## Imperial Valley College
### Division of Nursing Education and Health Technologies
#### Spring 2010

**NURS100-Medication Mathematics**

Instructor: Jack Williams  
Office: Office: 2129  
Phone: (760) 355-6488  
Email: jack.williams@imperial.edu

**CRN 21059  Credits 1.00**  
**Friday’s 1500-1710  Rm 2150**  
**Deadline to drop WITH “W”: March 26, 2010**

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Time</th>
<th>Description</th>
<th>Instructor</th>
<th>Assignment Due</th>
</tr>
</thead>
</table>
| 2/19/2010  | F   | 1500-1710 | **Introduction to Course**  
**Basic Math Review**  
1. Fractions  
2. Decimals  
3. Percents  
4. Ratios  
5. Proportions  
6. Solve for (X)  
7. Roman Numerals  
8. Rounding  
9. Conversion Tables. | Williams | Craig: Ch. 1  
Study Guides by Marylynn Carlson |
| 2/26/2010  | F   | 1500-1600  
1610-1705 | **EXAM 1: Basic Math** (No Calculator).  
**Systems of Measurement**  
1. Dimensional Analysis Concept & Introduction. (Fruits and Veg.)  
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  
1705-1710 | Williams | Craig: Ch 1  
Study Guides by MC  
In class Handouts.  
Craig: Ch 2  
Study Guides by MC  
In class Handouts |
| 3/5/2010   | F   | 1500-1600  
1610-1710 | **Exam 2: Conversions in and between systems of Measurements, Temp & Time**  
**Prep for Calculation of Drug Dosages.**  
1. Safety in Medication Adm.  
2. Interpretation of Phys. Orders  
3. How to read Drug Labels.  
4. Medication Forms  
5. Unit Dose | Williams | Craig; Ch 3  
Study Guides by MC  
In class Handouts |
| 3/12/2010  | F   | 1500-1510  
1510-1710 | **Mini-quiz 6 rights, Md order and Labels.**  
**Dimen. Analysis 1-2 Factors**  
1. Oral Medications  
2. Parenteral Dosages IVP, IM,SC  
3. Dosages in Units.  
**IV Fluids**  
1. Tubing: Micro, Macro, Blood.  
2. Primary Line Flow rates (gtts/min)  
3. Piggy Back Flow Rate(gtts/min) | Williams | Craig: Ch 1-4  
Craig: Ch 5-6 |
3/19/2010  F  1500-1600  Exam 3: Dimen., Analysis: Oral, Parenteral Dosages, and Units.  Williams  Craig Ch 5-6
1605-1710  IV Fluids Continued
1. Using an IV Pump
2. Blood Flow rates
3. Specialty IV: Ins&Hep& Units

3/26/2010  F  1500-1600  Exam 4: IV’s Primary, Piggy, Speciality, Blood. (Gtt/min &ml/hr).
1605-1710  Multifactor Problems
Critical Care Problems
1. mcg/kg/min
2. mcg/min
3. reverse calculations
5. x-factors.

4/2/2010  F  1500-1600  Exam 5 Critical Care Calculations.
Pediatric Problems
1. Wt based Peds Problems
2. Peds rounding rules.

4/9/2010  F  1600-1710  NO CLASS SPRING BREAK

4/16/2010  F  1500-1600  Final Exam  Williams  Craig; Ch 1-6.

Book: Clinical Calculations Made Easy 4th Edition  Author: Craig

Imperial Valley College
Division of Nursing Education and Health Technologies

Nursing 100 – Medication Mathematics

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.

II. PREREQUISITES, if any:
1. English 101
2. Demonstration of Math Competency
3. Demonstration of Reading Competency
4. Psych 101
5. Biology 204 (BIOL 204) and Biology 206 (BIOL 206) or Biology 200 (BIOL 200) and Biology 202 (BIOL 202)
6. Biology 220 (BIOL 220) General Microbiology
7. Permission of Instructor

COREQUISITES, if any:
1. Nursing Process I (NURS 110)
2. Nursing Skills Lab I (NURS 111)
3. Nursing Process Application I (NURS 112)
4. Introduction to Sociology (SOC 101) or Cultural Anthropology (ANTH 102)
5. Permission of Instructor

III. 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
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.
IV. Specific Course Information

1. The passing course grade is 75%.
2. Exams will be given periodically during the course. Exams will count for 75% of the final grade.
3. Final exam will count for 25% of the grade. The Final Exam must be passed with a 75%.
4. Nursing Course grades are based on the following scale (not rounded)
   A= 92-100%
   B= 83-91%
   C= 75-82%
   D=68-74%
   F= Below 68%

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 drug dose problems correctly with 92% accuracy as measured by a post-test on the first attempt in second semester.
2. State the six rights of medication administration.
3. 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%.
4. 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
3. Complete problems on the CAI