

School of Pharmacy / School of Pharmacy (English)

2024 - 2025 Academic Year

PHARMACY MATHEMATICS

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
PHARMACY MATHEMATICS	PHA1212094	Spring Semester	2+0	2	3
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Required				
Course Coordinator	Assist.Prof. Sema KOYUTÜRK				
Name of Lecturer(s)	Assist.Prof. Sema KOYUTÜRK				
Assistant(s)	Research assistants of faculty				
Aim	Explaining pharmaceutical calculations which will be used during pharmaceutical education and professional career.				
Course Content	This course contains; Quantities, units, dimensions, variables, equations, Numbers, measurement, significant numbers, exponential numbers, International System of Units, Linear, exponential and logarithmic functions, Logarithms and applications, Drawing graphics in functions, Percentage, ratio and other concentration expressions, Dilution and dose calculations, Calculation of Dose, Calculation of Isotonic and Buffer Solutions, Milliequivalents, Millimoles, Milliosmoles, Calculation for Formulations, Calculations about Plant Extractives, Calculations about Active Ingredients.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
1. Recognize the international unit systems and explain basic mathematical operations.			10, 13, 19, 9	A	
1.1. Interpret the concepts of quantity, unit and dimension.			10, 13, 19, 9	A	
1.2. Recognize the arithmetic symbols.			10, 13, 19, 9	A	
1.3. Recognize proper and compound fractions.			10, 13, 19, 9	A	
1.4. Distinguishes measurement of weight and volume.			10, 13, 19, 9	A	
1.5. Comprehend equations containing variables.			10, 13, 19, 9	A	
2. Explain functions, types and graphs.			10, 13, 19, 9	A	
2.1. Calculates linear and exponential functions.			10, 13, 19, 9	A	
2.2. Uses logarithm for pH and pOH calculations.			10, 13, 19, 9	A	
2.3. Interprets the graphs of linear functions.			10, 13, 19, 9	A	
2.4. Draws a calibration graph, calculates the regression coefficient and slope.			10, 13, 19, 9	A	
2.5. Calculation of buffer solution.			10, 13, 19, 9	A	
3. Calculate concentration and dose(s).			10, 13, 19, 9	A	
3.1. Defines the concepts of percent solutions, molarity and normality.			10, 13, 19, 9	A	
3.2. Calculate milliequivalents, millimoles, milliosmol.			10, 13, 19, 9	A	
3.3. Apply isotonic solutions and dose calculations.			10, 13, 19, 9	A	
3.4. Comprehend formulation calculations.			10, 13, 19, 9	A	
Teaching Methods	10: Discussion Method, 13: Case Study Method, 19: Brainstorming Technique, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Quantities, units, dimensions, variables, equations	1, 2			
2	Numbers, measurement, significant numbers, exponential numbers.	1, 2			
3	International System of Units	1, 2			
4	Linear, exponential and logarithmic functions	1, 2			
5	Logarithms and applications	1, 2			
6	Drawing graphics in functions	1, 2			
7	Percentage, ratio and other concentration expressions	1, 2			
8	Dilution and dose calculations	1, 2			
9	Calculation of Dose	1, 2			
10	Calculation of Isotonic and Buffer Solutions	1, 2			
11	Milliequivalents, Millimoles, Milliosmoles	1, 2			
12	Calculation for Formulations	1, 2			
13	Calculations about Plant Extractives	1, 2			
14	Calculations about Active Ingredients	1, 2			
Evaluation Methods		Weight(%)			
Midterm Exam		40			
General Exam		60			

Resources

[1] Lecturer notes [2] Pharmaceutical Calculations, 13th Edition, Ed. Howard C. Ansel