

**PHARM 153 Course Outline as of Fall 2016****CATALOG INFORMATION**

Dept and Nbr: PHARM 153 Title: DOSAGE CALCULATIONS

Full Title: Dosage Calculations

Last Reviewed: 2/22/2016

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	2.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	2.00		Contact Total	35.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00

Total Student Learning Hours: 105.00

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

Calculation of the correct oral and parenteral dosages of drugs using information from prescriptions or medications orders. Accurate interpretation of the correct amount of ingredients for the compounding of pharmaceutical products from a prescription or medications order.

**Prerequisites/Corequisites:**

Course Completion of PHARM 102

**Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: Calculation of the correct oral and parenteral dosages of drugs using information from prescriptions or medications orders. Accurate interpretation of the correct amount of ingredients for the compounding of pharmaceutical products from a prescription or medications order. (Grade Only)

Prerequisites/Corequisites: Course Completion of PHARM 102

Recommended:

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>CSU Transfer:</b>		Effective:	Inactive:
<b>UC Transfer:</b>		Effective:	Inactive:

**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Utilize proper medical notations.
2. Interpret and compare informational data on drug labels.
3. Properly interpret drug order and correctly fill prescriptions.
4. Demonstrate working knowledge in computational pharmacy mathematics.

### **Objectives:**

Upon successful completion of this course, students will be able to:

1. Read and write proper medical notation on the drug order.
2. Identify information found on drug labels, including form, dosage, frequency, and route of administration.
3. Calculate the oral dosages of drugs, both solid and liquid forms, using ratio-proportion and formula.
4. Employ critical thinking skills to recognize a "reasonable dose."
5. Calculate the parenteral dosages of drugs using ratio-proportion and formula.
6. Reconstitute and label medications supplied in dry or concentrated form.
7. Differentiate between various directions and select the correct direction for reconstitution.
8. Calculate the percentage strength and the ratio of concentration.
9. Calculate standard pediatric dosages.
10. Calculate concentrations and dilutions using volume/volume (V/V), weight/weight (W/W), weight/volume (W/V), and volume/weight (V/W).
11. Calculate dosages using milli-equivalents.
12. Calculate intravenous solution flow rate for electronic and manual infusion systems.
13. Calculate intravenous solution volume and infusion time.

### **Topics and Scope:**

- I. Medical notation

- A. Standard common medical abbreviations
- B. Notation specifying dosage, route, and frequency of medication
- C. Medication orders
- II. Drug labels
  - A. Brand and generic names
  - B. Strengths
  - C. Forms
  - D. Total volume
  - E. Directions for mixing
  - F. Route of administration
  - G. Manufacturer name and lot number
  - H. Expiration date
- III. Oral dosage of drugs
  - A. Conversions of units of measurement to the same system and same size units
  - B. Reasonable amounts
  - C. Ratio-proportion drug dosage
  - D. 10% maximum, variance
  - E. Tablets, capsules, and liquids
- IV. Parenteral dosage of drugs
  - A. Conversion of units of measurement to the same system and same size units
  - B. Reasonable amounts
  - C. Ratio-proportion drug dosage
  - D. Reconstitution directions
  - E. Insulin measurements and syringes
  - F. Types and sizes of syringes
  - G. Dosage expressed as ratio or percent
- V. Pediatric dosages
  - A. Young's Rule
  - B. Clark's Rule
  - C. Fried's Rule
  - D. Body Weight Method
  - E. BSA Method
  - F. Alternate BSA [Body Surface Area] Method
  - G. Combination drugs calculation
  - H. Safe dosages
- VI. Concentrations and dilutions
  - A. V/V [volume/volume]
  - B. W/W [weight/weight]
  - C. W/V [weight/volume]
  - D. V/W [volume/weight]
- VII. Millequivalents
  - A. Calculating millequivalents
  - B. Calculations using milliequivalents
- VIII. Intravenous Calculations
  - A. Components
  - B. Milliliters per hour
  - C. Drop factor/calibration
  - D. IV flow rates in gtt/min
  - E. Flow rate for off-schedule intravenous infusion
  - F. Small volume IVPB [intravenous piggyback]

**Assignment:**

1. Perform dosage calculations (10-15 per week).
2. Pharmacology Written Project Report (4 parts).
3. Answer questions at the end of each chapter (1 - 2 pages per week).
4. Reading of one chapter per week (approximately 20-25 pages) in addition to instructor handouts.
5. Six quizzes, one midterm and one final.

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Pharmacology Written Project Report (4 parts)
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Writing 30 - 40%
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**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Weekly dosage calculation scenarios and chapter questions
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Problem solving 20 - 30%
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**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None
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Skill Demonstrations 0 - 0%
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**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes, midterm and final
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Exams 40 - 50%
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**Other:** Includes any assessment tools that do not logically fit into the above categories.

None
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Other Category 0 - 0%
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### Representative Textbooks and Materials:

Calculation of Drug Dosages, Ogden, Sheila J., 10th edition, Mosby, 2015  
Instructor prepared material.