SYLLABUS

DATE OF LAST REVIEW: 02/2013

CIP CODE: 51.0904

SEMESTER: Departmental Syllabus

COURSE TITLE: Applied Math for EMS

COURSE NUMBER: EMTC0101

COURSE HOURS: 3

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

EMAIL: Departmental Syllabus

KCKCC-issued email accounts are the official means for electronically communicating without students.

PREREQUISITE(S): None

REQUIRED TEXT AND MATERIALS:
Please check with the KCKCC bookstore http://www.kckccbookstore.com for the required current text for your particular class.

COURSE DESCRIPTION: EMTC0101 is an introductory course in pharmaceutical arithmetic that assists students in solving the mathematics of drugs and solutions encountered in the everyday routine of administering medications. Drug actions and interactions on the human body are discussed.

METHOD OF INSTRUCTION: A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, learning experiences and performances outside the classroom. Methodology will be selected to best meet student needs.
COURSE OUTLINE:

I. Basic Arithmetic Skills
   A. Fractions and Decimals
   B. Conversions
   C. Proportions
II. Conversions
   A. Interpretation and Expression for Metric, Apothecary, and Household
III. Equipment
   A. Recognition, Selection, and Calibrations
IV. Medication Orders
   A. Medical Notation and Administration
   B. Drug Labels
V. Drug Dosages
   A. Tablets, Capsules, and Liquids
   B. Parenteral
   C. Reconstitution
   D. Body Weight Method and Body Surface Area
   E. Safe Dosage
VI. Intravenous Calculations
   A. Milliliters per Hour
   B. Drops per Minute
   C. Infusion Time and Fluid Volumes
   D. Pediatric Infusion Control Sets
   E. Critical Care IV Medications
   F. Primary IV and IV Piggyback

EXPECTED LEARNER OUTCOMES:
A. The student will be able to demonstrate mastery of basic arithmetic skills.
B. The student will be able to perform conversions.
C. The student will be able to measure the prescribed dosages using appropriate equipment.
D. The student will be able to interpret the medication order.
E. The student will be able to calculate drug dosages.
F. The student will be able to calculate intravenous dosages.

COURSE COMPETENCIES:
Upon successful completion of this course:

The student will be able to demonstrate mastery of basic arithmetic skills.
1. The student will be able to add, subtract, multiply, divide, compare, and round fractions and decimals.
2. The student will be able to convert among fractions, decimals and percents.
3. The student will be able to solve proportions.

The student will be able to perform conversions.
4. The student will be able to interpret and properly express metric, apothecary,
and household notation.
5. The student will be able to convert units within and between the systems of measurement.

*The student will be able to measure prescribed dosages using appropriate equipment.*
6. The student will be able to recognize and select appropriate equipment to administer prescribed dosages.
7. The student will be able to read and interpret the calibrations on the equipment for the medication, dosage, and method of administration ordered.

*The student will be able to interpret the medication order*
8. The student will be able to read, understand, and write the notation that specifies the dosage, route, and frequency of the medication to be administered.
9. The student will be able to understand and use the components of drug labels in the administration of prescribed dosages.

*The student will be able to calculate drug dosages.*
10. The student will be able to calculate the number of tablet/capsules or volume of liquid.
11. The student will be able to calculate the milliliters of parenteral dosages.
12. The student will be able to reconstitute medication supplied in powder or dry form.
13. The student will be able to calculate pediatric dosages using the body weight method.
14. The student will be able to calculate pediatric dosages using the body surface area method (BSA).
15. The student will be able to determine safe dosage.

*The student will be able to calculate intravenous dosages.*
16. The student will be able to calculate IV flow rate in milliliters per hour (mL/h).
17. The student will be able to calculate IV flow rate in drops per minute (gtts/min).
18. The student will be able to calculate IV infusion time and fluid volumes.
19. The student will be able to calculate IV medications to be used with pediatric infusion control sets.
20. The student will be able to calculate flow rate and assess safe dosages for critical care IV medications administered over a specified time period.
21. The student will be able to calculate the flow rate for primary IV and IV piggyback solutions for patients with restricted fluid intake.

**ASSESSMENT OF LEARNER OUTCOMES:**
Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

The course grade is determined by this grading scale:

A = 94% and above
B = 93% - 86%
C = 80% - 85%
F = 79% and below
There is no grade of D in Applied Math for EMS.

SPECIAL NOTES:
Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

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