General urine examination, urine specimen collection.	4
11	Hematological tests: RBC count, Hb, PCV, RBC indices, WBC count, Platelets count.	4
12	Blood typing, Coombs test, Bleeding time, ESR.	4
13	Microbiological tests: culture and sensitivity tests, Staining methods	4
14	Culture media, Enriched culture media for general use	4
15	Tests for identification of bacteria, Disk diffusion tests of sensitivity to antibiotics, Choice of drugs for disk test, bacterial disease and their laboratory diagnosis.	4

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmacology & Toxicology**	**الادوية والسموم**
Level	**Stage 5**	
Semester	**1st Semester**	**الأول**
Title of Course	**Clinical Toxicology**	
Code	**BSPH51621**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1- Gossel TA, Bricker TD, (Eds.); Principles of Clinical Toxicology; latest edition. 2-Viccellio P, (Ed.); Handbook of Medicinal Toxicology; latest edition.	
Objectives	To teach students the applications of theprinciples of drugs and chemicals-induced toxicity in humans, and gain experience in evaluation steps and treatment measures based on sample analysis and interpretation of toxicity signs and symptoms.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Initial Evaluation and Management of the Poisoned Patient. Including pediatric poisoning and special consideration in the geriatric patient	**3**
2	Drug Toxicity: Over the counter drugs; caffeine; theophylline; antihistamine and decongestant; non-steroidal anti-inflammatory drugs; vitamins.	**3**
3	Prescription Medications: Cardiovascular drugs; beta blockers; ACE inhibitors; Digoxin; Calcium channel blocker; Antiarrhythmic agents; hypoglycemic drugs; Opiods; CNS depressants; tricyclic antidepressants; anti-cholinergic phenothiazines; CNS stimulant.	**13**
4	Drug of Abuse: Opioids; Cocaine; phencyclidine; marijuana; Lysergic acid.	**4**
5	Chemical and Environmental Toxins: Hydrocarbones; Household toxins; Antiseptic; Disinfectants; Camphor; moth repellents.	**3**
6	Botanicals and plants-derived toxins: Herbal preparation; Toxic plants; Poisonous mushrooms.	**4**

Lab Works			
Title of Course	**Clinical Toxicology**		
Level	**Stage 5**	**Semester**	**1st Semester**
Department	**Pharmacology & Toxicology** الادوية والسموم		
References	Lab manual for Clinical toxicology Adopted by the Department.		
Objectives	To teach students the applications of theprinciples of drugs and chemicals - induced toxicity in humans, and gain experience in evaluation steps and treatment measures based on sample analysis and interpretation of toxicity signs and symptoms.		

Lecture No.	Subjects	Hours
1	Laboratory Principles or Toxicological Screening.	2
2	Over the counter drugs: Case on Acetaminophen poisoning; Salicylates; evaluation of urine salicylates.	4
3	Urine analysis of toxins and chemicals.	4
4	Cardiac glycosides toxicity: Digitalis.	2
5	Cases on toxicity with foods and dietary supplements.	4
6	Identification of some common poisons in biological samples: Arsenic; cyanide; strychnine; Salicylates; Phenothiazine derivatives; barbiturates	6
7	Evaluation of cases of toxicity with anti-parkinsonian drugs.	4
8	Evaluation of drug toxicity on human.	4

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 5**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Therapeutic Drug Monitoring (TDM)**	
Code	**BSPH52121**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Applied Clinical Pharmacokinetics, Latest edition by Larry A. Bauer. Additional references include but not limited to the following: Clinical Pharmacokinetics Concepts and Applications, latest Edition, by Malcolm Rowland and Thomas Tozer;	
Objectives	To enable pharmacy students to understand the principles, clinical significance, and application of therapeutic drug monitoring in optimizing drug therapy, minimizing toxicity, and improving patient outcomes, with emphasis on pharmacokinetics, pharmacodynamics, and individualized patient care.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Course Overview	**1**
2	Review of basic pharmacokinetic (PK)-	**2**
3	Review of basic pharmacodynamic (PD)	**1**
4	Clinical PK equations and calculations	**3**
5	Clinical PK in special population and cases	**3**
6	Clinical PK/PD for Antibiotics (e.g., Aminoglycosides, Vancomycin	**4**
7	Clinical PK/PD for Cardiovascular agents (e.g., Digoxin, Lidocaine, Procainamide/N-Acetyl Procainamide	**4**
8	Clinical PK/PD for Anticonvulsants (e.g., Phenytoin, Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuxsimide	**6**
9	Clinical PK/PD for Immunossprasants (e.g., Cyclosporine, Tacrolimus	**2**
10	Clinical PK/PD of other drugs (e.g., Lithium, Theophylline, Anticancer agents, Anticoagulats	**4**

Lab Works			
Title of Course	**Therapeutic Drug Monitoring (TDM)**		
Level	**Stage 5**	**Semester**	**2nd Semester**
Department	**Clinical Pharmacy** الصيدلة السريرية		
References	Lab manual for TDM Adopted by the Department.		
Objectives	To enable pharmacy students to understand the principles, clinical significance, and application of therapeutic drug monitoring in optimizing drug therapy, minimizing toxicity, and improving patient outcomes, with emphasis on pharmacokinetics, pharmacodynamics, and individualized patient care.		

Lecture No.	Subjects	Hours
1	Problems in basic Pharmacokinetics (PK)	**2**
2	Problems in basic pharmacodynamic (PD)	**2**
3	Clinical PK equations and calculations	**2**
4	Clinical PK in special population and cases	**2**
5	Problems in Clinical PK for Antibiotics (e.g., Aminoglycosides, Vancomycin)	**4**
6	Problems in Clinical PK/PD for Cardiovascular agents (e.g., Digoxin, Lidocaine, Procainamide/N-Acetyl Procainamide)	**4**
7	Problems in Clinical PK/PD for Anticonvulsants (e.g., Phenytoin, Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuxsimide)	**6**
8	Problems in Clinical PK/PD for Immunossprasants (e.g., Cyclosporine, Tacrolimus)	**2**
9	Clinical PK/PD of other drugs (e.g., Lithium, Theophylline, Anticancer agents, Anticoagulats	**6**

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 5**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Pharmaco-economy**	
Code	**BSPH52220**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Bootman JL, Townsend RJ, McGhan WF, (Eds.), Principles of Pharmacoeconomics, latest ed., Harvey Whitney Books Company, Cincinnati, Oh, latest edition	
Objectives	The present course will give students the basic understanding of the tools needed to asses the costs and outcomes of medications and pharmaceutical care services. It will enable participants to evaluate the pharmacoeconomic and quality of life literature for the purpose of rational decision-making. Students will be exposed to the drug-focused approaches to pharmacoeconomic research and the fundamentals of quality of life research.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Course overview, Changes in health care delivery, overview of pharmacoeconimics.	**2**
2	Cost determination.	**2**
3	Evaluation of outcomes and effectiveness, types of pharmacoeconomic analyses: Cost effectiveness analyses (CEA), cost minimization analyses (CMA).	**2**
4	Methods of data collection and analyses, modeling (decision analyses).	**2**
5	1st mid-term examination.	**2**
6	Incremental analyses; case studies.	**2**
7	Evaluation outcomes: Utility and quality of life; types of pharmacoeconomic analyses, cost utility analyses (CUA).	**2**
8	Evaluation outcomes: Net benefit, cost utility analyses (CBA), compare and contrast CEA, CUA and CBA.	**2**
9	Methods of data collection and analyses: Statistical/Econometric modeling.	**2**
10	2nd mid-term examination.	**2**
11	Drug-focused versus disease-focused frame work for conducting pharmacoeconomic analyses.	**2**
12	Critical review of pharmacoeconomic and quality of life literature.	**2**
13	Introduction to epidemiology.	**2**
14	Project presentation.	**2**
15	Project presentation.	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 5**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Therapeutics II**	
Code	**BSPH52321**	
Theory-Credits	**2**	
Practical Credits	**1**	
Total credits	**3**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics,latest ed. Dipiro Handbook of Pharmacotherapy,12 edition	
Objectives	To equip pharmacy students with the knowledge, skills, and professional attitudes necessary to provide safe, effective, and patient-centered pharmaceutical care in community pharmacy settings, including medication dispensing, counseling, health promotion, and rational use of medicines	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Thyroid and parathyroid disorders	**2**
2	Contraception	**1**
3	Endometriosis	**1**
4	Menstruation related disorders	**1**
5	Hormonal replacement therapy (HRT)	**1**
6	Cancer treatment and chemotherapy	**2**
7	Leukemias	**2**
8	Lymphomas and Multiple myeloma	**2**
9	HSCT(Hematop. Stem- cell- Transplantion).	**1**
10	Breast and prostate cancers	**2**
11	Adverse effects of chemotherapy	**1**
12	Human immunodeficiency viruse	**1**
13	Multiple seclerosis	**1**
14	Adrenal gland disorders	**1**
15	Pituitary gland disorders	**1**
16	Gluacoma	**1**
17	Alzheimer's disease	**1**
18	Schizophrenia	**2**
19	Depressive disorders	**2**
20	Anxiety disorders	**1**
21	Sleep disorders	**1**
22	Bipolar disorders	**1**
23	Adverse drug reactions	**1**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 5**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Dosage Forms design**	
Code	**BSPH52420**	
Theory-Credits	**2**	
Practical Credits	**0**	
Total credits	**2**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	Pharmaceutical Dosage Forms and Drug Delivery Systems by Haward A. Ansel. Latest edition	
Objectives	This course enables students to understand the principles and factors that influence design dosage forms; and the applications of these principles in the practice of pharmaceutical industry.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Pharmaceutical consideration: The need for the dosage form.	1
2	General consideration for the dosage form.	3
3	Pre-formulation; physical description, microscopic examination.	2
4	Melting point; phase rule; particle size; polymorphism; solubility.	2
5	Permeability; pH; partition coefficient; pka; stability; kinetics; shelf life.	2
6	Rate reaction; enhancing stability.	2
7	Formulation consideration: Excipients; definition and types; appearance; palatability; flavoring.	2
8	Sweetening; coloring pharmaceuticals; preservatives; sterilization; preservatives selection.	2
9	Biopharmaceutical considerations: Principle of drug absorption; dissolution of the drugs.	4
10	Bioavailability and bioequivalancy; FDA requirements.	3
11	Assessment of bioavailability; bioequivalence among drug products.	3
12	Pharmacokinetic principles: Half life; clearance; dosage regimen considerations.	4

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutical Chemistry**	**الكيمياء الصيدلانية**
Level	**Stage 5**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Advanced Pharmaceutical analysis**	
Code	**BSPH52531**	
Theory-Credits	**3**	
Practical Credits	**1**	
Total credits	**4**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	1. Spectrometric Identification of Organic Compounds by Silverstein, Bassler and Morrill; 2. Applications of absorption spectroscopy of organic compounds by Dyer JR. 3. Organic Chemistry by McMurry; 5thed; Thomason learning CA, USA .Latest Edition	
Objectives	To study spectrometric methods used for identification and characterization of organic compounds, including UV, IR, MASS and NMR spectroscopy; it enables students to understand the applications of these techniques for qualitative and quantitative analysis of organic compounds.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	UV / visible spectroscopy; Sample handling and instrumentation; Characteristic absorption of organic compounds; Rules for calculation of lambda max and application; Application of UV/visible; spectroscopy; Problems and solutions.	**6**
2	Infra Red spectroscopy (theory and H-bonding effect; Sampling techniques and interpretation of spectra; Characteristic group frequencies of organic compounds; Application of IR spectroscopy; Problems and solutions.	**14**
3	H1 –Nucleomagnetic Resonance (NMR) and C13-NMR spectroscopy; Introduction, the nature of NMR absorption, chemical shifts and factors affecting them, information obtained from NMR spectra, more complex spin-spin splitting patterns, application of H1-NMR spectroscopy; C13-NMR spectroscopy: introduction and characteristics, DEPT C13- NMR spectroscopy.	**12**
4	Mass spectroscopy: Introduction and interpreting Mass spectra; interpreting Mass spectra fragmentation patterns, Mass behavior of some common functional groups.	**11**

Lab Works			
Title of Course	**Advanced Pharmaceutical analysis**		
Level	**Stage 5**	**Semester**	**2nd Semester**
Department	**Pharmaceutical Chemistry** الكيمياء الصيدلانية		
References	Lab manual for PracticalAdv. Pharmaceuitcal analysis Adopted by the Department.		
Objectives	To study spectrometric methods used for identification and characterization of organic compounds, including UV, IR, MASS and NMR spectroscopy; it enables students to understand the applications of these techniques for qualitative and quantitative analysis of organic compounds.		

Lecture No.	Subjects	Hours
1	Introduction &demonstration to visible spectrophotometry.	**2**
2	Absorption spectra of known colored solution.	**2**
3	Absorption spectra of unknown colored solution.	**2**
4	Beer's law plot of known solution.	**2**
5	Beer's law plot of unknown solution.	**2**
6	Colorimetric assay of tetracycline (FeCl3), known sample.	**2**
7	Colorimetric assay of tetracycline (FeCl3), unknown sample	**2**
8	Colorimetric assay of tetracycline (acid), known sample.	**2**
9	Colorimetric assay of tetracycline (acid), unknown sample.	**2**
10	Colorimetric assay of streptomycin (maltol, known sample).	**2**
11	Colorimetric assay of streptomycin (maltol, unknown sample).	**2**
12	Colorimetric assay of streptomycin (oxidized, known sample).	**2**
13	Colorimetric assay of streptomycin (oxidized, unknown sample).	**2**
14	Colorimetric assay of tetracycline (basic, known sample).	**2**
15	Colorimetric assay of tetracycline (basic unknown sample).	**2**

University	**Basrah**	
College	**Pharmacy**	
Department	**Pharmaceutics**	**الصيدلانيات**
Level	**Stage 5**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Pharmaceutical Biotechnology**	
Code	**BSPH52610**	
Theory-Credits	**1**	
Practical Credits	**0**	
Total credits	**1**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☐Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☐Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
References	pharmaceutical biotechnology. J . A . Crommelin , Robert D. Syinder, latest edition	
Objectives	To provide pharmacy students with knowledge and skills in the principles and applications of biotechnology in drug development, production, and therapeutic use, emphasizing recombinant DNA technology, biopharmaceuticals, vaccines, and modern diagnostic tools to improve patient care.	
Supervisiors and lecturers		

Lecture No.	Subjects	Hours
1	Biotechnology - introduction	1
2	Formulation of biotechnology product (biopharmaceutical consideration) Microbial consideration- sterility-pyrogen viral decontamination Excipients of parentral products - solubility enhancer-anti adsorption agents buffer components-preservatives – osmotic agents	4
3	Route of administration Parentral route Oral route Alternative routes (nasal-pulmonary-rectal-buccal transdermal)	5
4	Pharmacokinetic of peptides and proteins Introduction Elimination of proteins (proteolysis-excretion-metabolism)	5

University	**Basrah**	
College	**Pharmacy**	
Department	**Clinical Pharmacy**	**الصيدلة السريرية**
Level	**Stage 5**	
Semester	**2nd Semester**	**الثاني**
Title of Course	**Hospital Training**	
Code	**BSPH52802**	
Theory-Credits	**0**	
Practical Credits	**1**	
Total credits	**1**	
Methods of Learning	☑Lectures ☑Seminars ☑Home works ☑Field Practice	
Evalaution technique	☑Mid Term Exam ☑Quizes ☑Lab works Scores ☑Extra Activities scores ☑Final Exam	
Total scores	**100**	
Lab Works		
References	Lab manual for Clinical Laboratory Training Adopted by the Department.	
Objectives	• Provide an overview of the role of pharmacy within the hospital. • Explain the importance of interdisciplinary collaboration. • Familiarize students with the layout of the hospital pharmacy department. To teach students the application of pharmacy practice in different hospital wards; it includes training on case evaluation and follow up, evaluation of therapeutic regimens and registration of errors related to drug therapy and presenting ideas to solve problems.	

Lecture No.	Subjects	Hours
1	Internal medicine Wards	**15**
2	Surgical wards training	**15**
3	Gynaecology & obstetrics wards	**15**
4	Pediatrics care wards	**15**

University	**Basrah**	
College	**Pharmacy**	
Department		
Level	**Stage 5**	
Semester	**1st Semester**	الأول
Title of Course	**Graduation project**	
Code	**BSPH51701**	
Theory-Credits	**0**	
Practical Credits	**1**	
Total credits	**1**	
Methods of Learning	☐Lectures ☑Seminars ☐Home works ☑Field Practice	
Evalaution technique	☐Mid Term Exam ☐Quizes ☐Lab works Scores ☐Extra Activities scores ☑Final Exam	
Total scores	**100**	
Lab Works		
References	Web sites, Supervisors, library references	
Objectives	To enable pharmacy students to integrate and apply their theoretical knowledge, practical skills, and research abilities in identifying, analyzing, and solving real pharmaceutical or healthcare-related problems, while fostering critical thinking, innovation, teamwork, and professional competence.	

Lecture No.	Subjects	Hours

2024 -2025

University of Basrah

College of Pharmacy

Study Curriculum

BY: Asist. Prof. Dr. Jubran K. Hassan