MLS 2260 (226)
Introduction to Laboratory Theory and Techniques
Winter 2018

COURSE:	MLS 2260	**CLASS LOCATION:**	5023 HHB
INSTRUCTOR:	Lisa DeCeuninck	**OFFICE HOURS:**	
EMAIL:	deceunin@oakland.edu	**(by appointment)**	
OFFICE:	3125 HHB		
DAY/TIME:	**By appointment**		

COURSE DESCRIPTION: Basic concepts and principles in the practice of clinical laboratory science. Integration of principles of phlebotomy, microscopy, laboratory mathematics, spectrophotometry, and laboratory safety.

COURSE OBJECTIVES:
- List and describe safety hazards in the laboratory and discuss the proper techniques to avoid accidents.
- Demonstrate competency in following protocols.
- Identify parts and demonstrate proper care and use of a microscope.
- Demonstrate proper pipetting technique and accuracy.
- Utilize basic metric systems for laboratory procedures and use formulas to calculate strengths of dilutions and solutions.
- Evaluate quality assurance and control values in a clinical laboratory setting.
- Perform a rudimentary level of phlebotomy and describe its importance in laboratory testing.
- Achieve three successful blood draws.
- Recognize the most common blood collection tubes and to which departments they are most commonly sent
- Analyze a scientific journal article for content and present a scientific problem regarding a disease or condition in an educational format.
- Apply concepts of professional behavior in a laboratory setting.

REQUIRED TEXT: *Linne & Ringsrud's Clinical Laboratory Science: The Basics and Routine Techniques*, 6th edition. Mary Louise Turgeon. Mosby. ISBN: 978-0-323-06782-9

RECOMMENDED TEXT: *Mathematics for the Clinical Laboratory*. 2nd edition. Lorraine J. Doucette. Saunders. ISBN: 978-1-4377-0179-1

Required Equipment: Basic calculator *** (*NOT a phone calculator)* **NO CELL PHONES ALLOWED IN LAB**

CLASS POLICIES:
1. **Academic conduct policy:** All members of the academic community at Oakland University are expected to practice and uphold standards of academic integrity and honesty. Academic integrity means representing oneself and one's work honestly. Misrepresentation is cheating since it means students are claiming credit for ideas or work not actually theirs and are thereby seeking a grade that is not actually earned. Following are some examples of academic dishonesty:
   a. Cheating on examinations. This includes using materials such as books and/or notes when not authorized by the instructor, copying from someone else's paper, helping someone else copy work, substituting another's work as one's own, theft of exam copies, or other forms of misconduct on exams.
   b. Plagiarizing the work of others. Plagiarism is using someone else's work or ideas without giving that person credit; by doing this, students are, in effect, claiming credit for someone else's thinking. Whether students have read or heard the information used, they must document the

source of information. When dealing with written sources, a clear distinction should be made between quotations (which reproduce information from the source word-for-word within quotation marks) and paraphrases (which digest the source of information and produce it in the student's own words). Both direct quotations and paraphrases must be documented. Even if students rephrase, condense or select from another person's work, the ideas are still the other person's, and failure to give credit constitutes misrepresentation of the student's actual work and plagiarism of another's ideas. Buying a paper or using information from the World Wide Web or Internet without attribution and handing it in as one's own work is plagiarism.

   c. Cheating on lab reports by falsifying data or submitting data not based on the student's own work.
   d. Falsifying records or providing misinformation regarding one's credentials.
   e. Unauthorized collaboration on computer assignments and unauthorized access to and use of computer programs, including modifying computer files created by others and representing that work as one's own
   f. **You are expected to prepare for and take exams on the date and time scheduled.** Additional time for exams will not be allowed if you are tardy. You will receive a zero for missed exams and labs due to unexplained absences. **You will have two hours for your exams***.*

2. **Add/Drops:** The university policy will be explicitly followed. It is the student's responsibility to be aware of deadline dates for dropping courses.
3. **Special Considerations:** Students with disabilities who may require special considerations should make an appointment with campus Disability Support Services, 106 North Foundation Hall, phone 248 370-3266. Students should also bring their needs to the attention of the instructor as soon as possible. For academic help, such as study and reading skills, contact the Academic Skills/Tutoring Center, 103 North Foundation Hall, phone 248 370-4215.
4. **Attendance:** In accordance with professional behavior, it is expected that you will attend course lectures/labs and be punctual. If you are unable to come to a class, professional courtesy asks that you send an email (**deceunin@oakland.edu**) explaining your absence.
5. **Laboratory Safety**: The laboratory component of this course requires you to work with specimens of human origin. Following Standard Precautions is mandatory and includes the wearing of a lab coat, shoes (not sandals), and gloves. You must wash your hands before leaving the lab. Sharps must be placed in a sharps container and waste disposed of properly. You may **not** use a cell phone during class. No brimmed hats or hoods allowed in lab.

COURSE GRADING:

Exam 1 -	20 %
Exam 2 -	20 %
Comprehensive Final Exam -	20 %
Presentation -	10 %
Protocol -	10 %
Labs -	10 %
Homework/Phlebotomy -	10 %

Late assignments will be given a zero. **If more than 3 labs are missed, you will need to drop the course and repeat it the following semester.**

Professional Development:
Students are expected to maintain high standards of professionalism at all times. The student will be rated throughout the course according to observed behaviors with regards to the following behavioral skills: academic integrity and honesty, adherence to policies, professional responsibility, interpersonal skills, organization and attendance (See attached sheet). The average score will reflect the total **percent deduction** that will be applied to the student's final overall course percentage.

Grading Scale:

Percentage	Grade point		Percentage	Grade point
98-100	4.0		74	2.4
97	3.9		73	2.3
96	3.8		72	2.2
95	3.7		71	2.1
94	3.6		70	2.0
90-93	3.5		69	1.9
89	3.4		68	1.8
88	3.3		67	1.7
85-87	3.2		66	1.6
83-84	3.1		65	1.5
80-82	3.0		64	1.4
79	2.9		63	1.3
78	2.8		62	1.2
77	2.7		61	1.1
76	2.6		60	1.0
75	2.5			

You must earn at least a 2.0 in this class, to continue on to future classes in the BDTS program.

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*HOMEWORK IS DUE AT THE BEGINNING OF THE LAB DUE DATE
No exceptions

**ALL LAB WORK (LABS 1-9) IS DUE AT THE END OF THE SCHEDULED LAB
No exceptions

Schedule:

WEEK: TOPIC	Lecture	Reading	Homework	Lab
1	• Syllabus • Presentation assignments • Professionalism • Safety • Components of a protocol	• Chapter 2	• Ch 2 Questions 5–9, 14–28, 32-33 • MSDS activity (HW1)due wk 2	• Follow a Protocol
2	• Phlebotomy • Specimen collection • Specimen tubes	• Chapter 3	• Ch 3 Questions 1-5,8-20, 24, 26-32	• Phlebotomy (3 sucessful) • Specimen ID (lab2)
3	• Lab math – Metric system and conversions • Glassware, Pipettes	• Chapter 4	• Ch 4 Questions 1-8 • Lab math conversions (HW2)due wk 4	• Pipette & glassware ID • Micropipetting (lab3) • Phlebotomy
4	• Quality Assessment/Control • Westgard rules	• Chapter 8	• Quality Control • Westgard Rules (HW 3)due wk 6 • Ch 8 Questions 5-24	• Micropipette calibration (lab4)
5	**Exam 1 with Practicum** **Weeks 1-3**			
6	• Lab Math – Single dilutions and concentrations • **Presentation topic due** • **Journal article due**	• Chapter 7	• Lab math dilutions (HW4)due wk 7 • Ch 7 Questions 6-10, 15-17	• Pipetting, dilutions • Phlebotomy (lab5)
7	• Spectrophotometry	• Chapter 6	Standard Curve	• Spectro-photometry • Standard Curve (lab6)
8	• Lab Math - Serial dilutions • Lab Math - Molarity, Normality	• Chapter 7	Ch 7: Review questions 1-25 Lab Math Molarity (HW5)due wk 9	• Pipetting single dilutions • Pipetting serial dilutions (lab7)
9	• Microscopy • Centrifugation	• Chapter 5 and 12	• Lab math Review (HW6)due wk 11 • Write a protocol (due LAB 12)	• Microscopy (lab8) • Centrifugation
10	**Exam 2 with Practicum** **Weeks 4 and 6-8**			
11	• Hemocytometer		Ch 6 Questions 33-37	• Hemocytometer (lab9)
12	**Student protocols** Email powerpoint for week 13, 2 days before presentations			
13	**Student presentations**			
14	**Cumulative Final Exam**			