

## **CLS 465: Molecular Pathology**

**Instructor:** Michelle Shulfer  
**Office:** B-149, Science Bldg.  
**Phone:** 715-346-2780  
**E-mail:** [mshulfer@uwsp.edu](mailto:mshulfer@uwsp.edu)

### **COURSE DESCRIPTION:**

CLS 465: Molecular Pathology (3 cr.)

Students will study the composition, structure, function, and characteristics of DNA. Laboratory exercises use clinical laboratory techniques to isolate, amplify, manipulate, and analyze DNA sequences. Students will learn how the results relate to human health and disease states.

### **CORE ABILITIES:**

- Communicate Effectively ~verbally & in writing
- Think Critically
- Exercise Problem-Solving Skills
- Work Collaboratively in Diverse Teams
- Respect Cultural Diversity & Pluralism

### **COURSE LEARNING OUTCOMES**

*Students will be able to:*

1. Recall/recognize/discuss the structure, composition, function, and characteristics of DNA.
2. Discuss the principle of various molecular test methods.
3. Interpret DNA abnormalities in various diseases utilizing various test methods.
4. Utilize laboratory data to diagnose diseases/conditions involving human DNA.
5. Critically analyze laboratory data, correlate to disease processes and sources of error, and make an appropriate next step decision.

### **EXAMS & QUIZZES:**

1. Two lecture exams. Exams must be taken on the day scheduled unless prior arrangements have been made with the instructor or with appropriate proof for an excused absence. Make up exams must be taken within 48 hours of scheduled exam periods.
2. Comprehensive final exam will cover the lecture & lab material.
3. Quizzes will be used at the discretion of the instructor to assess the progression of learning.

### **GRADING SYSTEM:**

A	90-100%
B+	85-89%
B	80-84%
C+	75-79%
C	70-74%
D+	65-69%
D	60-64%
F	<60%

### **DERIVATION OF COURSE GRADES:**

Course grades will be based upon a percentage of total points consistent with the grading system listed above.

- Lecture: Attendance - 5 points per day, must attend both lab & lecture!  
Quizzes (Varied points, used at the discretion of the instructor)  
Exams and the comprehensive final
- Lab: Attendance (as stated above)  
Worksheets (as assigned)  
Quizzes (Varied points, used at the discretion of the instructor)  
Lab products – 7 points minimum for performing procedure, up to 3 points additional pending expected products produced

### **REQUIRED TEXTS:**

*Molecular Diagnostics: Fundamentals, Methods, & Clinical Applications, 2<sup>nd</sup> edition*  
Lela Buckingham

### **REFERENCE TEXTS:**

*Molecular Diagnostics For the Clinical Laboratorian*  
William B. Coleman & Gregory J. Tsongalis

*Molecular Pathology: Approaches to Diagnosing Human Disease in the Clinical Laboratory*  
Edited by Ruth A. Heim & Lawrence M. Silverman

*Principles of Molecular Virology, 3<sup>rd</sup> edition*  
Alan J. Cann

*DNA Science: A First Course 2<sup>nd</sup> edition*  
David A. Micklos & Greg A. Freyer

*Supplemental texts and journal articles will be provided as needed.*