

**MLAB 139 Pre-Analytics & Lab Principles**  
**Winter 2021**

**COURSE OUTLINE**

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The course description is available on the web:  
<http://camosun.ca/learn/calendar/current/web/mlab.html#mlab139>

Camosun College will continue to follow the guidance of the Provincial Health Officer, the B.C. Government and WorkSafeBC, and as such may revise the delivery of courses. Courses with an approved face-to-face component may need to move to online or remote delivery if necessary.

The COVID-19 pandemic has presented many challenges, and Camosun College is committed to helping you safely complete your education. Following guidelines from the Provincial Health Officer, WorkSafe BC and the B.C. Government to ensure the health and wellbeing of students and employees Camosun College is providing you with every possible protection to keep you safe including COVID Training for students and employees, health checks, infection control protocols including sanitization of spaces, PPE and ensuring physical distancing. Please refer to: <http://camosun.ca/covid19/faq/covid-faqs-students.html>

However, if you're at all uncomfortable being on campus, please share your concerns with your Instructor and if needed, alternatives will be discussed.

*Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.*

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- (a) **Instructor** Tania Pozney  
(b) **Office hours** Wednesdays 9:30 – 10:30  
(c) **Location** [Click or tap here to enter text.](#)  
(d) **Phone** [Click or tap here to enter text.](#) **Alternative:** [Click or tap here to enter text.](#)  
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(f) **Website** <http://camosun.ca/learn/programs/medical-laboratory-assistant/>

## 2. Intended Learning Outcomes

Upon successful completion of this course, a student will be able to:

- Identify and describe the equipment (including accessories) and components commonly found in medical laboratory departments, and explain how they interrelate to produce a diagnostic analysis of specimens.
- identify and demonstrate the skills necessary for proper collection, labelling, and preparation of specimens other than blood for distribution to clinical laboratory departments.
- explain the influence of correct labeling and handling procedures, selecting appropriate collection tubes, order of draw, preparation, and aseptic technique on accurate results.
- discuss problem solving and troubleshooting for analytical errors based on incorrect labeling and handling procedures, improper selection of collection tubes, incorrect order of draw, preparation errors, and poor aseptic technique.

### 3. Required Materials

Textbook:

Warekois & Robinson. (2015) Phlebotomy: Work text and Procedure Manual 5th Ed.

Shematek, G., Wood, W., O'Grady, E. (2017) Laboratory Safety CSMLS Guidelines 8<sup>th</sup> Edition

### 4. Course Content and Schedule

The following schedule is tentative and subject to change if deemed necessary by the instructor.

Module	Lecture	Readings	Asynchronous Activities	Labs	Learning Objective
1. Lab Equipment and Safety	<b>Unit 1 – General Equipment Safety &amp; Infection Control</b> <ul style="list-style-type: none"> <li>Safe use of Laboratory equipment, supplies, and sharps containers, including chemical and reagent considerations</li> <li>How to sterilize, disinfect and safely use devices and equipment in the lab.</li> </ul>	Chapter 16 & 17  Lab Safety CSMLS Guidelines 8th	Equipment Assignment/ Autoclave Quiz	<b>Unit 2 – Thermal Laboratory Equipment</b> Thermal Equipment <ul style="list-style-type: none"> <li>Hot Air Ovens</li> <li>Incubators</li> <li>Hot plate</li> <li>Autoclave</li> <li>Microwave oven</li> <li>All other equipment as determined</li> </ul>	1,2
	<b>Unit 3 – Non Blood Collections</b> <ul style="list-style-type: none"> <li>Demonstrate knowledge of non-blood samples collected for laboratory testing</li> <li>Ability to provide patient instruction for self-collection tests</li> <li>Knowledge of safe collection, handling, and transportation of non-blood samples</li> </ul>	Chapter 15 Phleb Worktext	Patient Instruction Videos/ Quiz	Review non-blood samples containers, preservatives, collection instructions and transportation materials.  Review of common patient instructions and sample integrity issues	4
<b>Unit 4 - Urine Collection and Handling</b> <ul style="list-style-type: none"> <li>Knowledge of the types of urinalysis instructions, collections and containers</li> <li>Knowledge of the rejection criteria for unacceptable specimens</li> </ul>	Urinalysis Assignment And Patient Instruction Videos/ Quiz		Review urine collection containers, preservatives, transportation, and patient instruction	4	

	<ul style="list-style-type: none"> <li>Have knowledge of requirements and preparation of urine collection for urine cytology</li> </ul>				
	<p><b>Unit 5 – Point of Care</b></p> <ul style="list-style-type: none"> <li>Describes the role of the laboratory in point-of-care testing</li> <li>The Medical Laboratory Assistant shall have knowledge of the principles of point of care testing procedures.</li> <li>Knowledge of guidelines in selection of venipuncture vs. skin puncture</li> </ul>	Chapter 17 Phleb Worktext	Review Capillary Collection ppt and complete Capillary Quiz	<p>Math Lab:</p> <ol style="list-style-type: none"> <li>Understand and define terminology related to the measurement systems used in the laboratory</li> <li>Knowledge of the metric system and conversions.</li> <li>Knowledge of Roman numerals and the 24-hour clock and their use.</li> </ol> <p>For this week's Asynchronous Activity complete the <a href="#">Lab Math Quiz</a>. After Reading break we will begin Microbiology and have a <a href="#">Research Paper Assignment</a>. This assignment will take several weeks to complete and will be the bulk of your asynchronous activity time.</p>	3
Reading Break					
<b>3. Microbiology</b>	<p><b>Unit 6 - Microbiology</b></p> <ul style="list-style-type: none"> <li>Knowledge of protocols regarding referred specimens: e.g. BCCDC</li> <li>Knowledge and use of common media and selection of media</li> <li>Knowledge of automated plating methods/machines</li> <li>Knowledge of staining methods</li> <li>Knowledge of fundamentals of Gram staining for bacteria</li> <li>Knowledge of microbiology body fluids, stool and swab specimens processing and handling technique</li> <li>Types of culture media</li> <li>Inoculation techniques for microbiology specimens</li> </ul>		Bacteria Research Assignment And Equipment Videos and Discussion	<p><b>Urinalysis, Point of Care and Lab Safety</b></p> <ul style="list-style-type: none"> <li>Aliquot and aseptic procedures</li> <li>Performs point-of-care techniques, identifies sources of interference and initiates corrective action as delegated</li> </ul> <p>For those not in a face to face lab this week review the Centrifuge ppt and complete the <a href="#">Equipment Video Discussion</a></p>	5
	<ul style="list-style-type: none"> <li><b>Rep from BD – Micro lab automation (Mar 1)</b></li> </ul>		Bacteria Research Assignment Bacteria Research Assignment	<p><b>Microbiology Lab Media Lab</b></p> <ul style="list-style-type: none"> <li>Demonstrate Inoculation &amp; Direct Smear Techniques</li> </ul>	5

	<b>Unit 7 – Microbiology – Specimens</b> <ul style="list-style-type: none"> <li>• Knowledge of how to instruct the patient in the collection of common microbiology tests.</li> <li>• Knowledge of specimen preparation for testing and transport (temperature requirements)</li> <li>• Knowledge of storage of microbiology specimens</li> <li>• Knowledge of microbiology body fluids, stool and swab specimens processing and handling technique</li> <li>• Knowledge of specimen rejection criteria</li> </ul>			<ul style="list-style-type: none"> <li>• Prepares smears manually or using automated equipment</li> <li>• Selects appropriate culture media, inoculates, and incubates specimens using the aseptic technique.</li> <li>• How to operate the Bunsen burner.</li> <li>• Knowledge of the safe operation of the incubator.</li> </ul> <p>For those students not in face to face labs please complete the <a href="#">Bacterial Research Assignment</a></p>	5
Module 4 Pre-Analytics	<b>Unit 7 Laboratory Automation</b> <ul style="list-style-type: none"> <li>• Knowledge of manual and automated instruments in the laboratory</li> <li>• Knowledge of automated plating methods/machines</li> </ul>		Bacteria Research Assignment	<ul style="list-style-type: none"> <li>• Knowledge of manual and automated instruments in the laboratory</li> <li>• Knowledge of automated plating methods/machines</li> </ul>	
	<b>Unit 8 - Pre-Analytical common errors and complications</b> <ul style="list-style-type: none"> <li>• Time sensitive collections, special handling specimens i.e. on ice, kept warm, light sensitive specimens, specimens on ice, warmed specimens, room temperature specimens</li> <li>• Pre-Analytical Errors and Complications Involving Specimen Collection &amp; Transport and documentation of corrective actions</li> <li>• Knowledge of procedures determining specimen integrity: specimen priority, turn around time, basal state and factors affecting basal state. Rationale for rejection of specimens, protocols regarding repeat collections, transport and storage of specimens.</li> </ul>	Chapter 18 Phleb Worktext	Pre- Analytical Case Study Discussion Final Exam Prep	This week we are diving deep into Microbiology. We will inoculate plates and incubate them to see what grows. We will make smear slides and learn about common stains used in microbiology. There are a lot of different types of media to learn about. Learning Outcomes: <ol style="list-style-type: none"> <li>1. Prepares/stores reagents, solutions, stains, or media to specifications</li> <li>2. Performs calculations dilutions for reagent preparation</li> <li>3. Demonstrates knowledge of reagent preparation equipment</li> <li>4. Demonstrates proper technique for cleaning</li> </ol> <p>Those not in face to face labs will complete the Bacterial Research paper and prep for Final Exam.</p>	3
Week 15	<b>FINAL EXAM</b>				

## 5. Basis of Student Assessment (Weighting)

Assignments	35%
Laboratory competency	35%
Final Exam and Research Paper	30%
<b>TOTAL</b>	<b>100%</b>

#### TEST AND EXAMINATION PROCEDURES

There are policies regarding written test and examination procedures including late arrivals and missed tests. Please see the Health and Human Services Student Handbook item 5.4 for Test and Examination Procedures at <http://camosun.ca/learn/school/health-human-services/student-info/index.html>

#### WRITTEN ASSIGNMENTS

Assignments are due before 2400 hours (midnight) on the assigned day unless otherwise specified. Assignments about patients, residents or clients must be completed using the individual's initials only. Unless otherwise directed by individual course outlines, assignments must be: word processed, double spaced, font meeting APA 7th edition guidelines, with a title page and a reference list. Students requiring an extension for the due date of an assignment must negotiate with the instructor, at least 48 hours before the due date. Assignments submitted late without an approved extension will result in a 5% deduction in mark for each day late.

## 6. Grading System

- Standard Grading System (GPA)
- Competency Based Grading System

## 7. Recommended Materials to Assist Students to Succeed Throughout the Course

[Click or tap here to enter text.](#)

## 8. College Supports, Services and Policies

### Immediate, Urgent, or Emergency Support



If you or someone you know requires immediate, urgent, or emergency support (e.g., illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts:

<http://camosun.ca/about/mental-health/emergency.html> or  
<http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, centre for accessibility, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit Student Services at <http://camosun.ca/services>

### College Policies

Policies are available on the College website at <http://camosun.ca/about/policies>. Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with college policies.

Education and academic policies include, but are not limited to, [Academic Progress](#), [Admission](#), [Course Withdrawals](#), [Grading](#), [Involuntary Health and Safety Leave of Absence](#), [Prior Learning Assessment](#), [Medical/Compassionate Withdrawals](#), [Sexual Violence and Misconduct](#), [Standards for Awarding Credentials](#), [Student Ancillary Fees](#), [Student Appeals](#), and [Student Penalties and Fines](#).

### Student Conduct Policy

The [Student Conduct Policy](#) provides clear expectations of appropriate academic and non-academic student conduct and establishes processes for resolution of conduct issues or the imposition of sanctions for inappropriate conduct. It is the student's responsibility to become familiar with the content of this policy.

## A. GRADING SYSTEMS

<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>

The following two grading systems are used at Camosun College:

### 1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

### 2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes.

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

## B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://www.camosun.bc.ca/policies/E-1.5.pdf> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description

I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.