Course Description Form/ Stage 1

✓ Course Name: Pharmaceutical calculation
✓ Course Code:
109 PPhc
✓ Semester / Year:
2nd 2023−2024
✓ Description Preparation Date:
2024
✓ Available Attendance Forms:
yes
✓ Number of Credit Hours (Total) / Number of Units (Total)
4 Units
✓ Course administrator's name (mention all, if more than one name)
Name: Assistant prof. Dr. Fatima Jalal Jawad Email: drfatimajalal@copharm.uobaghdad.edu.iq Assistant prof. Dr Khalid Khadim Abel Kinani khalidalkinani@copharm.uobaghdad.edu.iq Assistant prof. Dr. Zainab Saleh Thabit Zainab.saleh@copharm.uobaghdad.edu.iq Lecturer: Manar Adnan Tamer Manar.adnan@copharm.uobaghdad.edu.iq Lecturer: Zainb Ahmed Sadeq zainabahmed@copharm.uobaghdad.edu.iq Assistant Teacher : Zahraa Hasan Falhi Zahraa.hessain2@copharm.uobaghdad.edu.iq Fatima Waleed Tarkan Fatima.w@copharm.uobaghdad.edu.iq

✓ Course Objectives

Course Objectives	**The student will be able to:** **1.Differentiate between the various kinds of doses.** **2. Describe the primary routes of drug/dose, administration and, for each, the dosage Forms utilized.** **3. Perform calculations of doses involving household measures.** **4. Perform calculations pertaining to the quantity of a dose, the dosage regimen, and the supply of medication required for the prescribed period……** **5. Describe factors to consider in determining doses fo pediatric and elderly patients.** **6. Calculate doses based on factors of age, body weigh and body surface area.** **7. Utilize dosing tables and nomograms in calculations.** **8. Calculate doses for single and combination chemotherapy regimens.** **9.Differentiate between the terms isosmotic, isotonic, hypertonic, and hypotonic.** **10. Apply physical chemical principles in the calculatic of isotonic solutions.** **11. Perform the calculations required to prepare isotoni compounded prescriptions.** **Calculate the milliequivalent weight from an atomic or formula weight.** **12. Convert between milligrams and milliequivalents.** **13. Calculate problems involving milliequivalents.** **14. Calculate problems involving millimoles and milliosmoles.**

	15. Perform calculations for altering product strength b dilution, concentration, or fortification. **16. Perform calculations for the preparation and use of stock solutions.** **17. Apply alligation medial and alligation alternate in problem-solving**

✓ Teaching and Learning Strategies

Strategy	Lectures and Presentation, Discussions, Laboratory experiments And Inverted classrooms with learning strategies: 1. Tuning in …can be used to determine students' current knowledge and skills. 2. Finding out … encourage investigation and independent learning. 3- Sorting out … encourage the analysis. 4- Developing values … allow students to identify, 5- Speaking out … provide opportunities for students to develop speaking. 6-Reflecting … allow students to identify, discuss and consider the changes in their understandings.

✓ Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 2 3 4 5 6 7	1 3 4 5 6 7 8 9 10 11 12 13 14 15	✓ Dose Definitions ✓ Routes of Drug/D Administration Dosage Forms Calculations of Dose Based on 1. Age 2. weight 3. BSA ✓ Special Dosing Considerations in Cancer Chemotherapy ✓ Special Clinical Considerations Tonicity ✓ Physical/	Dose Dose paramete Isotonic soluti	- Lectures -White board -Data show -Power point -Explanatory diagrams	-Written exams - Oral exams -Laboratory reports

8 9 10 11 12 13 14 15 16 17 18 19 20	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 40 41	Chemical Considerations in the Preparation of Isotonic Solutions ✓ Electrolyte ✓ Solutions: Milliequivalents, Millimoles, and Milliosmoles. ✓ Clinical Considerations Water Electrolyte Balance. ✓ Special Considerations of Altering Product Strength in Pharmaceutical Compounding ✓ Relationship Between Strength and Total Quantity ✓ Dilution and Concentration of Liquids ✓ Strengthening of a Pharmaceutical Product ✓ Stock Solutions ✓ Dilution of Alcohol ✓ Dilution of Acids	Electrolytes solutions Altering Product Strength, Us Stock Solutions, and Problem-Solving by Alligation		

✓ Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

✓ Learning and Teaching Resources

Required textbooks (curricular books, if any)	Pharmaceutical calculation 3rd edition by Ansel

Main references (sources)	Pharmaceutical calculation 3rd edition by Ansel
Recommended books and references (scientific journals, reports…)	*Pharmaceutical Calculations: A Conceptual Approach*. 2019. Cham: Springer.
Electronic References, Websites	https://www.nps.org.au/assets/e1522a550c298d28-18d3eafe5ce1-Extemporaneously-compounded-medicines_40-119.pdf http://repo.upertis.ac.id/1819/1/FASTtrack%20Pharmaceutical%20Compounding%20and%20Dispensing.pdf

✓ Course Name:
Organic Chemistry I
✓ Course Code:
1030211210
✓ Semester / Year:
Second Semester (2023−2024)
✓ Description Preparation Date:
March / 2024
✓ Available Attendance Forms:
on campus
✓ Number of Credit Hours (Total) / Number of Units (Total):
45 / 4
✓ Course administrator's name (mention all, if more than one name)
Name: **Lec. Dr. Ali Basim Talib** Email: ali.youssef@copharm.uobaghdad.edu.iq Name: **Lec. Dr. Mothanna saadi Farhan** Email: mothana.farhan@copharm.uobaghdad.edu.iq Name: **Lec. Shaimaa Luay Abdulhadi** Email: shaimaa.loaiy@copharm.uobaghdad.edu.iq **Lab instructors** Name: Rana Adel Kamoon E-mail: rana.abbas@copharm.uobaghdad.edu.iq Name Mazen Mohammed Jwaid Email: Mazen.m@copharm.uobaghdad.edu.iq Name: Shams Awad Nadhum

E-mail: shams.jawad@copharm.uobaghdad.edu.iq
Name: Hala Abdulsahib abdulhadi
Email: : hala.abd@copharm.uobaghdad.edu.iq

✓ Course Objectives

Course Objectives	1- Teaching the basics of organic chemistry. Understanding of the chemical compounds to facilitate the discovery of new compounds, including drugs. 2- Teaching the student about organic compounds from the simplest form, which is that organic compounds contain only carbon and hydrogen atoms, such as alkanes, alkenes, and alkynes, and the differences between them, as they are either saturated or unsaturated compounds, and their different activities and chemical reactions. Besides, other simple organic compounds containing functional group such as alcohols, ethers, epoxides, alkyl halides and their different reactions. 3- Study the stereochemistry of different organic compounds and it is significance in drug-binding into biological receptors.

✓ Teaching and Learning Strategies

Strategy	1- Theoretical lectures in the classroom 2- Educational laboratories 3- Conducting scientific studies 4- Various desk researches 5- Seminars, weekly meetings, and homework. 6- Scientific research to serve society. 7- Explanatory and informative videos.

✓ Course Structure

Week	Hour	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	studying the organic compounds chemical structure, physical properties, type of bonds formed between their molecules or with other different compounds. Also learn molecules chemical reactions, their uses in different field, including medical field.	Introduction	Lectures	Oral and written exam
2-3	6	Alkanes are of huge importance in organic synthesis and other applications that involve dissolving organic compounds.	Alkanes and methane	lectures	Oral and written exam

4-5	5	Giving an idea about the unsaturated organic compounds, their uses and the differences between them and the saturated compounds.	Alkenes 1 and 2	lectures	Oral and written exam
6-7	5	Other unsaturated organic compounds useful in synthesis of different organic compounds with different substituents.	Alkynes and dienes	lectures	Oral and written exam
8-9	8	Most of drugs are organic compounds in their nature so the stereochemistry is of critical importance to drug action because the shape of drug molecule is an important factor in determining how it interacts with the various biological molecules (enzymes, receptors, etc.) that it encounters in the body.	Stereochemistry 1 and 2	Lectures	Oral and written Exam
10-11	8	Alcohols are among the most common organic compounds. They are valuable intermediates in the synthesis of other compounds, and are amor the most abundantly produced organic chemicals in industry. Uses of ethers in health care industries: Ethers have a wide range of applications, including medical, laboratory purposes, perfume, flavoring agents.	Alcohols and ethers	Lectures	Oral and written Exam
12-13	6	Alkyl halides are important in synthetic chemistry because they can be used as starting materials for a variety of reactions. These reactions include nucleophilic substitution, elimination, and addition reactions. Overall, alkyl halides are versatile building blocks in synthetic chemistry due to their ability to participate in a wide range of reactions.	Alkylate halide	Lectures	Oral and written Exam
14-15	4	Cyclic alkanes are major components of lubricating oils and used in chemical synthesis as solvents. The cyclopropane is a small ring is	Cyclic alkanes	Lectures	Oral and written exam

		also found in a large number of bioactive compounds, including natural products and drugs.			

✓ Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
✓ Learning and Teaching Resources	
Required textbooks (curricular books, if any)	*Organic Chemistry by Robert T. Morrison and Robert N. Boyd. *Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,USA; 2000
Main references (sources)	*Organic Chemistry by Robert T. Morrison and Robert N. Boyd. *Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,USA; 2000
Recommended books and references (scientific journals, reports…)	Organic Chemistry by Janice Gorzynski Smith, 1st edition.
Electronic References, Websites	American Chemical Society

✓ Course Name:
Analytical Chemistry
✓ Course Code:
103021112
✓ Semester / Year:
First semester 2023−2024
✓ Description Preparation Date:
February 2024
✓ Available Attendance Forms:
On campus
✓ Number of Credit Hours (Total) / Number of Units (Total)
45 / 4

✓ Course administrator's name (mention all, if more than one name)	
Name:	Email:
Assist. Prof Tagreed N-A Omar	**Taghreed.Omar@copharm.uobaghdad.edu.iq**
Lect. Ali Bassem Talib Lab instructors Rana Adel Kamoon Mazen Mohammed Jwaid Shams Awad Nadhum	**ali.youssef@copharm.uobaghdad.edu.iq** rana.abbas@copharm.uobaghdad.edu.iq Mazen.m@copharm.uobaghdad.edu.iq shams.jawad@copharm.uobaghdad.edu.iq

✓ Course Objectives	
Course Objectives	• Providing students with scientific experience of analytical chemistry wi various methods of neutralization reactions. • Study the effect of acidity on various reactions of simple and complex compounds. • The mechanism of qualitative analysis and its importance in various fields of life, including pharmaceutical applications. • Detection of compounds by a number of methods using sedimentation titration, complex formation titration, and oxidation-reduction titration.

✓ Teaching and Learning Strategies	
Strategy	1- Theoretical lectures covering all aspects of each method
	2- Conduct reports on the applications of the methods mentioned above on chemical compounds and pharmaceutical preparations
	3- Showing applied videos to help understand the material
	4- Use methodological and supporting books
	5- Holding scientific sessions in the form of discussions or seminars

✓ Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Strong and weak electrolytes. Weight and focus are important devices	Review the importan basic concept of analytical chemistry	lecture	Oral exam and discussions

2-5	10	Statistical analysis of data. Reject sedimentary and gravimetric data and methods	Evaluation of gravimetric analysis methods	lecture	Oral exam and discussions
6	4	Organic and inorganic sediments	Scope of applications gravimetric analysis	lecture	Oral exam and discussions
7-8	5	Volumetric methods: acid-base neutrality calculations, and acid exponent calculation	Introduction to volumetric analysis methods	lecture	Oral exam and discussions
9	3	Chemical neutralization reactions	Dielectric solutions	lecture	Oral exam and discussions
10-11	5	Details of precipitation methods	Complex system neutralization Theory	lecture	Oral exam and discussions
12	4	Volumetric methods for complex systems	Calculate the pH in a complex system	lecture	Oral exam and discussions
13-14	6	Oxidation and reduction reactions	Equilibrium in the redox system	lecture	Oral exam and discussions
15	4	Various spectroscopic methods: enumerating their types and devices	Spectroscopic analys	lecture	Oral exam and discussions

✓ Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

✓ Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fundamentals of Analytical Chemistry by Skoog and West

Main references (sources)	Fundamentals of Analytical Chemistry by Skoog and West
Recommended books and references (scientific journals, reports…)	mentioned above
Electronic References, Websites	Google , ResearchGate

✓ Course Name:
Medical Terminology
✓ Course Code:
104 PtMt
✓ Semester / Year:
2024
✓ Description Preparation Date:
14−2−2024
✓ Available Attendance Forms:
Electronic and in class
✓ Number of Credit Hours (Total) / Number of Units (Total)
20
✓ Course administrator's name (mention all, if more than one name)
Name: Dr. Zena Munther Qaragholi & Dr. Murtada Alsharifi Email: Zina.Fahmi@copharm.uobaghdad.edu.iq alshareifi_m@yahoo.com
✓ Course Objectives

Course Objectives	1-Distinguish common medical abbreviations and acronyms. 1-Choose and define medical terms from appropriate sources. 3-Summarize medical/clinical related materials.

✓ Teaching and Learning Strategies	
Strategy	○ • Distinguish common medical abbreviations and acronyms. ○ **Encourage students to pronounce terms out loud in context** ○ **Offer multimedia-rich course materials** ○ **Use flashcards for memorization** ○ **Customize the curriculum to student learning**

✓ Course Structure					
In class questions, exams	In-Class-Online	**Lymphatic and immune system**	Students will be able to identify the most important terminologies for the lymphatic and immune system	1	12
In cl questions exams	In-Class-Online	**Lymph ic a immun system**	Students will able to ident the m important terminologie for lymphatic a immune syst	1	12

✓ Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

✓ Learning and Teaching Resources	
Required textbooks (curricular books, if any)	

	Medical Terminology: A Text/Workbook (4th Edition) Introduction to Medical Terminology, 1st Edition
Main references (sources)	Medical Terminology: A Text/Workbook (4th Edition) Introduction to Medical Terminology, 1st Edition
Recommended books and references (scientific journals, reports…)	• Basic Medical Language. • Medical Language for Modern Health Care. • Mastering Healthcare Terminology. • Medical Terminology for Health Care Professionals. • Medical terminology for dummies
Electronic References, Websites	

✓ **Course Name:**
Computer Sciences
✓ **Course Code:**
106 ClCs
✓ **Semester / Year:**
First/First

✓ **Description Preparation Date:**
29/2/2024
✓ **Available Attendance Forms:**
In-person attendance
✓ **Number of Credit Hours (Total) / Number of Units (Total):**
2/1
✓ **Course administrator's name (mention all, if more than one name)**
1- Name: Assist. Prof. Salema Sultan Email: salma3_sultan@copharm.uobaghdad.edu.iq 2- Name: Assist. Prof. Abdullah A. Abdullah E-mail: abdullah.abd@copharm.uobaghdad.edu.iq 3- Name: Lecturer Wafaa A. Abbas E-mail: wafaa.abbas@copharm.uobaghdad.edu.iq
✓ **Course Objectives**

Course Objective	The course is designed to provide a thorough overview of the fundamental concepts of computer applications. It covers the use of Microsoft Word, Microsoft Power point, and Google applications in detail.
✓ **Teaching and Learning Strategies**	
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory application 4- Inverted classrooms

✓ **Course Structure**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Using Google applications	Introduction to Microsoft Word (File and Home Tab)	- Lectures -Power point presentations -Scientific YouTube videos -laboratory experiments	-Written exams - Oral exams -Laboratory reports
2	2	Use the tape to insert mathematical	Insert tab	=	=

		equations and graphs			
3	2	Use tape to layout the paper	Layout Tab	=	=
4	2	The References Tab allows you to now create a table of contents, footnotes, citations, cross-references	References Tab	=	=
5	2	Use the Mailing Bar to send	Mailings Tab	=	=
6	2	The use of tape in the meanings of paper and the use of tools in translation	Review Tab	=	=
7	Midterm examination				
8	2	The use of tape in the meanings of paper and the use of tools in translation	View Tab	=	=
9	2	Create, edit, save, and print presentations	Introduction to Microsoft PowerPoint	=	=
10	2	Create, edit, save, and print presentations	File and Home Tab	=	=
11	2	Add a graphic to a presentation. Create slide presentations that include text, graphics, animation, and transitions	Insert tab	=	=

12	2	Use design layouts and templates for presentations.	Design	=	=
13	2	Control the speed, add sound, and customize the look of transition effects.	Transition Tab, Slide View	=	=
14 and 15	4	The most common types of animation effects include entrances and exits. Adding sound to increase the intensity of the animation effects.	Animation Tab , Review Tab , View Tab	=	=

✓ Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily practical, monthly practical or written exams, and reports	
✓ Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Microsoft office Professional 2019, BY Linda Foulkes, Senior Editor: Afshaan Khan ISBN 978-1-83921-725-8
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Microsoft office Professional 2010, BY Joyce Cox, Jo an Lambert & Curtis Frge
Electronic References, Websites	

✓ **Course Name:**
Mathematics and Biostatistics
✓ **Course Code:**
105 ClMb
✓ **Semester / Year:**
First /First
✓ **Description Preparation Date:**

29/2/2024

✓ **Available Attendance Forms:**

In-person attendance

✓ **Number of Credit Hours (Total) / Number of Units (Total):**

3/3

✓ **Course administrator's name (mention all, if more than one name)**

1- Name: Assist. Prof. Dr. Salema Sultan
Email: salma3_sultan@copharm.uobaghdad.edu.iq
2- Name: Assist. Prof. Dr. Abdullah A. Abdullah
E-mail: : abdullah.abd@copharm.uobaghdad.edu.iq

✓ **Course Objectives**

Course Objectives	The aim is to enable students to apply mathematical statistics in pharmaceutical science, use biostatistics in specific pharmaceutical courses, calculate the odds ratio and relative risk of an event, estimate statistical population indicators, and develop alternative hypotheses.

✓ **Teaching and Learning Strategies**

Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory application 4- Inverted classrooms

✓ **Course Structure**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	The difference between biostatistics and descriptive statistics	Fundamentals of biostatistics and descriptive statistics	- Lectures -White board -Data show -Power point -Explanatory diagrams -Scientific YouTube videos -Laboratory experiments	-Written exams - Oral exams -Laboratory reports
2	3	Extracting the percentage probability of a specific event occurring and determining the risk ratio	Fundamentals of probability theory	=	=
3	3	Continuous probability distributions	The sample distribution	=	=

		and the relationship between the discrete binary distribution and the continuous normal distribution			
4	3	The field of the function, types of mathematical functions and graphing functions	Mathematical functions	=	=
5	3	Exploring the properties of logarithm and exponential functions	Logarithm and exponential functions	=	=
6	3	Learn about derivation and integration in pharmaceutical fields	Integration and differentiation	=	=
7	Midterm Examination				
8	3	Linking the calculation of the area under the curve to drug kinetics	Applications of the area under the curve	=	=
9	3	Identify the appropriate sample size and what are the null and alternative hypotheses	Samples and confidence intervals	=	=
10	3	Knowing the relationships between dependent and	Dependent and independent variables	=	=

		independent variables			
11	3	To know the difference between a sample and a standard value	Correlation and regression	=	=
12	3	To know the difference between , the two samples To find out the significant differences between the groups	One-sample tests and Two-sample tests	=	=
13	3	To find out the significant differences among the groups	Analysis of variance tests	=	=
14	3	Parametric and non-parametric tests	Choices in the domain of non-normal distribution	=	=
15	3	To know the relationship between categorical variables	Correlation test for categorical variables	=	=

✓ Course Evaluation

Midterm examination 30 Marks
Final examination 70 Marks

✓ Learning and Teaching Resources

Required textbooks (curricular books, if any)	Calculus, Third Edition, by Gilbert Strang. *Introductory Statistics* Using *SPSS*, Second Edition, by *Herschel Knapp*.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Introductory Biostatistics for the Health Sciences, by Michael R. Chernick.

Electronic References, Websites	

Course Description Form

✓ **Course Name:**
Human Biology
✓ **Course Code:**
101 CIHb
✓ **Semester / Year:**
First/ First
✓ **Description Preparation Date:**
29 / 2 / 2024
✓ **Available Attendance Forms:**
In-person attendance
✓ **Number of Credit Hours (Total) / Number of Units (Total) :**
4/3
✓ **Course administrator's name**
Name: Assist. Prof. Dr. Ajwad Awad Assomaidaee Email: ajwad.mohammed@copharm.uobaghdad.edu.iq Name: Dr. Shaymaa Abdulzahra Abbas Email: shaymaa.abbas@copharm.uobaghdad.edu.iq Name: Dr. Safa thaer Flayyih Email: safa.t@copharm.uobaghdad.edu.iq
✓ **Course Objectives**

Course Objectives	To identify the cell and their types and division, biological processes, metabolic pathways and chemical reactions, as well as identify the importance of vital elements to the life. Understand how the cells contribute to the building of the body of the organism in various vital systems, and their genetics (DNA & RNA molecules).

✓ **Teaching and Learning Strategies**

Strategy	• Presentation and recitation • Interactive discussions • Brainstorming • Research and induction

✓ **Course Evaluation**
Midterm examination 18 marks Classroom activities 2 marks Practical part 20 marks

✓ **Course Structure**					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning methods	Evaluation method
1	2	General introduction about human biology science	General introduction	Lectures, discussions and reports	Theoretical exam and classroom activities
2	2	Cell and tissue types, and cellular division	Cell and tissue	=	=
3	2	Blood components, cells, and proteins, and blood groups	Blood	=	=
4	2	Immunity types and immune cells	Immunity	=	=
5	2	The respiratory system components and the process of gas exchange	The respiratory system	=	=
6	2	The digestive system components and the supporting glands, and the process of digestion	The digestive system	=	=
7	Midterm examination				
8	2	The lymphatic system components and function, and the lymph nodes	The lymphatic system	=	=
9	2	The circulatory system components, and blood pressure	The circulatory system	=	=
10	2	The process of metabolism and the enzymes involved in metabolism	Metabolism	=	=
11	2	Muscles and nerves types, neural signal transduction	Muscles and nerves	=	=

12	2	Carbohydrates, fats, proteins, vitamins and minerals	The nutrients	=	=
13-15	2	Study of the genetic material	The genome	=	=

Final examination 60 marks	
✓ **Learning and Teaching Resources**	
Required textbooks (curricular books, if any)	Human Biology by Willy Cushwa
Main references (sources)	Human Biology by Douglas Wilkin and Jean Brainard
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Resources for Cell Biology Flipped Course

✓ **Course Name:**
Human anatomy
✓ **Course Code:**
108 ClHa
✓ **Semester / Year:**
Second/ First
✓ **Description Preparation Date:**
29/2/2024
✓ **Available Attendance Forms:**
In-person attendance
✓ **Number of Credit Hours (Total) / Number of Units (Total):**
3/2
✓ **Course administrator's name (mention all, if more than one name)**
Name: Assist. Prof. Dr. Ajwad Awad Assomaidaee Email: ajwad.mohammed@copharm.uobaghdad.edu.iq Name: Dr. Safa thaer Flayyih Email: safa.t@copharm.uobaghdad.edu.iq
✓ **Course Objectives**

Course Objectives	• Learning the names and functions of anatomical structures. • Illustration of how anatomic systems work together. • Provide comprehensive understanding of how abnormal anatomy can lead to disease.
✓ **Teaching and Learning Strategies**	
Strategy	• Presentation and recitation • Interactive discussions • Brainstorming • Research and induction

✓ **Course Structure**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	General introduction about human anatomy science ,types of anatomy study (regional ,systemic) ,difference between histology and anatomy, directional terms ,body cavities ,body quadrants	Anatomy: general introduction	Lectures; Discussions and Reports	Exam and classroom activities
2	1	The axial skeletal system, facial bones, skull bones, vertebral column bones, study the structure of vertebrae	Anatomy of the skeletal system: Axial system	=	=
3	1	The structure and function of appendicular skeletal system and the major bones ,the shoulder girdle, upper arm bones, pelvic girdle bones and the differences between man and woman girdle, palm bones, lower extremities bone (femur ,tibia and fibula bones), ankle bones	Anatomy of the skeletal system: Appendicular system	=	=

4	1	The structure and function of joints, types of joints (movable and non-movable), components of joints, some types of synovial joints (shoulder joint, ankle joint, pelvic joint)	Anatomy of the joints	=	=
5	1	The muscles, facial muscle, major function of muscles, muscle and facial expression, and major neck muscles	Anatomy of the muscles-1	=	=
6	1	The appendicular muscles, abdominal muscles, upper extremities muscles, lower extremities muscles	Anatomy of the muscles-2	=	=
7	Midterm examination				
8	1	The heart and its chambers, left and right atrium, left and right ventricle, valves of heart, the arteries, the veins, blood capillaries, the lymphatic vessels	Anatomy of the cardio-vascular system	=	=
9	1	The central and peripheral nervous system, brain and its parts (cerebellum, cerebrum, hypothalamus), spinal cord, peripheral nerves types, anatomic nervous system (sympathetic and parasympathetic)	Anatomy of the nervous system	=	=
10	1	The respiratory system (nose ,pharynx , larynx, trachea, bronchial tree,	Anatomy of the respiratory system	=	=

		muscle of respiration (diaphragm, intercostalis muscle)			
11	1	The anatomy of teeth and their classification ; digestive tract (mouth, pharynx, esophagus, stomach, small intestine, large intestine); accessory glands of the digestive system	Anatomy of the digestive system	=	=
12	1	The urinary system structures, the kidney, nephrons, glomeruli, afferent and efferent blood vessels, urinary bladder, urethra , and ureter	Anatomy of the urinary system	=	=
13		Types and location of glands, types of secretions and structures within each gland	Anatomy of the endocrine system	=	=
14		Male reproductive system organs; female reproductive system organs	Anatomy of the reproductive system	=	=
15	1	Skin layers and epidermal appendages	Anatomy of the integumentary system	=	=

✓ Course Evaluation	
Midterm examination 20 marks Practical part 20 marks Final examination 60 marks	
✓ Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Anatomy and Physiology for Healthcare by Paul Marshall; Beverly Gallacher; Jim Jolly; Shupikai Rinomhota
Main references (sources)	Atlas of Human Anatomy by Frank H. Netter

Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Understanding anatomy & physiology [electronic resource] : a visual, auditory, interactive approach

Course Description Form

✓ **Course Name:**	
Computer Sciences	
✓ **Course Code:**	
106 ClCs	
✓ **Semester / Year:**	
First/First	
✓ **Description Preparation Date:**	
29/2/2024	
✓ **Available Attendance Forms:**	
In-person attendance	
✓ **Number of Credit Hours (Total) / Number of Units (Total):**	
2/1	
✓ **Course administrator's name (mention all, if more than one name)**	
1- Name: Assist. Prof. Salema Sultan Email: salma3_sultan@copharm.uobaghdad.edu.iq 2- Name: Assist. Prof. Abdullah A. Abdullah E-mail: abdullah.abd@copharm.uobaghdad.edu.iq 3- Name: Lecturer Wafaa A. Abbas E-mail: wafaa.abbas@copharm.uobaghdad.edu.iq	
✓ **Course Objectives**	
Course Objective	The course is designed to provide a thorough overview of the fundamental concepts of computer applications. It covers the use of Microsoft Word, Microsoft Power point, and Google applications in detail.
✓ **Teaching and Learning Strategies**	
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory application 4- Inverted classrooms
✓ **Course Structure**	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Using Google applications	Introduction to Microsoft Word (File and Home Tab)	- Lectures -Power point presentations -Scientific YouTube videos -laboratory experiments	-Written exams - Oral exams -Laboratory reports
2	2	Use the tape to insert mathematical equations and graphs	Insert tab	=	=
3	2	Use tape to layout the paper	Layout Tab	=	=
4	2	The References Tab allows you to now create a table of contents, footnotes, citations, cross-references	References Tab	=	=
5	2	Use the Mailing Bar to send	Mailings Tab	=	=
6	2	The use of tape in the meanings of paper and the use of tools in translation	Review Tab	=	=
7	Midterm examination				
8	2	The use of tape in the meanings of paper and the use of tools in translation	View Tab	=	=

9	2	Create, edit, save, and print presentations	Introduction to Microsoft PowerPoint	=	=
10	2	Create, edit, save, and print presentations	File and Home Tab	=	=
11	2	Add a graphic to a presentation. Create slide presentations that include text, graphics, animation, and transitions	Insert tab	=	=
12	2	Use design layouts and templates for presentations.	Design	=	=
13	2	Control the speed, add sound, and customize the look of transition effects.	Transition Tab, Slide View	=	=
14 and 15	4	The most common types of animation effects include entrances and exits. Adding sound to increase the intensity of the animation effects.	Animation Tab , Review Tab , View Tab	=	=
✓ Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily practical, monthly practical or written exams, and reports					
✓ Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Microsoft office Professional 2019, BY Linda Foulkes, Senior Editor: Afshaan Khan ISBN 978-1-83921-725-8		

Main references (sources)	
Recommended books and references (scientific journals, reports...)	Microsoft office Professional 2010, BY Joyce Cox, Jo an Lambert & Curtis Frge
Electronic References, Websites	

Course Description Form

✓ **Course Name:**
Computer Sciences II
✓ **Course Code:**
114 ClCs
✓ **Semester / Year:**
Second/First
✓ **Description Preparation Date:**
29/2/2024
✓ **Available Attendance Forms:**
In-person attendance
✓ **Number of Credit Hours (Total) / Number of Units (Total):**
2/1
✓ **Course administrator's name (mention all, if more than one name)**
1- Name: Assist. Prof. Salema Sultan Email: Salma3_sultan@copharm.uobaghdad.edu.iq 2- Name: Assist. Prof. Abdullah A. Abdullah E-mail: abdullah.abd@copharm.uobaghdad.edu.iq 3- Name: Lecturer Wafaa A. Abbas E-mail: wafaa.abbas@copharm.uobaghdad.edu.iq
✓ **Course Objectives**

Course Objectives	The course is designed to provide a thorough overview of the fundamental concepts of computer applications. It covers the use of Microsoft Excel and Google applications in detail.
✓ **Teaching and Learning Strategies**	
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory application 4- Inverted classrooms

✓ **Course Structure**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Font formatting, Number formatting, Table formatting, Conditional	Introduction Excel	- Lectures -White board -Data show -Power point	-Written exams - Oral exams -Laboratory reports

		formatting, Hide / Unhide, Sort / filter, Paste special, Find and select		-Explanatory diagrams -Scientific YouTube videos -Laboratory experiments	
2	2	Illustrations and Charts and Text The Chart Wizard , Chart Types , Adding Title / Legends / Labels , Printing Charts , Adding Data to a Chart , Formatting / Renaming / Deleting Data Series ,Changing the Order of Data Serie	Insert tab	=	=
3	2	Illustrations and Charts and Text The Chart Wizard , Chart Types , Adding Title / Legends / Labels , Printing Charts , Adding Data to a Chart , Formatting / Renaming / Deleting Data Series ,Changing the Order of Data Series	Insert tab	=	=
4	2	Sum / Average / Count / Max / Min , Basic Text / date / time / lookup / information functions, Name manager, Formula Auditing	Page Layout and Basic Functions	=	=
5	2	IFs and Nested IF Functions, Using AND / OR / NOT Functions, MATCH with VLOOKUP Functions , INDEX and MATCH Functions	Logical Functions	=	=

6	2	IFs and Nested IF Functions, Using AND / OR / NOT Functions, MATCH with VLOOKUP Functions , INDEX and MATCH Functions	Logical Functions	=	=
7	Midterm examination				
8and 9	4	Import from web , Import from text , Text to columns , Remove duplicates , Grouping and ungrouping	Data	=	=
10 and 11	4	Proofing, Comments, Protection, Types of views , Zoom , Windows	Review and view	=	=
12-15	8	Enable developer , Using checkbox / option buttons	Developer	=	=

✓ Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily practical, monthly practical or written exams, and reports	
✓ Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Microsoft office Professional 2019, BY Linda Foulkes, Senior Editor: Afshaan Khan ISBN 978-1-83921-725-8
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Microsoft office Professional, BY 2010 Joyce Cox, Jo an Lambert & Curtis Frge
Electronic References, Websites	

Course Description Form

✓ Course Name:
Histology
✓ Course Code:
112 ClHi
✓ Semester / Year
Second/First
✓ Description Preparation Date:
16/2/2024

✓ Available Attendance Forms:

In-person attendance

✓ Number of Credit Hours (Total) / Number of Units (Total)

4/3

✓ Course administrator's name (mention all, if more than one name)

Name: Assistant prof. Suhair Hassan Ali
Email: sohayrmohammed@copharm.uobaghdad.edu.iq
Name: Dr. Khalid Abdul Hussein
Email: khaled.Abd@copharm.uobaghdad.edu.iq
Name: Instrector Eman Sadiq
Email Iyman.hussein@copharm.uobaghdad.edu.iq

✓ Course Objectives

Course Objectives	- Describe the basic concepts of general human histology at the normal cellular, histological and ultrastructural levels - To acquire a basic background in histology and to understand the properties of cells and their interactions with one another as components of tissues and organs - To be able to describe the normal structure and function of various cell types, tissues, and organs, and to differentiate their histological structures from each other through microscopic examination.

✓ Teaching and Learning Strategies

Strategy	- Lectures - Discussions - Electronic classes - Reports

✓ Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	General introduction of histology course and its relationship with biology anatomy and pathophysiology.	Introduction to histology	Lectures, Discussions, and Reports	Exams and classroom activities

		Outline the principles of histology, histochemistry and immunohisto-chemistry. Outline the scope of terms used in histology The practical part describes the method of tissue preparation for histological examination and outlines the different steps taken to prepare a biopsy specimen for visualization Furthermore, describes the function of the different types of microscopes utilized in histology			
2	2	Outline the histological features of plasma membrane, and cellular organelles correlating them with their function. Describe the membranous and non-membranous organelles of the cell. Define the histological characteristics of normal and an apoptotic cell. Identify the different stages of mitosis and meiosis	Cell and tissue structure	=	=

		from microscopic images. Explain the distinguishing features of the four major tissue types (epithelial, connective, muscle, nervous). List the different types of epithelial cells and briefly discuss the function of each (apical, lateral, basal). Describe the accessory structural features of epithelial cells such as microvilli, cilia and cell-to-cell contacts. The practical part emphasis the identification of the different types of epithelial tissue under the microscope			
3	2	List the classification of connective tissue and description of the major histologic features of each class. Describe the different components of the ECM and their microscopic features. Briefly discuss the characteristics of	The connective tissue histology	=	=

		special connective tissue. The practical part is concerned with identification of the different types of connective tissue under the microscope.			
4	2	Describe the histology and function of the different layers of the heart. Outline the different microscopic features of arteries and veins. Identify the differences between different types of arteries and veins. The practical part is concerned with identifing heart tissue and distinguish between artery and vein in a tissue microscopic specimen.	The cardiovascular system histology	=	=
5	2	Describe the histology of the conducting portion of respiratory system (nasal cavity, pharynx, larynx, trachea, bronchi). Discuss the histology of the respiratory portion of the system	The respiratory system histology	=	=

		(intrapulmonary bronchial tree, bronchioles, and alveoli). The practical part is concerned with the distinguish between the trachea, bronchi and bronchiole in a microscopic specimen.			
6	2	Describe the histology of oral cavity, esophagus, stomach, and small and large intestine Describe the structure of the liver with regards to functional units (lobule vs acinus). Describe the zonal distribution of hepatocytes and its functional significance. Outline the major morphological features of the gallbladder and pancreas. The practical part is concerned with Identify the microscopic architecture of the liver based on the lobular and acinus model. Identify the histological features of the gallbladder and the pancreas.	Digestive system histology	=	=
7	Midterm examination				

8	2	Describe the major histological features of the pituitary gland, hypothalamus and pineal gland. Outline the three classes of hormones secreted by the endocrine system. Describe the general mechanism of hormone secretion regulation. The practical part is concerned with the microscopic structural differentiation of pituitary, thyroid and parathyroid glands' cells.	The endocrine system histology	=	=
9	2	Describe the histology and function of the kidneys , ureters, urinary bladder and urethra. Describe the major histological constituents and features of nephrons. Describe the major histological constituents and functions of	The urinary system histology	=	=

		juxtaglomerular apparatus. The practical part is concerned with the identification of the microscopic architecture of the kidney, ureter, urinary bladder.			
10	2	Describe the major histological features and general function of the central and peripheral nervous system. Describe the histology of the cerebrum, cerebellum and spinal cord. Describe the histology of the nerve and ganglia. Outline the major differences between neuron and glial cells. The practical part is concerned with the identification of the microscopic architecture of cerebrum, cerebellum, spinal cord, nerve and ganglia.	The nervous system histology	=	=
11	2	Describe the major histological features and general function of the lymphatic system (central and peripheral organs). Describe the histology of the	The lymphatic tissue histology	=	=

		spleen, lymph node and thymus gland. The practical part is concerned with the identification of the microscopic architecture of spleen, lymph node and thymus gland.			
12 and 13	4	Describe the histological features of ovaries, ovarian duct, and uterus. Describe the histological features of testes,conducting ducts, and the associated glands	The reproductive system histology	=	=
14	2	Describe the histological features of the skeleton, skeletal muscles, ligaments, tendons, joints, cartilage and other connective tissues. The practical part is concerned with the identification of the microscopic architecture of skeletal muscles, ligaments, tendons, joints, and cartilage.	Musculoskeletal system histology	=	=
15	2	Outline the different cell types found in the blood and describe their morphological features. List the different stages of haemopoiesis in bone marrow .	Blood histology	=	=

		The practical part is concerned with the identification of the microscopic architecture of erythrocyte, WBCs and thrombocytes, and bone marrow.			

✓ Course Evaluation	
Midterm examination 20 marks Practical 20 marks Final examination 60 marks	
✓ Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Basic Histology: text and Atlas, 11th ed. BY Luiz Carlos, Uchoa Junqueria 2005
Main references (sources)	Wheaters functional histology: a text and colour atlas 6th ed. BY Yung , Barbara 2013
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

✓ **Course Name:**
Medical Physics
✓ **Course Code:**
110 ClMp
✓ **Semester / Year:**
Second/First
✓ **Description Preparation Date:**
29/2/2024
✓ **Available Attendance Forms:**
In-person attendance
✓ **Number of Credit Hours (Total) / Number of Units (Total):**
5/3
✓ **Course administrator's name (mention all, if more than one name)**
1- Name: Assist. Prof. Salema Sultan Email: salma3_sultan@copharm.uobaghdad.edu.iq 2- Name: Abdullah A. Abdullah Email: : abdullah.abd@copharm.uobaghdad.edu.iq 3- Name: Lecturer Wafaa A. Abbas Email: wafaa.abbas@copharm.uobaghdad.edu.iq

✓ **Course Objectives**	
Course Objectives	The course aims to introduce the student to the principles of medical physics, the spectrum of electromagnetic waves, ionizing and non-ionizing radiation and their interaction with biological matter, and medical imaging.
✓ **Teaching and Learning Strategies**	
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory application 4- Inverted classrooms

✓ **Course Structure**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 and 2	4	General concepts in physics and the laws of thermodynamics. Thermodynamics systems properties; conservation of energy principle; application of thermodynamics; the Zeroth law.	General concepts	- Lectures -White board -Data show -Power point -Explanatory diagrams -Scientific YouTube videos -Laboratory experiments	-Written exams - Oral exams -Laboratory reports
3 and 4	4	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).	Pressure, heat, forces and work	=	=
5 and 6	4	Radiation: Kirshoffs law; planks law; Stefan-Boltzman law; Wiens law; Black body and Albedo; Heat transfer (radiation, convection, conduction).	Radiation	=	=
7	Midterm examination				

8	2	Forces in the body, type of forces, forces on the body, sedimentation, medical applications of sedimentation.	Forces	=	=
9	2	Optics and human vision; the physics of the eye and vision; light; lens; electromagnetic spectrum; medical applications of the electromagnetic spectrum	Optics, and their medical applications	=	=
10 and 11	4	Energy and power of the body; conservation of energy; energy change in the body; work and power; the process of metabolism	Power and energy medical applications	=	=
12-15	8	General properties of sound; the human ear; the range of human hearing; ultrasound; types of ultrasound; intensity of ultrasound; acoustic impedance; interactions of ultrasound with matter. Diagnostic ultrasound; biologic effect of ultrasound.	Sound medical applications	=	=

✓ Course Evaluation	
Midterm examination 20 marks Practical part 20 marks Final examination 60 marks	
✓ Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1- Physics for Biology and Medical Students, 2nd ed. Paul Davidovits 2-Practical Physics by William Watson
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

✓ Course Name:
English
✓ Course Code:
107 ClEl
✓ Semester / Year
First / First
✓ Description Preparation Date:
29/2/2024
✓ Available Attendance Forms:
In-person attendance
✓ Number of Credit Hours (Total) / Number of Units (Total)
2/2
✓ Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. .Abdulkarim fadhil Jameel Email: abdulkarim.fadhil@ircoedu.uobaghdad.edu.iq

✓ Course Objectives	
Course Objectives	• Developing the student s' speaking, writing, reading, and comprehension skills in English.

✓ Teaching and Learning Strategies	
Strategy	• Presentation and recitation • Interactive discussions • Brainstorming

✓ Course Structure

Week	Hours	Required Learning Outcomes	Unit	Learning method	Evaluation method
1-3	3	Understand the terms that refer to trends and changes; Detecting diversity and tendency in example texts;	Change	Lectures, and Discussions,	Exams, and classroom activities

		Describe trends and changes in statistical charts using the correct adverbs and adjectives; Past and present tenses			
4-6	3	Understanding factual information in a text and writing passive sentences relating to steps in a specific process; Descriptive analysis of a process; Distinguishing between facts and opinions; Present simple passive	Resources	=	=
7	Midterm examination				
8-10	3	Extracting causes and consequences from texts; Writing sentences about causes and effects in different ways; Expressing positive influences and negative influences	Impact	=	=
11 and 12	2	Understanding the evidence mentioned in a text; Giving evidence in a discussion; Evaluating multiple texts discussing one topic;	Invention	=	=

		The pattern of construction for the unknown and construction for the known; Past simple passive			
13-15	3	Recognizing the purpose of questions; open and closed questions; Using different ways to ask a question; Identify relevant information in a text; Analysis of an academic research; Writing a text that discusses the results of a research	Research	=	=

✓ Course Evaluation	
Mid-term examination 30 marks Final examination 70 marks	
✓ Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Oxford EAP Elementary/A2 A course in English for Academic Purpose
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

✓ Course Name: Pharmaceutical calculation

✓ Course Code: 109PPhc
✓ Semester / Year: 2nd 2023−2024
✓ Description Preparation Date: 2024
✓ Available Attendance Forms: 2024
✓ Number of Credit Hours (Total) / Number of Units (Total) 4
✓ Course administrator's name (mention all, if more than one name)
Name: Assistant prof. Dr. Fatima Jalal Jawad & Assistant prof. Dr Khalid Khadim Abid Email: drfatimajalal@copharm.uobaghdad.edu.iq khalidkinani@ copharm.uobaghdad.edu.iq
✓ Course Objectives

Course Objectives	**The student will be able to:** **1.Differentiate between the various kinds of doses.** **2. Describe the primary routes of drug/dose, administration and, for each, the dosage Forms utilized.** **3. Perform calculations of doses involving household measures.** **4. Perform calculations pertaining to the quantity of a dose, the dosage regimen, and the supply of medication required for the prescribed period……** **5. Describe factors to consider in determining doses fo pediatric and elderly patients.** **6. Calculate doses based on factors of age, body weigh and body surface area.** **7. Utilize dosing tables and nomograms in calculations.**

	8. Calculate doses for single and combination chemotherapy regimens. **9.Differentiate between the terms isosmotic, isotonic, hypertonic, and hypotonic.** **10. Apply physical chemical principles in the calculatic of isotonic solutions.** **11. Perform the calculations required to prepare isotoni compounded prescriptions.** **Calculate the milliequivalent weight from an atomic or formula weight.** **12. Convert between milligrams and milliequivalents.** **13. Calculate problems involving milliequivalents.** **14. Calculate problems involving millimoles and milliosmoles.** **15. Perform calculations for altering product strength b dilution, concentration, or fortification.** **16. Perform calculations for the preparation and use of stock solutions.** **17. Apply alligation medial and alligation alternate in problem–solving**
✓ Teaching and Learning Strategies	
Strategy	Lectures and Presentation, Discussions, Laboratory experiments And Inverted classrooms with learning strategies: 1. Tuning in …can be used to determine students' current knowledge and skills. 2. Finding out … encourage investigation and independent learning. 3- Sorting out … encourage the analysis. 4- Developing values … allow students to identify, 5- Speaking out … provide opportunities for students to develop the 6-Reflecting … allow students to identify, discuss and consider the changes in their understandings.
✓ Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	✓ Dose Definitions ✓ Routes of Drug/D Administration Dosage Forms Calculations of Dose Based on 1. Age 2. weight 3. BSA ✓ Special Dosing Considerations in Cancer Chemotherapy ✓ Special Clinical Considerations Tonicity ✓ Physical/ Chemical Considerations in the Preparation of Isotonic Solutions ✓ Electrolyte ✓ Solutions: Milliequivalents, Millimoles, and Milliosmoles. ✓ Clinical Considerations Water Electrolyte Balance. ✓ Special Considerations of Altering Product Strength in Pharmaceutical Compounding ✓ Relationship Between Strength and Total Quantity ✓ Dilution and Concentration of Liquids	Dose Dose paramete Isotonic solutic Electrolytes solutions Altering Product Strength, Us Stock Solutions, and Problem-Solving by Alligation	- Lectures -White board -Data show -Power point -Explanatory diagrams	-Written exams - Oral exams -Laboratory reports
	3				
	4				
2					
	5				
3	6				
	7				
4	8				
	9				
5	10				
	11				
6	12				
	13				
7	14				
	15				
8	16				
	17				
9	18				
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10	20				
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11	22				
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12	24				
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13	26				
	27				
14	28				
	29				
15	30				
	31				
16	32				
17	33				
	34				
18	35				

19 20	36 37 38 40 41	✓ Strengthening of a Pharmaceutical Product ✓ Stock Solutions ✓ Dilution of Alcohol ✓ Dilution of Acids			

✓ Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

✓ Learning and Teaching Resources

Required textbooks (curricular books, if any)	Pharmaceutical calculation 3rd edition by Ansel
Main references (sources)	Pharmaceutical calculation 3rd edition by Ansel
Recommended books and references (scientific journals, reports…)	● *Pharmaceutical Calculations : A Conceptual Approc* 2019. Cham: Springer. ●
Electronic References, Websites	https://www.nps.org.au/assets/e1522a550c298d28-18d3eafe5ce1-Extemporaneously-compounded-medicines_40-119.pdf http://repo.upertis.ac.id/1819/1/FASTtrack%20Pharmaceutical%20Compounding%20and%20Dispensing.pdf