DEPARTMENT OF ANIMAL HEALTH TECHNOLOGY

COURSE OUTLINE – Hematology AH 249

INSTRUCTOR: Dr. S. Klassen **PHONE:** 780-835
OFFICE: AS **E-MAIL:** @gprc.ab.ca

OFFICE HOURS: As posted

PREREQUISITE(S)/COREQUISITE:
Students must complete and pass AH141, AH172, AH173, & AH174.

REQUIRED TEXT/RESOURCE MATERIALS:
Hendrix, *Laboratory Procedures for Veterinary Technicians*, Mosby, 2007 , 5th Edition
Harvey, *Atlas of Veterinary Hematology*, Saunders, 2001

CALENDAR DESCRIPTION: Students are introduced to hematological procedures and will learn to identify normal blood parameters and cells. A review of the CBC in the lab and lecture will improve the student's ability to perform hematological tests. The student will learn to evaluate the erythron, leukon and hemostasis by recognizing and interpreting abnormal results and identifying possible causes of those results. Hemopoietic neoplasia is discussed. Case studies will be used extensively in presentation of course material.

CREDITS: 6
CONTACT HOURS: 96

DELIVERY MODE(S): Lecture, and Labs

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STUDENT EVALUATION: Confirmation of evaluation will be reviewed and dissucssed at the beginning of the class or session. [Subject to change at this time]

To pass this course, students must achieve a minimum grade of 60% on the final written and laboratory exam (applies to the supplemental written, as well) and a minimum overall grade of 60% in the entire course. Attendance will not be assigned a mark in this class, but if a student misses a class or a lab (including quizzes and exams), any assignments and/or quizzes and/or exams and/or handouts, whether scheduled or not, that occur or are distributed in the class or lab that was missed, will not be provided to the student or made up in any way. The student will be assigned a mark of zero for those assignments/exams/ etc. missed. IF the student contacts the instructor PRIOR to missing a class/lab/exam/etc., and if the student has an acceptable excuse (the validity of the excuse is at the discretion of the instructor and will require documentation such as a note from a doctor), the student may be excused without penalty and may be given access to the missed material. Overall excessive absence, coming to class late, or leaving during class, may result in mark deductions at the instructor's discretion. For further clarification on the attendance policy, see the AHT Program guidelines in the orientation booklet.

If the requirements to pass the course have not been met, a supplemental exam is available for the final written exam only, and only if the overall grade for the course is above 50%.

Absence from a laboratory will result in a mark of zero for any assignments or reports for that lab, and also in a deduction of 5% from the final mark for each lab missed unless the student contacts the instructor prior to the lab and the instructor deems the absence valid. Labs will not be made up later. Students must attend labs AS SCHEDULED unless prior arrangements with the instructor have been made. Without proper arrangements, students changing labs will be marked as absent. Marks will be deducted for inadequate clean-up in labs.

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GRADING CRITERIA:

	Mark Distribution
A. Quizzes	15%
B. Midterm Exam (written)	20%
C. Lab Reports & Assignments	10%
D. Final Exam (Lab)	15%
E. Final Exam (Written)	40%
	100%

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GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART			
Alpha Grade	**4-point Equivalent**	**Percentage Guidelines**	**Designation**
A+	**4.0**	**90 – 100**	**EXCELLENT**
A	**4.0**	**85 – 89**	
A–	**3.7**	**80 – 84**	**FIRST CLASS STANDING**
B+	**3.3**	**77 – 79**	
B	**3.0**	**73 – 76**	**GOOD**
B–	**2.7**	**70 – 72**	
C+	**2.3**	**67 – 69**	**SATISFACTORY**
C	**2.0**	**63 – 66**	
C–	**1.7**	**60 – 62**	**MINIMAL PASS***
F	**1.3**	**55 – 59**	**FAIL**
	1.0	**50 – 54**	
	0.0	**0 – 49**	
WF	**0.0**	**0**	**FAIL, withdrawal after the deadline**

*overall grade average has to be 2.0 or higher to be successful in the program.

TRANSFERABILITY:

**** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with severely.

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EXAMINATIONS:

Schedule of examinations will be posted. Any communication devices are not allowed in the classroom during the exam.

All quizzes and exams are to be written in black or blue pen. All corrections are to be done with medical corrections. Any unreadable writing will be marked incorrect. Spelling does count.

STUDENT RESPONSIBILITIES: Enrollment at the Grand Prairie Regional College-Fairview assumes that the student will become a responsible citizen of the College. As such, each student will display a positive work ethic, take pride in and assist in the maintenance and preservation of College property, and assume responsibility for his/her education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting instructor expectations concerning attendance, assignments, deadlines, and appointments.

OBJECTIVES

Introduction

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1. Upon successful completion of this Learning Outcome Guide, you will be able to explain and discuss the composition and functions of blood.

a. define hematology and hemopoiesis
b. describe the functions of blood
c. differentiate between plasma and serum
d. describe the cellular components of blood
e. state the alternate names of the cells

The Erythrocyte (Red Blood Cell)

Upon successful completion of this Learning Outcome Guide, you will be able to describe and discuss the erythrocyte (Red Blood Cell)

1. define and discuss the morphology, physiology and breakdown products of the erythrocyte.
2. discuss the functions of the erythrocyte
3. describe and explain in detail erythropoiesis, regulation of, along with hormones and essential materials involved
4. describe and explain the steps of the erythrocyte maturation along with the names of the cells
5. discuss the features of a polychromatophil/reticulocyte and note the differences when stained with a Wright stain and the New Methylene Blue stain. Note what animal doesn't release these cells into circulation
6. discuss and apply the terms discussed in this unit that relate to normal and abnormal Red Blood Cell morphology
7. discuss and apply in detail, the morphology of the RBC in the canine, feline, equine, porcine, bovine and birds
8. discuss in detail, the factors that affect the RBC count
9. state and define the names of the three methods discussed that are used to evaluate the numbers of erythrocytes in a blood sample

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10. describe and explain the significance of packed cell volume along with what factors have an effect PCV
11. list and explain the three different layers in a sample after it has been centrifuged
12. explain and discuss the methods of hemoglobin determination
13. discuss two abnormal types of hemoglobin

The Leukocyte (White Blood Cell)

Upon successful completion of this Learning Outcome Guide, you will be able to define and discuss the leukocyte (White Blood Cell)

1. define leukon (white blood cell)
2. discuss the two groups of leukocytes
3. state which group the leukocytes fall into
4. discuss in detail the different stages of granulocyte development and the changes that occur to the nucleus and the cytoplasm of the developing granulocyte
5. list and describe the three stages of monocyte development
6. define macrophages
7. list and describe the three stages of lymphocyte development
8. describe and illustrate in detail the morphology and function of each white blood cell
9. discuss in detail the different types of lymphocytes
10. state and define a heterophil
11. define the terms used in this unit
12. discuss the different methods of counting white blood cells
13. discuss the factors that can affect the leukocyte count

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The Thrombocyte (Platelet)

Upon successful completion of this Learning Outcome Guide, you will be able to explain and discuss the knowledge obtained regarding the platelet (thrombocyte).

1. define and identify a thrombocyte (platelet)
2. discuss and apply the morphological characteristics of the platelet
3. state what hormone regulates the development of the platelet
4. state how damaged or old platelets are removed from circulation
5. discuss the functions of the platelets
6. define hemostasis
7. define thrombocytopenia and thrombocytosis

Hematological Samples

Upon successful completion of this Learning Outcome Guide, you will be able to discuss and apply the knowledge acquired regarding obtaining, processing and storing hematological samples.

1. outline the procedure for collection of blood samples
2. describe and apply the labeling of blood vials
3. discuss the anticoagulants covered in this module
4. discuss in detail the processing and storage of the blood sample
5. discuss and apply the procedure on obtaining a plasma and serum sample
6. discuss the protocol in mailing away samples to a diagnostic laboratory
7. discuss what tests are included in the CBC (Complete Blood Count)

Erythrocyte Abnormalities

Upon successful completion of this Learning Outcome Guide, you will be able to describe and discuss normal and abnormal erythrocyte morphology and diseases and conditions involving red blood cells.

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Leukocyte Abnormalities

Upon successful completion of this Learning Outcome Guide, you will be able to describe and discuss normal and abnormal leukocytes and evaluate leukograms to identify common disorders and diseases involving white blood cells.

Hemostasis

Upon successful completion of this Learning Outcome Guide, you will be able to describe and discuss the mechanisms and defects of hemostasis (coagulation).

Hemopoietic Neoplasm

Upon successful completion of this Learning Outcome Guide, you will be able to describe and discuss hemopoietic neoplasms.

Hematology Laboratory

Upon successful completion of this Learning Outcome Guide, you will be able to demonstrate and explain the procedure for and the outcome of a complete blood count and other laboratory tests used on blood from normal and abnormal animals, and identify and explain the abnormal results of these tests.

*overall gradepoint average has to be 2.0 or higher to be successful in the AHT program.

Created by: <Instructor Name> Date: Signature:

Approved by: Trisha Holubowich Date: Signature:

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