

Imperial Valley College  
Division of Nursing Education and Health Technology  
Spring Semester 2014

**Nursing 100 – Medication Mathematics CRN**  
**Thursday 08:00am – 10:05am room 2139**

Dates: January 23<sup>rd</sup> – March 14<sup>th</sup> - Drop Date with “W” February 27, 2014

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**Required Book: Dimensional Analysis for Meds, 4th Edition** Anna M. Curren, MA, RN Copyright©  
2010 Delmar Cengage Learning

**Recommended CD/Book: Calculating Drug Dosages: An Interactive Approach to Learning Nursing Math, 3<sup>rd</sup> Edition** by Sandra Luz Martinez de Castillo, RN, MA, EdD Copyright © 2012 F.A. Davis Company

**We will be using tutorials on <https://www.atitesting.com/home.aspx>**

I. Course Description:

This course focuses on those components of safe medication calculation and administration. The emphasis is on accuracy of calculation and the critical thinking involved in client/patient safety. This is an intense class on med math calculations that is required of all RN majors. Clinical application is integrated into the clinical nursing courses.

In NURS100, the student is required to apply mathematical principles to the calculation of drug dosages. This includes addition, subtraction, multiplication & division of decimals and fractions. A thorough knowledge of the metric system with emphasis on the conversions is required. Dimensional analysis as it applies to calculating drug dosages is included.

II. Course Objectives:

1. Calculate basic mathematic problems including addition, subtraction, multiplication & division of fractions & decimals.
2. Convert metric, apothecary and household measures accurately.
3. Solve dosage problems using dimensional analysis
4. Calculate adult & pediatric dosages.
5. Calculate intravenous flow rates.
6. Interpret drug orders and labels relevant to the safe administration of drugs.
7. Discuss the "Six rights" of clients relative to administration of medications.
8. Describe the routes of administration.

III. Specific Course Information

1. **The passing course grade is 75%.**
2. **Exams will be given periodically during the course.**
3. **Nursing Course grades are based on the following scale.**
  - A= 92-100%**
  - B= 83-91%**
  - C= 75-82%**
  - D=68-74%**
  - F= Below 68% (No Makeup exams will be given!)**

Attendance

1. According to the Imperial Valley College catalog: Regular attendance in all

classes is expected of all students enrolled. Instructors are expected to take a student's record into account in computing grades. A student may be excluded from further attendance in a class during any semester when absences after the close of registration have exceeded the number of class hours which the class meets per week. Further, an instructor may drop any student judged to be a disturbing element in the class.

However, the attendance policy of the nursing program is further implemented as follows:

**Absences will be limited to four (4) hours for the course.**

**Drug Dosage Calculation Description:**

This class will present the dimensional analysis method as a tool to use in solving all drug dosage calculation problems.

**Unit Outcome Competencies:**

The student will practice problems in class, in the Nursing Learning Center and at home to develop proficiency in calculations.

**Student Learning Outcomes.**

Upon completion of this class the student will be able to:

1. Calculate the flow rate of a simple primary intravenous line in ml/hr or drops/min as measured by one (1) randomly selected question on the final exam with a class average for the measured question at 92% or better.
2. Pass a comprehensive final exam on dosage calculations at 75% including critical care and pediatric problems.

**Student Learning Activities:**

To assist in learning the content the student will:

1. Complete problems in the assigned references
2. Complete problems on the assigned study guides

Date	Day	Time	Room	Description	Instructor	Assignment Due
1/23/14 Week 1	Thurs	0800-1005	2139	<b>Orientation</b> Unit #1: Systems of Measurement 1. Dimensional Analysis Concept Introduction. ) 2. Conversion Tables 3. Metric System Units of Weight  <b>EXAM 1: Unit #1-Basic Math Review from CD</b>	Sullivan	CD-Rom Study Guides  Due Wed. January 29 From CD provided by instructor, results to be emailed to instructor
1/30/14 Week 2	Thurs	0800-1005	2139	<b>Mini-Quiz Conversion Tables (memory recall)!</b> Unit #1: Systems of Measurement (cont) 4. Apothecaries' System 5. Household System 6. Dimensional Analysis and conversions between systems 7. Temperature Conversion Formulas 8. Military Time	Sullivan	ATI tutorials  Curren: Ch 1-3 Study Guides CDD-Cd Methods of Calculation-DA  CDD-CD System of measurement Assignments on CD due to instructor

						Wed. via e-mail
2/6/14 Week 3	Thurs	0800-1005	2139	<p><b>Exam 2: Conversions in and between systems of Measurements Temp &amp; Time</b></p> <p>Prep for Calculation of Drug Dosages.</p> <ol style="list-style-type: none"> <li>1. Safety in Medication Adm.</li> <li>2. Interpretation of Phys. Orders</li> <li>3. How to read Drug Labels.</li> <li>4. Abbreviations</li> <li>5. Unit Dose</li> </ol> <p>Dimen. Analysis 1-2 Factors</p> <ol style="list-style-type: none"> <li>1. Oral Medications</li> <li>2. Parenteral Dosages IVP, IM,SC</li> <li>3. Dosages in Units</li> </ol>	Sullivan	<p>Curren Ch. 4, 5,6,7,9,10,11, 12</p> <p>Study Guides by MC</p> <p>ATI tutorials</p> <p>CD Methods of Calculation-DA</p> <p>CD System of measurement</p> <p>CD-Reading drug labels</p> <p>Assignments on CD due to instructor</p> <p>Wed. via e-mail</p>
2/13/14 Week 4	Thurs	0800-1005	2139	<p>Dimen. Analysis 1-2 Factors</p> <ol style="list-style-type: none"> <li>1. Oral Medications</li> <li>2. Parenteral Dosages IVP, IM,SC</li> <li>3. Dosages in Units.</li> <li>4. Reconstituting powdered medications</li> </ol>	Sullivan	<p>Curren ch 4, 6,7, 8,9,10,11,12,15,16,17, 18,19</p> <p>Study Guides by MC</p> <p>CD Administration of oral medications</p> <p>CD-Syringes and needles</p> <p>CD-Administration of parenteral medications</p> <p>CD-Reconstitution of powdered medications</p> <p>Assignments on CD due to instructor</p> <p>Wed. via e-mail</p> <p>ATI tutorials</p>
2/20/14 Week 5	Thurs	0800-1005	2139	<p><b>Exam 3: Dimen. Analysis: Oral, Parenteral Dosages</b></p> <p>IV Fluids</p> <ol style="list-style-type: none"> <li>1. Tubing: Micro, Macro, Blood.</li> <li>2. Primary Line Flow rates (gtts/min)</li> <li>3. Piggy Back Flow Rate(gtts/min)</li> <li>5. Blood Flow rates</li> <li>6. Specialty IV: Ins &amp; Hep &amp; Units</li> </ol>	Sullivan	<p>Curren ch 4, 6,7, 8,9,10,11,12,15,16,17, 18,19</p> <p>Study Guides by MC</p> <p>CD- IV Calculations</p> <p>ATI tutorials</p>
2/27/14 Week 6	Thurs	0800-1005	2139	<p><b>Exam 4: IV's Primary, Piggy, Specialty, Blood. (Gtts/min &amp;ml/hr)</b></p> <p>Pediatric conversions</p> <p>Multifactor Problems</p> <p>Critical Care Problems</p> <ol style="list-style-type: none"> <li>1. mcg/kg/min</li> <li>2. mcg/min</li> <li>3. reverse calculations</li> <li>4. Verifying rates.</li> </ol>	Sullivan	<p><b>LAST DAY TO "W"</b></p> <p>Curren Ch 13,14,15,16,17, 18, 19,20, 21,</p> <p>CD- Pediatric Calculations</p> <p>CD- Titration of medications</p>

3/7/14 Week 7	Thurs	0800-1005	2139	Exam 5 Critical Care Calculations. Pediatric Problems  Review for final		CD- Preparing for NCLEX
3/14/14 Week 8	Thurs	0800-1005	2139	<b>FINAL EXAMINATION</b>		