

Oakland University  
Biomedical Diagnostic and Therapeutic Sciences

**MLS 4400**  
**CLINICAL CORRELATIONS**  
**WINTER 2018**

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**Day/Time:** MW 3:30-4:45

**Location:** 5037 HHB

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3117 HHB

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**Office Hours:** by appointment

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**Course Description:** A problem-solving, multidisciplinary, case-study-based course, which integrates material from the various clinical laboratory science disciplines. The course utilizes critical-thinking exercises to interpret data across disciplines, correlating results to disease problem-solving and quality assurances.

**Required Text:** None

**Course Objectives:** The student will achieve upon completion of this course the ability to:

1. Evaluate multi-discipline laboratory data in order to:
    - a. synthesize a diagnosis from laboratory data
    - b. correlate laboratory results with pathology
    - c. predict appropriate laboratory testing for a pathology
    - d. assess how disparate pathologies may intersect
  2. Develop basic skills in teaching and learning assessment:
    - a. through research, preparation, and delivery of a PowerPoint presentation
    - b. by writing multiple choice questions that map to learning outcomes
    - c. by evaluating learning through the use of multiple choice questions
  3. Create a manuscript that is suitable for submission to the journal *Clinical Laboratory Science*
  4. Demonstrate professional behavior through:
    - a. attendance
    - b. active participation
    - c. turning in assignments on time
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**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. **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. **There are numerous, free, plagiarism checkers on the internet for you to check your paper.**
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. **Attendance:** Regular class attendance and professional behaviors are expected. Students must arrive on time for class and are expected not to leave early. Students must turn off communication devices before entering the classroom. NO texting is

allowed during class. If you are unable to come to a class, professional courtesy asks that you send an email ([landispi@oakland.edu](mailto:landispi@oakland.edu)) explaining your absence.

4. Assignments must be turned in at the beginning of class to receive credit. **Assignments turned at any other time during class will not be scored.**

#### Course Grading:

Post-assessment exam:	20%
Case Study Manuscript:	25%
Case Study PowerPoint Presentation:	25%
Homework:	10%
Quizzes:	10%
Participation:	10%

#### Course Grading Scale:

Percent	Grade point	Percent	Grade point	Percent	Grade point	Percent	Grade point
97-100	4.0	85	3.2	74	2.4	66	1.6
96	3.9	84	3.1	73	2.3	65	1.5
95	3.8	80-83	3.0	72	2.2	64	1.4
94	3.7	79	2.9	71	2.1	63	1.3
93	3.6	78	2.8	70	2.0	62	1.2
90-92	3.5	77	2.7	69	1.9	61	1.1
88-89	3.4	76	2.6	68	1.8	60	1.0
86-87	3.3	75	2.5	67	1.7		

**Schedule:** Dates are subject to change

Date	Topic
Wed 1/3	Intro to MLS 440 / Education basics
Mon 1/8	Education basics
Wed 1/10	Education basics <b>Determine order of STUDENT Presentations</b>
Wed 1/17	Clinical Chemistry Case
Mon 1/22	Clinical Chemistry
Wed 1/24	Clinical Chemistry
Mon 1/29	Bloodbank <b>Chemistry Quiz</b>
Wed 1/31	Bloodbank
Mon 2/5	Hematology <b>Bloodbank Quiz</b>
Wed 2/7	Hematology
Mon 2/12	Hematology
Wed 2/14	Hemostasis <b>Hematology Quiz</b>
Mon 2/26	Immunology
Wed 2/28	Microbiology <b>Written Case Study Due</b>
Mon 3/5	Microbiology
Wed 3/7	Molecular Diagnostics <b>Microbiology Quiz</b>
<b>Mon 3/12 – April 9 (No class April 11)</b> <b>Student Case Study Presentations</b>	
Mon 4/16	Post Assessment Exam to remain open until 4/26

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### Post-assessment Exam

You are required to take a “post-assessment exam” for the BDTS program.

- You will receive credit for completing your pre-assessment exam, however it will not be corrected for a letter grade or numerical grade point.
- Your exam is posted on Espace and it will be timed.
- You are to answer the questions to the best of your knowledge and ability and do so without looking up answers.
- If you do not participate in the pre-assessment exam, your grade for the class will be reduced by 10%.
- The exam will be open on April 16.

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### Case Study Manuscript

As a laboratory professional you will interpret laboratory data on patients. Your ability to effectively communicate your analyses is essential for quality in patient care and developing this skill will be necessary for advancement in your field. This writing assignment will allow you to practice your written communication skills and prepare you for publishing your work in the future.

**Assignment:** You will prepare a manuscript that discusses a clinical pathology of your choice. Your topic is due by the third class period and you should have your top 3 or 4 choices ready at the **beginning** of the third class. Names will be drawn to determine the topics. If you choose a topic that another person has already chosen, then you must choose a different topic. Once your pathology topic is approved, you will prepare a written case study of that pathology. Prepare your case in a format that is acceptable for publication in the Clinical Laboratory Science journal (including reference format). Your manuscript will be

**5 – 6 pages (not including references) in length, double-spaced, 12 point Times New Roman, 1 inch margins, no more than 1 page for references.**

You must **use a plagiarism checker to check your paper** <http://smallseotools.com/plagiarism-checker/>. You must turn in a report (screen shot or print out) indicated that your paper is LESS than 15% plagiarized (reference list not included). This site only allows up to 1000 words, so you may need to print off more than one report. Papers that contain more than 15% plagiarized material will receive a 0.

You will be given an example case to use as a guide. Your manuscript must include:

- Title
- Abstract
- Abbreviations
- Case Presentation
  - Signs and symptoms
  - Clinical Laboratory Testing
  - Diagnosis/Treatment/Prognosis
  - Follow-up Laboratory Testing (if applicable)
- Description of the pathology
  - History
  - Etiology
- Epidemiology
- Clinical Laboratory Testing
- Diagnosis and Treatment
- Prevention (if applicable)
- Conclusion
- APA Formatted references (5 – 10 references with **at least one peer reviewed publication**, later than 2013. **Your textbooks are excellent resources.**)

**Deadline:** **Your written case study is due the week after spring break (2/28).** You will be given feedback on your written case one week before you present your case.

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## Case Study PowerPoint Presentation

As a laboratory professional you will interact with peers, physicians, nurses, and even patients. Your ability to effectively communicate your thoughts and ideas to these diverse groups of people is essential to providing the utmost quality in patient care and developing this skill will be necessary for advancement in your field. This assignment will allow you to practice your oral and written communication skills and enhance your skills in educating others using visual media.

**Assignment:** Prepare a presentation and multiple choice questions on your written case.

- Using PowerPoint, you will create a **10 – 15-minute presentation** of the written case study (above). If you choose a format for your presentation other than PowerPoint, you must provide a pdf version of your presentation to be uploaded into Moodle. Your presentation should include the same information as your written case (see above). Several examples will be presented to you early in the semester.

**Tips:**

- Include the required information above and ask, “Why?” Do not make statements in your presentation simply because you read it on the web. If you don’t know what a word or statement means, ask or look it up, but don’t present information simply to present it. You are the expert for the topic, so *teach* us.
  - Review your good practices before you prepare your presentation. You will be graded on your ability to generate a quality presentation (approximately one slide per 45 – 60 secs, so a 15 – 20 min presentation may be 15-30 slides).
  - Use pictures!!! Find a picture that will help you explain your disease or a pathway to the class.
  - **Presentations that contain plagiarized material/content will receive a grade of 0.** Please see the following link if you are unfamiliar with what constitutes plagiarism: <http://www.oakland.edu/?id=28413&sid=522>
- **Multiple Choice Questions:** You will prepare **five multiple-choice** questions for homework that follows your presentation. Each question must contain 4 choices (A-D). You must map each question to a learning outcome (below). Your presentation must include information that directly relates to these learning outcomes:
    - I. Describe the clinical presentation of a patient with this disorder.
    - II. Propose appropriate diagnostic testing for the disease.
    - III. Describe the epidemiology of the disease.
    - IV. Define the molecular defect of the disease, if known (e.g. type of mutation).
    - V. Explain how the functional defect contributes to the pathophysiology of the disease.
    - VI. Summarize how the functional defect produces adverse outcomes in other organ systems.
    - VII. Predict compounding or synergistic effects of other pathologies on the chosen pathology.

You will **submit one word file of your multiple-choice questions** (due at the time of the presentation) that will be uploaded to Moodle. Each question must be **mapped to one of the learning outcomes** above. You will submit a second word file that serves as the **key to the questions**.

Each student in the class will download the word file, answer the questions that you created, and turn in the questions to the instructor at the **beginning of the following class period**.

The instructor will record who has turned in questions and pass the questions back to the student who presented that topic.

The **student presenter will grade** the questions (including feedback) and return the grade to the instructor at the **beginning of the following class period**.

**Deadlines:** You must email a final draft of your presentation the week before you present. You will then have a week to look over, practice, and make MINOR changes to your presentation.

**You will present on dates that are randomly chosen (student presentations will occur after spring break).**

**Deadline Overview:** Each deadline must be met by the **beginning** of class or will be considered late.

<b>Topic DUE:</b>	Wednesday, January 10 Wednesday, February 28 (you will be given feedback by one week before you present)
<b>Written manuscript DUE:</b>	
<b>Presentation and multiple choice questions DUE:</b>	Week before you present (Case study presentations start March 12)
<b>Final presentation with no or minor revisions DUE:</b>	One day before you present

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### MLS 440 Presentation Rubric

	- 10 -	9 8 7	6 5 4	3 2 1
<b>Deadlines</b>	Presentation, MC questions/answers/grades were turned in on time and required no or minor revisions. MC questions are mapped to objectives.	Presentation was turned in on time and required no or minor revisions. MC questions on time, but answers, and mapping to objectives late.	Presentation was turned in on time but required significant revisions. Only some MC questions. Grades late. Mapping to objectives incomplete.	Presentation was turned in late or required major revisions. No or only some MC questions. Grades late. Mapping to objectives incomplete.
<b>Time-Limit</b>	Presentation is 10 -15 minutes long.	Presentation is too long or too short by 1-3 minutes.	Presentation is too long or too short by 4-6 minutes.	Presentation is too long or too short by 7-9 min.
<b>Quality of Presentation</b>	Followed guidelines for a quality appearance to the presentation on all slides	Most slides follow guidelines for a quality appearance	Some slides follow guidelines for a quality appearance	Presentation does not follow guidelines for a quality appearance
<b>Content</b>	Includes all criteria, explains completely. High degree of creativity w/ visuals and explanations.	Includes all criteria and explains each one. Some creativity noted.	Misses one criterion, explanation. Limited creativity demonstrated.	Misses more than one criterion, explanation. Limited/no creativity demonstrated.
<b>Prepared</b>	Provides expert analysis and insight regarding topic. Answers anticipated questions. Limited use of notes/slides. No typos.	Presenter is somewhat comfortable with topic. Some reliance on notes/slides. One typo.	Relied heavily on notes/slides. Not comfortable with all material. Two typos.	Not comfortable with the material. Only read from notes/slides. More than two typos.
<b>Posture and Eye Contact</b>	Stands up straight, relaxed, and confident. Establishes eye contact with everyone in the room. Facial expressions and body language generate a strong interest and enthusiasm in others.	Stands up straight and establishes eye contact with everyone in the room. Facial expressions and body language sometimes generate a strong interest and enthusiasm in others about the topic.	Sometimes stands up straight and establishes some eye contact. Facial expressions and body language are used to try to generate enthusiasm, but seem somewhat insincere.	Slouches and/or does not look at people during the presentation. Very little use of facial expressions or body language. Did not generate much interest in topic being presented
<b>Speech</b>	Speaks clearly and distinctly all (100-95%) the time and mispronounces no words. Volume is appropriate. Defines all new words.	Speaks clearly and distinctly all (100-95%) the time, but mispronounces one word. Volume is appropriate. Defines most new words.	Speaks clearly and distinctly most (94-85%) of the time. Mispronounces > one word. Volume is loud enough to be heard by audience > 75% of time.	Difficult to understand diction. Mispronounces more than one word. Does not define new words. Volume often too soft to be heard most of the time.
<b>Answers questions</b>	Thoughtfully answers and anticipates questions.	Answers questions. May not anticipate questions asked.	Attempts to answer questions. Does not anticipate questions.	Does not answer questions. Does not anticipate questions.
<b>Quality of Sources</b>	3 professional sources (including textbooks), one peer reviewed pub., later than 2012. Formatted correctly.	2 professional sources (including textbooks), one peer reviewed pub., later than 2012. One – two ref. formatted incorrectly.	1 professional source, one peer reviewed pub., later than 2012. More than 2 ref. formatted incorrectly.	1 or more unprofessional or inappropriate source(s), no peer reviewed source. Multiple ref. with wrong formatting.
<b>Multiple Choice Questions</b>	All questions are clearly written, encourage critical thinking, and represent 4 - 5 objectives. All questions clearly mapped to obj.	All questions are clearly written or encourage critical thinking. Represent 3 objectives and are clearly mapped.	Some questions are unclear, poorly written, or too easy/difficult. Some questions not multiple choice. Questions cover less than 3 objectives.	Questions do not relate to topic or do not follow objectives. None are multiple choice.

**MLS 440 Written Case Rubric**

CATEGORY	- 10 -	9 8 7	6 5 4	3 2 1
<b>Content and Development</b>	Professionally developed, and written. Content is accurate. Major points are stated clearly and are well supported. Content and purpose are clear.	Content is accurate. Major points are addressed, but not well supported. Content or purpose of writing is vague.	Content is poorly supported, unstated or unclear. Knowledge seems inadequate or does not address topic well. Content or purpose of writing is vague.	Content is not supported or major points are unclear.
<b>Grammar, Punctuation, Spelling</b>	Professionally executed including succinct medical terminology and professional tone. Grammar, punctuation, and spelling is correct. Language is clear and precise. Sentences display varied structure.	Assignment contains no more than three grammatical, punctuation, or spelling errors. Language is clear and precise.	Assignment contains more than four grammatical, punctuation or spelling errors. Language lacks clarity or includes the use of some jargon or conversational tone.	Assignment contains numerous grammatical, punctuation or spelling errors. Language uses jargon or conversational tone.
<b>Paper and Reference Format</b>	Follows all designated guidelines including page limits. Professional written style. All references formatted correctly.	Most references follow guidelines. Over or under by one page length.	Paper lacks an element of correct formatting. Over or under by two pages in length.	Paper lacks multiple elements of correct formatting. Over or under by three or more pages in length.
<b>Organization and Structure</b>	Structure is highly organized, suitable for professional level reader.	Structure of paragraph is clear and easy to follow. Paragraph transitions are good.	Paragraph structure is not easy to follow, paragraph transitions need improvement, and/or needs more information about the topic.	Organization and structure detract from the message of the writer. Paragraph is disjointed and lacks transition of thought.

**MLS 440 Class Participation Rubric**

CATEGORY	- 10 -	9 8 7	6 5 4	3 2 1
<b>Answering questions in class</b>	Thinks about question; tries to answer, is self-aware if answer is clear, may try again	Thinks about question; provides minimal answers,	Does not think about questions; provides minimal answers	Does not listen in class; Refuses to answer questions
<b>In-class contribution</b>	Adds to discussion often, brings up new and relevant topics, builds on and makes connections with other instructor comments and by fellow students	Adds to discussion occasionally, may build on instructor and fellow student comments	Inactive in class but may add to discussion if called on	Inactive in class, does not attempt to join discussion, is distracted or unresponsive
<b>Feedback for instructor</b>	Responds to instructor's points, asks when something isn't clear or comments when something is beneficial for student or class	Asks when something isn't clear; may speak up when relevant topic is raised on behalf of class	May speak up when something is unclear or when assignment deadline is looming	Is distracted or unresponsive, does not ask questions or ask for clarification

Written Case Comments/Scoring		
Content and Development		____/ 10
Grammar, Punctuation, Spelling		____/ 10
Paper and Reference Format		____/ 10
Organization and Structure		____/ 10
TOTAL		____/ 40

Presentation Comments/Scoring		
Deadlines		____/ 10
Time-Limit		____/ 10
Quality of Presentation		____/ 10
Content		____/ 10
Prepared		____/ 10
Posture and Eye Contact		____/ 10
Speech		____/ 10
Answers Questions		____/ 10
Quality of Sources		____/ 10
Multiple Choice Questions		____/ 10
TOTAL		____/ 100

Class Participation Comments/Scoring		
Answering questions in class		____/ 10
In-class contribution		____/ 10
Feedback for instructor		____/ 10
TOTAL		____/ 30