**Course Description Form**

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| * Course Name: Pharmaceutical Calculation
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| * Course Code: 109 PPhc
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| * Semester / Year: 2nd 2023-2024
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| * Description Preparation Date: 2024
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| * Available Attendance Forms: 2024
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| * Number of Credit Hours (Total) / Number of Units (Total) 4
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| * 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  Zainabthabit@ copharm.uobaghdad.edu.iq |
| * Course Objectives
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| **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 for pediatric and elderly patients.****6. Calculate doses based on factors of age, body weight, 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 calculation of isotonic solutions.****11. Perform the calculations required to prepare isotonic 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 by 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
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| **Strategy** | Lectures and Presentation, Discussions, Laboratory experimentsAnd 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
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| **Week**  | **Hours**  | **Required Learning Outcomes**  | **Unit or subject name**  | **Learning method**  | **Evaluation method**  |
| 123456789101112131415 1617181920 | 1345678910111213141516171819202122232425262728293031323334353637384041 | * Dose Definitions
* Routes of Drug/Dose Administration and Dosage Forms

Calculations of Dose Based on 1. Age 2. weight  3. BSA* Special

Dosing Considerations in Cancer Chemotherapy* Special

Clinical Considerations of Tonicity* Physical/

Chemical Considerations in thePreparation of Isotonic Solutions* Electrolyte
* Solutions: Milliequivalents, Millimoles, and Milliosmoles.
* Clinical Considerations of Water and 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
 | DoseDose parameters Isotonic solutionElectrolytes solutionsAltering Product Strength, Use of Stock Solutions, andProblem-Solving by Alligation | - Lectures-White board-Data show-Power point-Explanatory diagrams  | -Written exams- Oral exams-Laboratory reports |
| * Course Evaluation
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| 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
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| 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%20>Pharmaceutical%20Compounding%20and%20Dispensing.pdf |