



Basic Course Information

Semester:	Spring 2025	Instructor Name:	Alicia Ortega, MSN, RN, FNP, OCN
Course Title & #:	MA 081- Medication Math and Pharmacology for Health Occupations	Email:	Alicia.ortega@imperial.edu
CRN #:	20747	Webpage (optional):	
Classroom:	2110	Office #:	2119
Class Dates:	02/11/2025 to 04/03/2025	Office Hours:	Tuesday 0900-1300
Class Days:	Tuesday-Thursday	Office Phone #:	760-355-5736
Class Times:	1500-2025	Emergency Contact:	Beatriz Trillas Martinez Beatriz.martinez@imperial.edu
Units:	3.0	Class Format:	In-person

Course Description

This course focuses on those components of safe medication calculation and administration and provides an introduction to the principles of pharmacology including medication interactions and potential adverse medication reactions. The course presents the principles and the guidelines for reading and interpreting a medical prescription. The course content also stresses medication calculation, measuring and administration of drugs, both orally and parenterally most commonly administered in the medical office. (Nontransferable, AA/AS degree only)

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

Pre-requisite MA 77 and Bio 90 (or higher-level Anatomy and Physiology class) with a grade of "C" or better

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate the legal and ethical knowledge related to medication administration in the medical office. (ILO 2.)
2. Demonstrate appropriate administration of medication by 3 separate routes. (ILO 2., ILO 3)
3. Identify warning signs of a pending allergic or anaphylactic response, (ILO 2, ILO 3)

Course Objectives

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

1. Demonstrate knowledge of basic math computations (II.C.1)
2. Apply mathematical computations to solve equations (II.C.2)
3. Define basic units of measurement in; a. the metric systems; and b. the household
4. Convert among measurement systems (II.C.4)
5. Identify abbreviations and symbols used in calculating medical dosages (II.C.5)
6. Calculate proper dosages of medication for administration (II P.1)
7. Analyze healthcare results as reported in: a. graphs; and b. tables. (II.A.1)
8. Identify the classifications of medications including: a. indications for use; b. desired effects; c. side effects; and adverse reactions (I.C.II)

9. Discuss the "five rights" of patients relative to administration of medications. (II C.II) (I P.4)
10. Understand the legal and ethical implications, with historical and current drug regulations, substance abuse and psychosocial, gender and cultural influences to medication utilization and administration.
11. Discuss DEA guidelines.
12. Demonstrate proper sites and technique for administering parenteral (excluding IV) medication, (I.P.5,7)
13. Demonstrate proper technique for administration of oral medication. (I, P.6)
14. Apply principles of pharmacotherapy in the dimensions of the pediatric, geriatric, pregnancy and lactating patient.
15. Discuss the need for patient education.
16. Discuss implications and concepts of safety with performing medication administration
17. Demonstrate knowledge of warning Signs of allergic response to anaphylactic reactions.
18. Process pharmacy calls for new and refill prescriptions based on physician orders and/or prescription

Textbooks & Other Resources or Links

- Rice, Jane 2016. Principles of Pharmacology for Medical Assisting 6th Ed. Cengage Learning ISBN' 9781305859326.
- Bonewit-West, Kathy 2016. Today's Medical Assistant Clinical and Administrative Procedures- 3rd Ed. Elsevier. ISBN 978-0-323-311274

Course Requirements and Instructional Methods

Class Activity, individually and in groups (Team presentations)

Mid-Term/Final Exam(s)

Problem Solving Exercise

Quizzes

Skill Demonstration

Written Assignments

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

Total points possible for the class: 100 points

Pharmacology Midterm — **20 points**

Pharmacology Final — **30 points**

Medication Math Final — **30 points**

Team Presentations of effects of Medications of body systems — up to **10 points**

Response on DEA regulations and controlled substances — up to **5 points**

Flashcards on drug presentations, classifications, and other terms — up to **5 points**

Grading Criteria: Letter grade only

A: 90 -100 points

B: 80 - 89 points

C: 70 — 79 points

Less than 70 points overall grade in MA 81 = Fail

A grade of C or higher is required for successful completion of each course.



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• **Students must pass the Medication Math Final and the Pharmacology final with a minimum of 70% (21 points out of 30) in order to pass the class, EVEN IF your overall grade is greater than 70.**

• There are no make ups for missed exams

Course Policies

• 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.

• As soon as you are aware that you will be late or absent, you need to contact the instructor by email or phone (760-355-5736) and leave a message with your name, date and that you will be late or absent. Regular attendance in all classes is expected of all students. A student whose continuous absences exceed the number of hours the class is scheduled to meet per week (**10.5 hours for MA 81**) will lose points on final exam; after 3rd absence, the student 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.

• Electronic Devices: Cell phones and other electronic devices must be turned off and put away during class, unless otherwise directed by the instructor. **Students will not be allowed to have cellphones or smart watches on their person during testing.**

• **Recorders will not be allowed in the classroom due to HIPAA laws.**

• Disruptive students: Students who disrupt or interfere with class, **such as students who come in late, leave and enter the class several times or are repeatedly talking during lecture** may be sent out of the room (or dismissed from the Zoom classroom) and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalogue.

• Children in the classroom: Due to college rules and state laws, only students enrolled in class may attend, children are not allowed.

Other Course Information

Work-based learning (WBL) allows students to apply classroom content in professional settings while gaining real-world experiences. These opportunities will provide you with a deeper, more engaging, and relevant learning environment. The following WBL activities are available to provide you with the opportunity to explore career options in Medical Assisting:

1. Unpaid Internships/ Volunteer experiences are available for MA students to help prepare them for their careers through the IVC Career Services Center. If you are interested in learning more about this opportunity, email your instructor. Participation in the Volunteer experience is optional and is not a part of your grade for MA 81.

2. Guest speaker to discuss Verbal and written medication orders, parts of a prescription, practice calls to pharmacy OR MA response to Medical Office Emergencies: Allergic and Anaphylactic reaction, syncope, needle sticks. Participation in the skills practice portion of this class is **not** optional and is part of your grade for MA 81.



IVC Student 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

Date or Week	Activity, Assignment, and/or Topic	Course Objective or SLO
Week 1 February 11-13	<ul style="list-style-type: none"> Syllabus review & Introduction to class Med Math: Basic Math Review, Quiz # 1 — Decimals, Fractions, Rounding and Roman Numerals Pharmacology: Rice Unit 7 (pg. 76 — 80) Controlled Substance Schedules, DEA regulations, Drug Diversion Rice Unit 10 (pg. 117 — 121 and 125) Patient Safety, 6 "rights" of Medication Administration, avoiding med errors. Bonewit Chap 3 (pg. 52) Controlled Substances and Prescriptions Write a 1-page response to prompt regarding legal and ethical knowledge related to medication administration in the medical office DEA regulations and Controlled Substances (worth 5 points) 	CO 1, 9, 10, 11 and 16 SLO 1
Week 2 February 18-20	<ul style="list-style-type: none"> Med Math. Quiz 2 — Conversions: Metric and Household systems, Abbreviations and Dimensional Analysis Pharmacology: Rice Unit 8 (pg. 89 -91, 93-95, and 96, 97) Forms of Drugs, Classifications of Drugs, and basic stages of a drug's life in body Four conditions to look for (Hypochondriasis, Malingering, Drug seeking behavior, Factitious disorder by proxy) 76 Drug Cards due (worth 5 points) -Use terms from Rice page 79 (5 schedules of controlled substances), pages 88 —91 (15 drug preparations), pages 93- 95 (45 drug classifications), page 97 (4 stages of a drug's life in the body), and 7 Additional terms: Enteral, parenteral, diluent, Hypochondriasis, Malingering, Drug-seeking behavior, Factitious disorder by proxy or Munchausen syndrome. 	CO 3, 4, 5, 8
Week 3 February 25-27	<ul style="list-style-type: none"> Med Math: Quiz # 3 — Reading medication labels. Pharmacology: Rice unit 9 Medication order, parts of a prescription, patient education, medication label, abbreviations to avoid Friday Lab: Jeopardy (teams) with terms from flashcards 	CO 5, 14, 15, 18 SLO 3
Week 4 March 4-6	<ul style="list-style-type: none"> Med Math: Quiz # 4 — Administration of parenteral medications and selecting correct syringe and needle. Pharmacology Midterm (Worth 20 points) 	CO 6, 18

Date or Week	Activity, Assignment, and/or Topic	Course Objective or SLO
Week 5 March 11-13	<ul style="list-style-type: none"> • Med Math: Calculating safe dose for pediatrics using weight. • Pharmacology, Rice Unit 14 — Allergic and Anaphylactic reaction Process pharmacy calls for new and refill prescriptions based on physician order Guest speaker. • Friday Lab: Jeopardy (teams) With terms from flashcards 	CO 14, 17, 18 SLO 3
Week 6 March 18-20	<ul style="list-style-type: none"> • Med Math. Quiz # 5 — Pediatric calculations • Pharmacology: Rice Unit 15 and 16 Antibiotics, Antifungals, Antivirals • Friday Lab: Team presentations of effects of medication; on Body systems (Worth 10 points) • Substance Abuse (Unit 20) • Musculoskeletal drugs (Unit 21) • Gastrointestinal drugs (Unit 22) • Respiratory drugs (Unit 24) • Diuretics and Urinary System drugs (Unit 25) • Nervous system drugs (Unit 27) • Reproductive system drugs (Unit 28) 	CO 8, 10, 14
Week 7 March 25-27	<ul style="list-style-type: none"> • Med Math Review for final • Pharmacology Rice Unit 23 — cardiovascular disease and medications • Rice Unit 24 — respiratory disease and medications (TB) • Rice Unit 26 — endocrine disease and medications • Friday Lab: Team presentations of effects of Medications on Body systems continued (Worth 10 points) 	CO 8, 14
Week 8 April 1-3	<ul style="list-style-type: none"> • Med Math Final (Worth 30 points) • Pharmacology Final (Worth 30 points) 	CO 2, 6, 14, 15, 16, 17

Subject to change without prior notice