

COURSE OUTCOME MATRIX

COURSE SYLLABUS

PART 2 of 3

Course Number and Title	ML 104 Laboratory Applications
-------------------------	--------------------------------

Credit Hours	2 Credit Hours
--------------	----------------

Course Description	This course emphasizes applications pertaining to the clinical laboratory in hematology, chemistry, and quality control as well as common scientific measurements, dilutions, solutions, graphing, and standard curves. The course will begin with an overview of scientific measurements, significant figures, conversions among units before delving into specific topics related to the clinical laboratory such as standard curves, and quality control using Westgard rules. Clinical calculations will also be discussed for hematologic cell counts, acid base disorders, and renal function testing.
--------------------	--

Prerequisite(s) and/or Corequisite(s)	Prerequisite: Admission to the Medical Laboratory Technology program. Co-requisite: ML 100 and ML 101.
---------------------------------------	---

Required Textbooks/References/Course Materials:

Essential Laboratory Mathematics	2nd	Johnson, Timmons, and Hall	Waveland Press, Inc.	1577666607
----------------------------------	-----	----------------------------	----------------------	------------

General Education Outcomes	
1	Utilize written and verbal language to discuss and comprehend information, incorporating a variety of technologies, such as text, data, and images (written language, verbal language, and information technology).
2	Identify and interpret relevant information in order to formulate an opinion or conclusion (critical thinking).
3	Demonstrate and communicate computational methods and mathematical reasoning in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate) (quantitative literacy and fluency).
4	Communicate in appropriate ways with those who are culturally diverse (intercultural competence).

Program/Department Outcomes	
1	Graduates will demonstrate skills, knowledge and proper attitudes to realize a career as entry level Medical Laboratory Technicians in hospitals and other health care environments.
2	Graduates must demonstrate professionalism and conduct that reflects safe, legal, and ethical behavior.
3	Graduates will have the necessary knowledge to be able to pass a national certification examination.
4	Graduates must be able to communicate in a facilitative, purposeful and respectful manner with patients, families, colleagues, and other members of the health care team.
5	Graduates will have knowledge of prospective job information in an effort to achieve 100% placement within 3 months of graduation or for continuing their undergraduate education in medical technology or other field of their choice.

	Course Outcomes (CO)	Bloom's Domain for CO (C, A, P), Category, and Level	Program/ Department Outcome(s)	Written Language	Verbal Language	Information Technology	Critical Thinking	Quantitative Literacy and Fluency	Intercultural Competence
1	Use common systems of measurements and their properties as they are used in clinical laboratory applications.	C – Applying (3)	1, 3	0	0	0	1	1	0
2	Calculate various types of dilutions, dilution factors and titers as they apply to laboratory analysis.	C – Applying (3)	1, 3	0	0	0	1	1	0
3	Perform calculations necessary for laboratory solution preparation using stock solutions of various percentages, molarity, normality, and specific gravity.	C – Applying (3)	1, 3	0	0	0	1	1	0
4	Calculate and interpret statistical concepts, including standard deviation, coefficient of variation, Levey-Jennings charts, and Westgard rules as used in clinical laboratory quality control methods.	C – Evaluating (5)	1, 2, 3	0	0	0	1	1	0
5	Demonstrate knowledge of the dimensions and proper use of a hemacytometer.	C – Applying (3)	1, 3	0	0	0	1	1	0
6	Calculate volume, dilutions, metric conversions and scientific notation as used in performing and reporting various hematological cell counts and calculations.	C – Applying (3)	1, 3	0	0	0	1	1	0
7	Determine concentrations of unknowns using spectrophotometry, Beer's law equation, standard curves, and other formulas related to clinical chemical procedures.	C – Applying (3)	1, 3	0	0	0	1	1	0

Bloom's Domain Legend

C = Cognitive
A = Affective
P = Psychomotor

General Education Outcome Legend

2 = Included and Measurable
1 = Introduced and/or Minimally Addressed and Not Measurable
0 = Not included

Approved: May 2021
Reviewed: October 29, 2021