

## **CLS 415: HEMATOLOGY**

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### **COURSE DESCRIPTION:**

CLS415: Hematology (4 cr.)

Study the hematopoietic system including the relationship of hematologic disease states to diagnostic characteristics; determine blood and bone marrow cellular morphology; discuss erythrocyte disorders and leukocyte disorders; study diagnostic techniques and correlate results to disease processes. 3 hrs lecture, 3 hrs lab per week.

### **PREREQUISITES:**

Biology 285

### **LEARNING OUTCOMES**

*Students will be able to:*

1. Describe and identify type and stage of development for all human blood cells.
2. Identify normal and abnormal morphological characteristics of blood cells in any stage of development.
3. Critically analyze abnormal laboratory data and correlate to hematological disease processes.
4. Distinguish abnormal values due to patient treatment for various disorders from abnormal values due to primary disorders of human blood cells.
5. Complete projects on time as a member of the class, as a member of a group, and as an individual.

### **COURSE OBJECTIVES**

Objectives are provided with each unit.

### **FORMAT:**

As a means of enhancing your learning experience, this course is organized in a hybrid format for both the lecture and laboratory components. Throughout the semester, you will have the opportunity to work individually and in groups to complete assignments, post your results, and respond to other groups. The process will provide experiences in critically analyzing laboratory data and correlating the data to disease processes.

## **ASSIGNMENTS:**

**Hematology Competencies:** Working in an assigned group, you will complete a series of objectives (competencies). Hospitals require that all students have a base knowledge of the various subjects before entry into the clinical experience. Group assignments will be posted to D2L, peers will then review and make suggestions on the content.

**Required Professional Activities:** As a professional, continuing education and membership in the professional organization are essential. It is highly recommended that you become a student member of the American Society for Clinical Laboratory Science (ASCLS) and American Society for Clinical Pathology (ASCP).

### **ASCLS/WISCLS Membership:**

A student membership in the national and state (and local) professional organization is expected of all CLS students. Application instructions will be emailed to you through the SHCP office.

### **ASCP Student Membership:**

There is no charge for student membership. You will be expected to submit the application for membership. Application instructions will be emailed to you through the SHCP office.

## **EXAMS/QUIZZES:**

1. Bi-weekly Quizzes will be given on Fridays – in the event of an excused absence, the student will have 72 hours to take the missed quiz. Failure to complete the quiz during this 72 hour period will result in a zero for the quiz grade. At the end of the semester, one (lowest) quiz grade will be dropped.
2. Comprehensive final exam

**Students must attain a minimum of 60% in lecture AND 60% in lab. Failure to achieve one or both of these minimums will result in a final course grade of “F”.**

## **ATTENDANCE:**

1. Attendance is mandatory in both lecture & lab. If your schedule takes you away, please ask a peer for notes or to record the lecture. There will be **no make-up labs**. If your schedule takes you away from your normal lab session, please attend another section the same week and notify the instructor of your plans to assure the proper number of unknowns.
2. Absences will be excused only with appropriate proof (i.e., note from a physician, funeral notice of an immediate family member, etc.).

## **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:**

Bi-weekly Quizzes = 50%

Final Examination = 20%

Laboratory = 30%

### **ACADEMIC MISCONDUCT: (*Dismissal from the Program*)**

You will maintain academic standards, ethics, and honesty, including UWSP, SHCP, and individual course standards. The following policy statement does not replace, but rather defines the SHCP cheating policy as it relates to all students in the programs. **SHCP faculty equate unethical and/or dishonest behavior as demonstration of the potential for harmful and life-threatening behavior in the clinical setting.** Therefore, **cheating in any of its forms will not be tolerated.** The following activities are specifically prohibited and will warrant a warning or reprimand, failure or reduction of your grade on an assignment or exam, probation, temporary or prolonged suspension, or permanent expulsion from the SHCP programs.

1. **Cheating** includes but is not limited to the following:
  - a. Copying from another student's test/quiz paper.
  - b. Copying from another student's assignment without faculty approval for collaboration.
  - c. Using materials, or inappropriate procedures during a test/quiz not authorized by the person giving the test/quiz.
  - d. Collaborating with any other person during a test/quiz without faculty approval for collaboration.
  - e. Knowingly obtaining, using, buying, selling, voluntarily revealing, transporting, or soliciting in whole or in part the contents of any test/quiz without authorization of appropriate official.
  - f. Bribing any other person to obtain a copy of a test/quiz.
  - g. Soliciting or receiving unauthorized information about any test/quiz.
  - h. Substituting for another student or permitting any other person to substitute for you in completing a test/quiz.
2. **Plagiarism** is the unacknowledged use of any other person or group's ideas or work. This includes purchased or borrowed papers.
3. **Collusion** is the unauthorized collaboration with another person in preparing assignments or projects in course work.
4. **Falsification** is the intentional and unauthorized altering or inventing of any information or citation in an academic exercise, activity, or record-keeping process.
5. **Giving, selling, or receiving unauthorized course or test information.**
6. **Using any unauthorized resource** or aid in the preparation or completion of any course work, exercise, or activity.
7. **Infringing on the copyright law of the United States** which prohibits the making of reproduction of copyrighted material except under certain specified conditions.
8. **Falsifying data** and submitting as true, authentic data.
9. **Altering test responses after the test is corrected** and stating that altered response was actually misread by the faculty or staff reviewing the test responses.

You are subject to cheating policies, codes, definitions, and sanctions established by the SHCP, the University of Wisconsin System, and the University of Wisconsin – Stevens Point. Please refer to the university handbook for details <http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/SRR-2010/rightsChap14.pdf>

Specific SHCP sanctions that typically apply to cheating during test-taking or to cheating on class assignments are listed below.

1. **Warning.** A warning will be issued if the incident cannot be verified beyond a reasonable doubt. A warning is a verbal or written notice to you that your conduct may be in violation of UWSP and/or SHCP's rules and regulations. Continuation of such conduct or actions may result in further disciplinary action.
2. **Grade Reduction.** Reduction by one full letter grade of your grade for the course (example B to C) will be implemented if you have previously committed no verifiable acts of cheating.
3. **Failure of course.** A failing grade for the course will be assigned if you have previously participated in at least one verifiable act of cheating.
4. **Dismissal from the Program.** Dismissal from the program will be implemented if:
  - a. you previously participated in more than one verifiable act of cheating.
  - b. you fail to meet time deadlines to correct deficiencies pursuant to academic probation matters.
  - c. you fail to attend a scheduled practicum.
  - d. you fail to successfully complete a practicum with minimum proficiency.
  - e. you fail to consistently follow guidelines for protection of self and others in matters regarding health and safety.

You are encouraged to consult with your instructor or advisor if you are having problems meeting program goals, objectives, or academic standards. The following provides a summary of the due process procedure which should be followed.

1. Schedule a conference with your clinical or academic instructor.
2. If unsatisfactory progress is made or no resolution can be reached, schedule a meeting with your director, program coordinator, or department chair for review and resolution of the matter.

**The following is from the SHCP Student Handbook** which may be found on the SHCP website <http://www.uwsp.edu/shcp/Documents/MT/Handbook.pdf>

### **General Student Expectations**

1. You are expected to complete lessons, assignments, quizzes, and exams according to the course schedule, syllabus and/or calendar. If an emergency or illness occurs that prevents you from accomplishing the above, it is **your responsibility to contact the instructor (in person, by telephone, voicemail or email) prior to the absence.**
2. It is your responsibility to read and obtain notes or course materials from other students. Each instructor reserves the right to determine how they will incorporate lessons, assignments, quizzes, and/or exams not completed into your final grade.
3. It will be the instructor's decision to allow or not allow make-up lessons, assignments, quizzes and/or exams.
4. Verification of your attendance in class will be accomplished by the completion of class assignments, participation evaluation and/or the taking of attendance. Class attendance records may be reviewed as part of determining the affective portion of your evaluation that counts toward determination of your grade by your instructor. If an absence is lengthy, the you may not receive credit and may be asked to repeat the course the next time it is offered.
5. **Cell phones must be turned off and stowed away during all lectures, quizzes, exams and laboratory experiences.**
6. The format for make-up exam/quiz may differ from the original exam delivered in class. It will be up to each instructor to determine the format used.

7. Use of any electronic devices is not allowed during any quiz or exam both in lecture and laboratory experiences (except approved calculators). Cell phones must be turned off and stowed in backpacks during exams/quizzes.
8. All backpacks, hats, water bottles, etc. must be placed in the front of the room before an exam/quiz. Only an approved calculator and 2 pencils will be allowed at the students' desk during an exam.

### **Professional Demeanor**

1. You will interact professionally with instructors and peers at all times. Courteous behavior and use of only appropriate language will be expected.
2. You will demonstrate appropriate professional demeanor by promptly and consistently attending all classroom and laboratory sessions.
3. You will follow all safety policies and other procedural guidelines consistent with OSHA and university requirements. Personal protective equipment must be worn at all times in the laboratory.
4. You will demonstrate appropriate professional demeanor by consistently remaining in the work area during scheduled lab times and completing all required work in a thorough manner.
5. You will demonstrate appropriate professional demeanor by adhering to the current dress and appearance codes while in the laboratory. Absolutely no open-toed shoes may be worn in the lab.
6. You will demonstrate a high degree of professional demeanor by consistently cleaning/disinfecting work areas when entering and leaving the laboratory and returning supplies to their original location at the beginning of the lab session.

### **Health Requirements**

#### **1. Hepatitis B Vaccination (HBV)**

The series of three injections for Hepatitis B immunization is strongly recommended for individuals at risk of exposure to blood or other potentially infectious materials. Documentation & proof of vaccination is required.

The Hepatitis B vaccination is a noninfectious yeast-based vaccine administered as a series of three injections. It is prepared from recombinant yeast cultures, rather than from human blood or plasma. Thus, there is no risk of contamination from other bloodborne pathogens nor is there any chance of developing HBV from the vaccine.

The second injection should be administered one month after the first and the third injection six months after the initial dose. More than 90% of those vaccinated will develop immunity to the Hepatitis B virus. To maximize development of immunity, it is important for individuals to receive all three injections. Currently, it is unclear how long the immunity lasts, so booster shots may be required at some time in the future.

The vaccine causes no harm to those who are already immune or to those who may be HBV carriers. Individuals may opt to have their blood tested for antibodies to determine the need for the vaccine. Anyone who declines vaccination must complete a declination form. This form will be kept on file. If an individual experiences an exposure incident (needle stick, blood splash in the eye, etc.), a confidential medical evaluation must be completed by a licensed health care professional. An appropriate follow-up procedure is also determined. The HBV and HIV status of the source individual is determined to the extent possible as provided by law. The health professional follows guidelines of the US Public Health Service in providing treatment. The health care professional must give a written opinion on whether or not HBV vaccination is recommended at this time and

whether the exposed individual received it. Medical records are confidential. HIV or HBV status must not be reported. The expense of vaccinations and titers is your responsibility.

## **2. Other Health Conditions**

Notify your laboratory course instructors if other medical/surgical conditions exist. The notification will serve in your best interest regarding potential health and safety issues. Program continuance and department expectations of you will remain the same. Medical information remains confidential.

### **REQUIRED TEXTS:**

Clinical Hematology and Fundamentals of Hemostasis 5<sup>th</sup> edition

Author: D. M. Harmening

The Pocket Guide to Hematology Morphology

F.A.Davis Publisher

### **REFERENCE TEXTS:**

Diagnostic Hematology

Author: Bernadette F. Rodak

Practical Microscopic Hematology: A Manual for the Clinical Laboratory and Clinical Practice

Authors: F. Heckner, H. P. Lehmann, and Y. S. Kao

Hematology: Basic Principles and Practices

Authors: R. Hoffman, E. J. Benz Jr., S. J. Shaattil, B. Furie, H. Cohen, and L. E. Silberstein

Practical Diagnosis of Hematologic Disorders

Authors: C. Kielsberg, K. Foucar, R. McKenna, S. Perkins, L. Peterson, P. Peterson, and G. Rodgers

Clinical Hematology: Principles, Procedures, and Correlations

Authors: C. A. Lotspeich-Steinenger, E. A. Stiene-Martin, and J. Koepke

Textbook of Hematology

Author: S. B. McKenzie

Clinical Hematology: Theories and Procedures

Author: M. L. Turgeon

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