Basic Course Information

Semester:	Spring 2022	Instructor Name:	Terrie Sullivan, RN, MSN/Ed
Course Title & #:	NURS100 Medication Math	Email:	terrie.sullivan@imperial.edu
CRN #:	20970	Webpage (optional):	
Classroom:	Asynchronous Online	Office #:	
Class Dates:	April 11,2022 – June 10,2022	Office Hours:	Tuesday 1030-1100 (Pronto) & 6-7pm (Pronto) Wednesday 1230-1330 Thursday 6-7pm Friday 9-9:30am (Pronto) Will be available via email, in person and Pronto. In person and Zoom by appt.
Class Days:	Asynchronous Online	Office Phone #:	
Class Times:	Asynchronous Online	Emergency Contact:	760-355-6428 Nursing Office
Units:	1		

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.

Course Prerequisite(s) and/or Corequisite(s)

None

Student Learning Outcomes

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

Demonstrate understanding by passing a comprehensive final exam on dosage calculations at 78% or higher and overall grade for course of 78% or higher. (ILO2, ILO4) (ILO2, ILO4)

Course Objectives

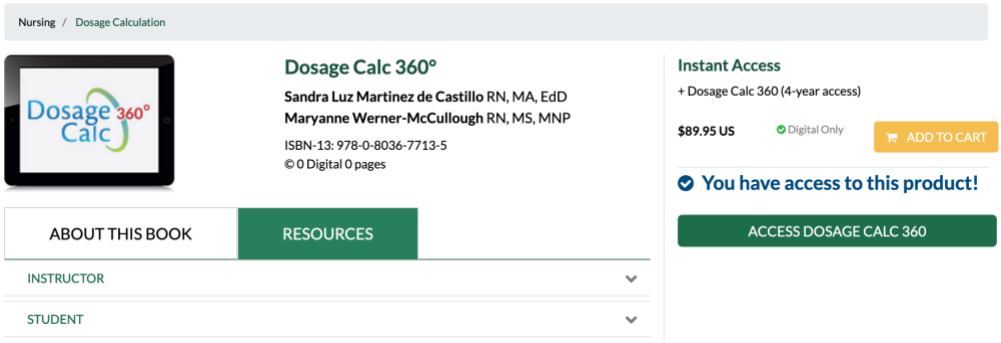
Upon satisfactory completion of the course, students will be able to:

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 "Seven rights" of clients relative to administration of medications.
8. Describe the routes of administration, po, IM, IV

Textbooks & Other Resources or Links

We will be using Dosage Calc 360 the online form of the textbook. It is required that you purchase this. By purchasing Dosage Calc 360 you will have the e-text and resources for 4 years. I will be posting the information on how to log in in the Modules section of Canvas. You will click on the Dosage calc 360 Module. There is a 20% off coupon in that module.



Course Requirements and Instructional Methods

During the 2022 Winter Session, NURS100 is offered as an Online class. This means that there will be no online class meetings.
Classroom work:

- Weekly modules and assignments open on Sunday 1200am and are due on Friday @11pm
- Tests: There will be exams covering the topics reviewed online in the weekly modules. They will be taken in Canvas.

THERE ARE NO MAKE-UP EXAMS REGARDLESS OF EXCUSE.

Assignments:

There will be homework assignments from the required Dosage Calc 360 (FA Davis) online site. These are part of your grade. These assignments will be outlines in Canvas. The assignment will cover the topics discussed in modules and on Dosage Calc 360

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A student shall treat this course like a job.
There will be:

- ❖ Homework: Chapter assignments in Dosage Calc 360 (points are assigned by the activity) I use the Module assessments as your score for your score for that module.
- ❖ Weekly discussions (10 points each)
- ❖ Weekly Exams (25-35 points each)
- ❖ 1 Final Exam (100 points)

Classroom work:
The student is expected to log into the class at least 3-4 times per week.
Tests: There will be exams covering the topics reviewed online in the weekly modules. They will be taken in Canvas.

Late work will be accepted with a 10% deduction per day, until Sunday of the assignment week. After Sunday at 1159pm late work will not be accepted.

Online and Hybrid courses must demonstrate compliance with the IVC Regular and Effective Contact Policy for Distance Education.
Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

Course Grading Based on Course Objectives

Course Grading Based on Course Objectives:
This is a nursing course therefore the grading is per the nursing department grading scales.

A = 93-100%
B = 84-92%
C = 78-83%
F = Below 78%

Attendance

The below information is the IVC attendance policy.

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Logging onto Canvas alone is NOT adequate to demonstrate academic attendance by the student.

IVC Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit http://www.imperial.edu/studentresources or click the heart icon in Canvas.

Anticipated Class Schedule/Calendar

*****Tentative, subject to change without prior notice*****

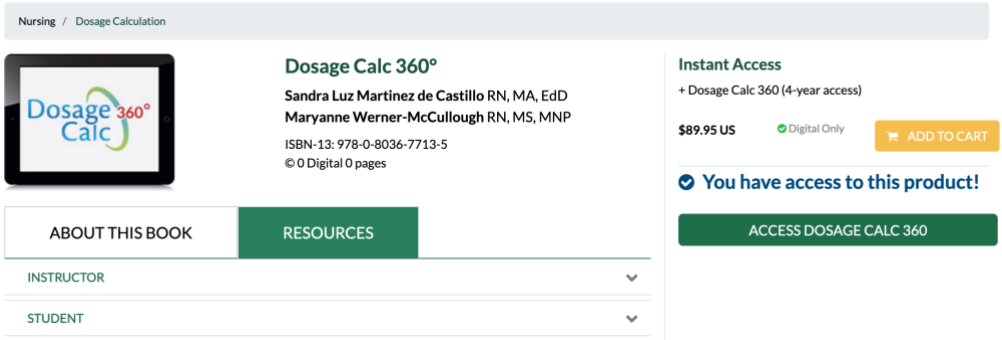
Week 1 Overview:
Students will be introduced to the online course environment and IVC policies and procedures. Students will also learn more about their online classmates.

Week 1 Objectives:
By the end of this unit, students will be able to:

- ❖ Read & Understand the Syllabus
- ❖ Complete the ***Getting Started*** module
- ❖ Enroll and learn the *Dosage Calc 360* online
- ❖ Know more about your fellow online classmates
- ❖ Learn and understand the dimensional analysis method of dosage and drug calculations.

Week 1 Assignment

1. Purchase the textbook:



2. This is the e-book and online activities that you will be using. I have put the Instructions in the Modules on how to register
3. Read & Understand the Syllabus
4. Read & Understand the Getting Started Module and Course Policies
5. Read & Understand Week 1 Module.
6. 6. Read Chapter 1 and participate in the Assignment #1 in Canvas on **M1 Basic Math in Dosage Calc 360**

Week 2 Overview:

Students will be learning:

- ❖ How to convert between household measurements to metric system measurements.
- ❖ Recognize that drugs dosages are measured in units, milliequivalents, grams, micrograms and milligrams.
- ❖ Components of administering medications
- ❖ Reading a drug label to be able to determine how the dosages will be calculated

Week 2 Objectives:

By the end of this week students will be able to:

- ❖ List the commonly used units of measure in the metric system.
- ❖ Express metric weights and volumes using correct notation rules.
- ❖ Convert metric weights and volumes within the system.
- ❖ Recognize dosages:
  - Measured in units.
  - Measured as percentages.
  - Using ratio strengths.
  - Measured in milliequivalents.
  - In household measures.
  - In the apothecary measures

Week 2 Assignment:

- Review the study guide for Week 2
  - Review the PowerPoints for Read **M6 Dimensional Analysis, M2 Safety in Medication Administration, M3 Systems of Measurement**
  - Review the Exercises on **M6 Dimensional Analysis, M2 Safety in Medication Administration M3 Systems of Measurement,**
  - There is a discussion this week.
  - Complete the Week 2 exam in Canvas

Week 3 Overview:

This week students will learn how to prepare medications using oral forms of drugs and how to calculate the appropriate amounts from the problems listed in the study guides.

Week 3 Objectives:

By the end of this week students will be able to:

- calculate dosages for oral medications in solid and liquid form and medications measured in milliequivalents
- calculate dosages based on weight.
- prepare solutions from powdered drugs using directions printed on vial labels.
- prepare solutions from powdered drugs using drug literature or inserts.
- determine the expiration date and time for reconstituted drugs.
- calculate dosages for reconstituted drugs, oral medications in solid and liquid form and medications measured in milliequivalents

WEEK 3 Assignment:

- **M8 Calculating Oral Medication Doses, M9 Syringes and Needles**
- Review power points in Week 3
- Study Guides posted in Week 3
- Complete Assignment Week 3
- Complete Exam #3 in Canvas

Week 4 Overview:

This week students will learn how to prepare medications using parenteral and powder forms of drugs and how to calculate the appropriate amounts from the problems listed in the study guides.

Week Objectives:

By the end of this week students will be able to:

- prepare solutions from powdered drugs using directions printed on vial labels. prepare solutions from powdered drugs using drug literature or inserts.
- determine the expiration date and time for reconstituted drugs.
- calculate dosages for reconstituted drugs, oral medications in solid and liquid form and medications measured in milliequivalents
- calculate dosages based on weight. calculate average parenteral dosages from the labels provided.

WEEK 4 Assignment:

- Read M10 Calculating Parenteral Medication Dosages, M11 Preparing Powdered Parenteral Medications
- Review power points in Week 4 Study Guides posted in Week 4
- Complete Assignment Week 4
- Complete Exam #4 Parenteral Dosages in Canvas

Week 5 Overview:
This week the students will start to learn about intravenous (IV) solutions, how to calculate IV flow rates using gravity and by using electronic infusion devices.

Week 5 Objectives:
By the end of this week students will be able to:

- differentiate between primary, secondary, peripheral, and central IV lines.
- explain the function of IV drip chambers, roller and slide clamps, and on-line and indwelling injection ports.
- differentiate between volumetric pumps, syringe pumps, and PCAs.
- identify the abbreviations used for IV fluid orders. identify the calibrations in gtt/mL (drops/mL) on IV administration sets.
- calculate flow rates using dimensional analysis. flow rates to infuse ordered dosages.
- heparin dosages. mL/hr flow rates for an Electronic Infusion Device (EID) or IV pump.

Week 5 Assignment:

- Review the study guides and videos for the study guides for Week 5 IV's.
- Review the PowerPoints for **M13 Calculating for IV Medications and Infusions, M14 Administering Direct IV Medications**
- Review the Exercises in Dosage Calc 360
- Complete the Week 5 exam and discussion on Canvas.

Week 6 Overview:
This week the student will complete a critical care calculation exam

Week 6 Objectives:
By the end of this unit, students will be able to calculate:

- explain how suspensions are measured and administered.
- calculate pediatric oral dosages.
- list the precautions of IM and subcutaneous injection in infants and children
- General Considerations for the Older Adult Population
- Enteral Nutrition
- Change dosage rate to IV flow rate
- Change IV flow rate to dosage rate
- Orders based on the size of the patient in kg Safe dose range
- Titrated medications IV push medications

Week 6 Assignment

1. Review the study guide for Week 6 - Critical Care
2. Review the PowerPoints for Critical Care
- Complete the modules **for M15 Verifying Safe Dose, M18 Calculating for Special Populations**
3. Complete the discussion of the week.
4. Complete Week 6 Exam Pediatrics and critical care. In Canvas

Week 7 Overview:
This week students will learn the importance of calculating pediatric dosages correctly.

Week 7 Objectives:
By the end of this unit, students will be able to:

- calculate intake and output

Week 7Assignment:
Review the study guides and videos for the study guides for Week 7 peds and intake and output and considerations for special populations

- Review the PowerPoints for **M17 Calculating Intake and output,**
- Review the Exercises in Dosage Calc 360
- Complete Week 7 Exam – Intake and Output in Canvas

Week 8 : Take final exam and score at least a 78% per nursing standards