

Martin Community College
Course Syllabus
Spring/2011

COURSE NUMBER:	MAT 110 (5WLC1)	INSTRUCTOR: G. Thompson
COURSE TITLE:	MATHEMATICAL MEASUREMENT	OFFICE NO: Building 4, Room 37
CREDIT HOURS:	3	OFFICE HOURS: MTWTH 8:00 – 9:00 These hours may change due to administrative duties as they arise.
CONTACT Hours:	4 (2 Class, 2 Lab)	PHONE NUMBER: (252) 789-0273
PREREQUISITES:	MAT 70 or appropriate score on placement test	FAX: (252) 792-0826
COREQUISITES:	None	E-MAIL: gthompson@martincc.edu

COURSE DESCRIPTION:

This course provides an activity-based approach to utilizing, interpreting, and communicating data in a variety of measurement systems. Topics include accuracy, precision, conversion, and estimation within metric, apothecary, and avoirdupois systems; ratios and proportion; measures of central tendency and dispersion, and charting of data. Upon completion, student should be able to apply proper techniques to gathering, recording, manipulating, analyzing, and communicating data.

PROGRAM LEARNING OUTCOMES:

1. Demonstrate appropriate mathematical skills required for academic and work-related tasks.
2. Apply principles of sound critical thinking to analyze and solve problems and make logical decisions.
3. Demonstrate effective speaking, writing, and reading skills.
4. Demonstrate appropriate technology skills required for academic and work-related tasks.

COURSE LEARNING OUTCOMES:

1. Compute calculations involving fractions, ratios, proportions, and percents.
2. Convert, estimate, and solve applications in the metric and apothecary systems.
3. Compute and explain terms used in basic statistics; mean, median, mode, and draw graphs used in statistics.

OTHER LEARNING OUTCOMES FOR THE STUDENT:

The student will be able to:

1. List the commonly used units of measure in the metric system.
2. Distinguish between the official abbreviations and variations in common use.
3. Express metric weights and volumes using correct notation rules.
4. Convert metric weights and volumes within the system.
5. List the symbols, abbreviations, and notation rules for apothecary and household measures.
6. Convert apothecary and household measures to metric equivalents.
7. Explain why discrepancies exist in such conversions.
8. Identify scored tablets, unscored tablets, and capsules.
9. Read drug labels to identify trade and generic names.
10. Locate dosage strengths and calculate simple dosages.
11. Measure oral solutions using a medicine cup.
12. Measure potential solutions using:
 - A. A Standard 3cc Syringe
 - B. A tuberculin syringe
 - C. 5, 6, 10 and 12 cc syringes
 - D. A 20 cc syringe

13. Read potential solution labels and identify dosage strengths.
14. Identify mill equivalent and International Units as drug dosage measurements.
15. Measure potential dosages in metric, mill equivalent, unit percentage, and ratio strengths using a 3 cc syringe.
16. Prepare solutions from powdered drugs using directions printed on vial labels.
17. Prepare solutions from powdered drugs using drug literature or inserts.
18. Determine expiration dates and times for reconstituted drugs.
19. Calculate simple dosages from reconstituted drugs.
20. Read drug labels to identify dosage strengths.
21. Set up proportions and determine the volume of medication required for specified dosages.
22. Assess answers obtained to determine if they are logical.
23. Read insulin labels to identify origin and type.
24. Read calibrations of U-100 insulin syringes.
25. Measure single insulin dosages.
26. Measure combined insulin dosages.
27. Read medication records and cards to identify:
 - A. drugs ordered on a continuing basis.
 - B. dosage ordered.
 - C. time of administration.
 - D. route of administration.
28. Convert body weight from lb to kg.
29. Convert body weight from kg to lb.
30. Calculate dosages using mg/kg, mcg/kg, mg/lb.
31. Determine if dosages ordered are within the normal range.
32. Use BSA to calculate dosages.
33. Assess the accuracy of dosages prescribed on the basis of BSA.
34. Identify calibrations in gtt/ml on IV administration.
35. Calculate flow rates by the conversion method.
36. Calculate total infusion times using the conversion method.
37. Calculate pediatric oral dosages.
38. Calculate pediatric IM and S.C. dosages.
39. Calculate flow rates for administration of IV medications using the conversion method.
40. Use normal daily and hourly dosage ranges to calculate and assess dosages ordered.
41. Determine the hourly heparin dosage when flow rate set calibrations are known.
42. Calculate IF flow rates based on Dr. =s orders of units/hr.
43. Determine the safe 24 hr. dosage range of IV heparin.
44. Calculate dosages in mcg/kg per min/hr.
45. Calculate dosages in mg. Per min/hr.
46. Calculate IV flow rates in ml/hr (gtt/min).
47. Calculate titrations within an ordered dosage range.
48. Determine and interpret mean, median, and mode.
49. Determine and interpret standard deviation and variation.
50. Interpret and produce basic statistical graphs.

REQUIRED TEXTBOOKS:

Booth, K. and Whaley, J. (2010). *Math and dosage calculations for medical careers* (3rd Ed.). New York, New York: McGraw-Hill Higher Education. ISBN: 0-07-302262-4

SUPPLEMENTAL RESOURCES:

- 1) **Calculator - TI-30x**
- 2) **CD-ROM**
CD_ROM references throughout the text direct you to exercises on the Interactive CD-ROM, packaged with every book, which provides independent review, reinforcement, and evaluation. Student's CD includes games for reinforcement.
- 3) **Online Learning Center** www.mhhe.com/MathDosage3e
Tutorial support via phone, fax or email staffed by developmental math faculty.
- 4) **Academic Skills Center (ASC)**

This center is located in Building 4 Room 38B on the Main Campus. Each semester a schedule of hours is posted and students may drop in at any time to receive extra help in any course. The center has tutorial software in a variety of courses along with instructors and peer tutors to assist students. Use of this resource has been extremely helpful to students taking MAT 110 in the past.

LEARNING/TEACHING METHODS:

1. Lecture
2. Handouts will be used for clarification of information
3. Supervised Practice
4. Computer Assisted Practice
5. Outside Reading Assignments

ASSESSMENTS/METHODS OF EVALUATION:

Medical Assistant must have a cumulative average of at least 77% to receive credit for this course. To achieve this outcome, the student's average will be computed using the following formula:

- | | |
|---|------------------------|
| 1. Major Tests | Average will count 40% |
| 2. Quizzes, Outside Readings and Graded Homeworks | Average will count 40% |
| 3. Final Exam | Exam will count 20% |

GRADING POLICY:

- | | |
|----------|----------------------|
| A | 100 – 93 % |
| B | 92 – 85 % |
| C | 84 – 77 % |
| D | 77 – 70 % |
| F | 70% and below |

REMINDER: Medical Assisting Students must complete this class with a 77% or above in order to remain in the program. Students seeking admission, readmission or reentry to the Medical Assisting Program with grades of 77% or lower in this class may be required to retake this class in order to remain in or be reentered in or readmitted to the Medical Assisting Program. For more information please see pages 22 of the Martin Community College Career Catalogue for 2006-2008 and or the Medical Assisting Program Handbook.

COURSE OUTLINE:

CHAPTER	TOPIC	WEEK
Chapter 1	Introduction and review of Arithmetic - Decimals & Fractions	1 – 2
Chapter 2	Review of Arithmetic for Medical Dosage Calculations – Ratio & Proportions	3
Chapter 3	Measurement of Weights and Measures	4
Chapter 4	Equipment for Dosage Measurement	5
Chapter 5	Drug Orders	6
Chapter 6	Drug Labels & Package Inserts	7
Chapter 7	Methods of Dosage Calculations	8
Chapter 8	Oral Dosage	9
Chapter 9	Parenteral Dosages	10
Chapter 10	Intravenous Dosage	11
Chapter 11	Calculations for Special Population	12
Chapter 12	Specialized Calculations	13
Handout	Statistics	14 - 15
	Review & Exam	16

THIS COURSE OUTLINE IS A GUIDE AND IS SUBJECT TO CHANGE!
KEEPING UP WITH CHANGES IS YOUR RESPONSIBILITY.

ATTENDANCE POLICY:

- The current MCC Attendance Policy applies which can be found in the Martin Community College Career Catalog for policies and curriculum requirements online at www.martincc.edu. Attendance at every class is necessary for maximum benefits from this course. Students are required to attend the face to face class meetings a minimum of 85% of the time in order to receive credit for the course. Attendance for the hybrid portion of the course will be accounted for in given assignments. Three tardies and/or early departures equal one hour's absence. Missing more than 10 minutes at the beginning or end of class will constitute an absence not a tardy.
- Absence from class may be excused in the following circumstances:
 - Verifiable death of an immediate family member
 - Verifiable hospitalization of self or immediate family member
 - Documented emergency at the discretion of the instructor.(Definition of "immediate family member," mother, father, sibling, spouse, child, grandparent)
- Students will be counted absent from the date of registration.
- Students must be present in at least one class during the first ten percent of a course in order to be considered enrolled in the class. If a student has not attended at least one class by the ten percent census date, the instructor will administratively withdraw the student.
- Students who miss more than six contiguous contact hours may be administratively withdrawn from the class by the instructor and given a grade of "WF." The "WF" will be equivalent to an "F" when calculated into the student's GPA.
- Students may remove a "WF" by submitting appropriate paperwork for an official withdrawal by the last day to officially withdraw without receiving an "F." The last day to officially withdraw without receiving an "F" is published in the academic calendar for each academic year.

REQUEST FOR EXCUSED ABSENCES FOR RELIGIOUS OBSERVANCES

- In compliance with G.S. 115D-5, MCC policy permits a student to be excused, with the opportunity to make-up any test or other missed work, a minimum of two excused absences per academic year for religious observances required by the student's faith. The policy limits the excused absences to a maximum of two days per academic year.
 - Students who wish to be excused for a Religious Observance required by their faith must complete and submit a request form to the instructor(s) prior to the census date of each class. The ***Request for Excused Absences for Religious Observances*** form can be picked up from Student Services. This does not supersede the college-wide attendance policy as outlined in the college catalog or syllabus, with the exception of a reasonable accommodation for the make-up of missed course work.

COURSE POLICIES:

Assignment Due Dates:

All assignments are due at the beginning of a class period. If a student is absent when an assignment is due it is their responsibility to see that the instructor receives that assignment the next time the student is in class. If this happens frequently a student's grade for that work may be lowered 10 points each day that it is late.

Make-up Policy:

Test can be made up only in cases of legitimate verifiable absences and must be made up within three days.

Cellular Phones and Pagers

Cell phones and pagers should be set to silent mode before entering class.

Academic Integrity Statement

The President or any other authorized college official may dismiss, suspend, or expel any student who disrupts the legal mission, educational processes or function of the college. Deliberately cheating or knowingly and intentionally engaging in acts of plagiarism is a violation of the Student Governance and Conduct Code. Cheating will result in a failing grade for the course and possible expulsion.

Open Door Policy

Martin Community College is an equal opportunity institution and maintains an "open door policy" for eligible applicants and serves all students regardless of race, color, creed, sex, age, handicap, religion, or national origin.

Contact Person

If you cannot reach your instructor, you may contact Dr. Phyllis Broughton, Dean of Academic Affairs and Student Services at (252)789-0247 by phone, pbroughton@martincc.edu by e-mail, or in person at her office in Building 2, Room 33.

Accessing the MCC Career Catalog

To access the Martin Community College Career Catalog for policies and curriculum requirements, please go online to www.martincc.edu.

Disability Statement

Martin Community College Supports the Americans with Disabilities Act and is sensitive to the needs of applicants with documented disabilities. If you have a need for a disability-related accommodation, please notify the Student Services counselor at (252) 789-0268.