

Imperial Valley College  
Division of Nursing Education and Health Technologies  
Fall Semester 2013  
VN 114 – Pharmacology I (Medication Mathematics) CRN 10893

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## VN114 - Pharmacology I

### I. Course Description:

An introductory course in pharmacology designed to assist the student to acquire basic skills in drug dosage calculations and the administration of medications. A skills laboratory requirement is included that is integrated into VN 110. Clinical application is integrated into VN 112. (CSU)

### II. Texts:

#### Required

Craig, Clinical Calculations Made Easy, 5th ed., Lippincott, 2011  
ISBN-13: 978-0-7817-6385-1  
ISBN-10: 0-7817-6385-1

Recommended: Calculating Drug Dosages An Interactive Approach to Learning Nursing Math 3rd ed. , Davis Plus, 2012

### III. Prerequisites: Demonstration of Math Competency

### IV Corequisites: VN 110, VN112, VN116, PSY204

V Admission to the nursing program or permission of instructor. Knowledge of basic mathematics and some algebra is recommended.

VI Recommended Preparation: Math 090.

### V. Course Requirements:

A.	Theory Lecture	Units	Hours
		1.5	27

A post test on dosage calculations must be completed with 92% accuracy. A student

may repeat the test as many times as needed to achieve a 92%. Should the student be unable to meet this requirement by the third attempt, the student and the instructor together will plan additional learning activities to increase the student's proficiency.

## Final Grade

The Nursing Program subscribes to the Imperial Valley College grading policies as found in the current catalog with the following additions:

Students must maintain a "C" grade, as determined on the scale below, in order to advance in the nursing program.

A = 92% - 100%  
B = 83% - 91%  
C = 75% - 82%  
D = 68% - 74%  
F = Below 68%

A comprehensive final examination will be given that will count 25% of the course grade. All students must pass the final exam with a 75% or higher

The course grade will be computed as follows: 75% will come from an average of weekly modular examinations/homework/in-class work and 25% will come from the final examination.

A VN 110 skills laboratory requirement must be completed satisfactorily for the student to progress to VN 112.

## 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 the following for the course.

VN 114: 3 hours

A student who reaches the maximum allowable number of hours absent will file a petition to remain in the nursing program. The student will meet with the teaching team

to discuss the situation and will be considered for dismissal.

If remediation is considered, the student will be required to match missed hours, in excess of the maximum allowable, with assigned hours of study. These assignments will be based upon the classroom and clinical objectives. The instructor(s) will determine the appropriate type of remediation.

Students who are late to class three times in any nursing course will be considered absent for one day. Class includes lecture and clinical.

Course Content:

In VN 114 Pharmacology I, 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.

In addition, the student is introduced to the administration of oral, topical, sublingual, suppository, eye, ear, mucous membrane, and injectable medications. Knowledge of anatomy & physiology of the body is required so that students can determine the correct sites of administration, the correct drug dosage and the expected action and/or side effect of each medication given.

VI. 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 and intravenous flow rates.
5. Interpret drug orders and labels relevant to the safe administration of drugs.
6. Discuss the "five rights" of clients relative to administration of medications.
7. Describe the routes of administration
8. Administer oral, topical, sublingual, suppository, and injectable medications; apply medications to mucous membranes, eyes and ears. (Integrated into VN 110 skills laboratory requirements and VN 112 clinical objectives)

VII. Unit Outcome Competencies:

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

VIII. 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 question on the final exam with a class average for the measured question at 100%.

2. Pass a comprehensive final exam on dosage calculations at 92% including critical care and pediatric problems.

IX 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
3. Complete problems on the Computer Assisted Instruction

Drop Date with W: September 27, 2013.

Date	Day	Time	Description	Inst.	Assignment Due
8/23/13 Room 2135	Fri.	0800- 1100	Introduction to Course Systems of Measurement 1. Dimensional Analysis Concept Introduction. 2. Conversion Tables 3. Metric System Units of Weight 4. Apothecaries' System 5. Household System 6. Dimensional Analysis and conversions between systems 7. Temperature Conversion formulas and the use of a chart. 8. Military Time	Sullivan	Craig: Ch. 1,2 Study Guides by Marylynn Carlson Computer Activities
8/30/13	Fri.	0800- 1100	<b>Mini-Quiz Conversion Tables (memory recall)!</b> Cont. systems of measurement	Sullivan	Craig: Ch 2 Study Guides by MC

9/6/13	Fri.	0800-1100	<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>Craig: Ch 3 Study Guides by MC In class Handouts</p> <p>Craig; Ch 4 Computer Activities</p>
9/13/13	Fri.	0800-1100	<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> <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> </ol>	Sullivan	<p>Craig: Ch 1-4</p> <p>Craig: Ch 5-6</p>
9/20/13	Fri.	0800-1100	<p>IV Fluids (cont)</p> <p>Parenteral Dosages, and IV's</p> <ol style="list-style-type: none"> <li>4. Using an IV Pump</li> <li>5. Blood Flow rates</li> <li>6. Specialty IV: Insulin &amp; Heparin &amp; Units</li> </ol> <p>Multifactor Problems 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> <li>5. x-factors</li> </ol>	Sullivan	<p>Craig Ch 5-6</p> <p>Computer Activities</p>

9/27/13	Fri.	0800-1100	Exam 4: IV's Primary, Piggy, Speciality, Blood. (Gtts/min &ml/hr).  Multifactor Problems Pediatric Problems 1. Wt. based Peds. Problems 2. Peds rounding rules. 3. Advance IV calculation verification	Sullivan	Craig; Ch 4,5,6  Computer Activities
10/4/13	Fri.	0800-1100	Exam 5 Multifactor Problems.	Sullivan	Craig: Ch 4,5,6  METI case study
10/11/13	Fri.	0800-1100	Final Exam	Sullivan	Craig: Ch1-6

\*Print all math practice sheets from computer and bring them to class. You will find them on Blackboard.