

NMSU School of Nursing

PRECLINICAL DOSAGE CALCULATION EXAM

Purpose

Prior to participating in clinical experiences each semester, the student is expected to perform common dosage calculations necessary for safe medication administration with a minimum of 92% accuracy (23/25 correct). See Dosage and Calculations, page 22 in the BSN Handbook.

Expected Outcomes

Prior to the beginning of each semester, the student is expected to:

- Interpret medication orders and standard abbreviations needed for dosage calculations;
- Convert within and between these selected measurement systems:

Metric

- Convert weight between micrograms, milligrams, grams and kilograms
- Convert volume between milliliters and liters

Household

- Convert weight between pounds and kilograms
- Convert volume between ounces and milliliters
- Convert volume between teaspoons and milliliters

Apothecary

- Convert weight between grains and milligrams
- Calculate dosages for administration of medications by common routes
- Calculate dosages of solid oral medications from 0.5 to 3 tablets.
- Calculate oral liquid volumes from 0.001 to 30 mL.
- Calculate injectable medication volumes from 0.0001 to 3 mL.
- Calculate infusion rates and times for intravenous administration.
- Calculate volumes between milliliters per hour and drops per minute.
- Calculate total/end infusion times for intravenous fluids.
- Calculate amounts/times to administer IV push medications.
- Calculate infusion rates/times for intermittent intravenous (piggyback) infusions.
- Calculate dosages for administration of medications in tightly controlled situations.
- Determine dosages based on a patient's clinical data (Weight, vital signs or lab results)
- Determine if an ordered amount is within a safe/recommended range.
- Contrast different concentrations of solutions/ratios.
- Calculate rates/amounts for intravenous medication drips.
- Other requirements for exam problems will include:
 - The calculations may require conversions as part of the problem
 - The amounts may range from fractions/decimals to thousands of units.
 - There **will not** be information needed or questions about specific pharmacology of medications, administration techniques or nursing implications in the preclinical dosage/calculation exam. These topics will be covered in theory and/or clinical applications.

Specific Requirements

Students are expected to do their own individual work. Observed acts of cheating- including but not limited to copying the work of another student, signaling or messaging between students, use of additional notes or other materials- will result in the student(s) dismissal from the testing session and loss of the testing opportunity (1st or 2nd).

- Students need to bring a #2 pencil with an eraser. A spare #2 pencil is always a good idea. A Scantron will be provided for this test.
- Students may use only the School's simple calculator (no programmable electronics or other devices may be used).
- Students must show their work and write down their own answer. Scratch paper will be provided with the test booklet.
- There will be 25 questions involving calculations following the blueprint below.
- A maximum of 60 minutes are allowed to complete the test.
- The following dosage/calculation rules will be followed for this exam:
 - Amounts less than 1 will be written with a zero to the left of the decimal.
 - Extra zeros will NOT be placed at the right of the decimal point at the end.
 - All tablets are scored in half, so round tablets to the nearest half of a tablet.
 - Volumes less than 1 mL will be rounded to the nearest hundredth (two places).
 - Volumes 1 mL or over will be rounded to the nearest tenth (one place).
 - Weights in kilograms will be rounded to nearest tenth (one place).

Retakes

Students will have two attempts to achieve the required 92%. A time and date will be announced for students to review their exam results prior to a retake. Students are responsible for their own remediation prior to retaking the exam (see faculty for resources). A third attempt is possible after documentation of remediation and at the discretion of the Clinical Coordinator.

- If it is necessary for students to retake the exam, a time and place will be determined within the same week.
- All versions will follow the same requirements, outcomes, and blueprint.
- If a student misses the first exam attempt for any reason, the only other attempt will be during the scheduled "retake" session.

Dosage/Calculations Exam Blueprint BLOOM'S LEVEL	# OF QUESTIONS	PERCENTAGE
Comprehension	5	20
Application	15	60
Analysis	5	20
TOTAL	25	100