

# VM4113: CLINICAL PATHOLOGY

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## Effective Term

Semester B 2025/26

## Part I Course Overview

### Course Title

Clinical Pathology

### Subject Code

VM - Jockey Club College of Veterinary Medicine and Life Sciences

### Course Number

4113

### Academic Unit

Veterinary Clinical Sciences (VCS)

### College/School

Jockey Club College of Veterinary Medicine and Life Sciences (VM)

### Course Duration

One Semester

### Credit Units

2

### Level

B1, B2, B3, B4 - Bachelor's Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

Completion of Year 3 courses with C grade or above

### Precursors

Nil

### Equivalent Courses

Nil

### Exclusive Courses

Nil

## Part II Course Details

### Abstract

Clinical pathology is a fundamental science which will be utilized throughout the career of veterinarians and forms part of the day one competencies for completion of the Bachelor of Veterinary Medicine offered at CityUHK. This course will

provide a solid platform of scientific knowledge in the field of clinical pathology, which includes collection of biological specimens (body fluids and fine needle aspirates), analytic processes, haematology, urinalysis, cytology, effusions and biochemistry. Knowledge has an emphasis on pathogenesis of disease, focusing on diseases of mammals. Students will perform basic, common tests used in clinical practice and will review and interpret clinical data which will cement learning of course intended learning outcomes. Biological material used in this course consists mainly of surplus body fluids submitted to CityUHK's Veterinary Diagnostic Laboratory (de-identified to maintain client confidentiality), with additional donated specimens from surplus material from relevant stakeholders, as well as fresh tissues purchased from wet markets.

### Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Identify and describe the pathogenic mechanisms of various diseases which create measurable/detectable abnormalities in a range of body fluids and tissues.		x	x	x
2	Demonstrate collection of biological specimens and creation of preparations for analysis from blood, urine, body fluids, tissues and effusions. Understand common errors and techniques to avoid damage to samples and preparation of non-diagnostic samples.		x	x	x
3	Perform laboratory analyses that are commonly performed within a veterinary practice on biological samples including blood, urine, body fluids and effusions. Identify processing errors and discuss their cause.		x	x	x
4	Interpret data from a range of analyzed biological samples using associated clinical case material, in order to diagnose disease conditions in mammals.		x	x	x
5	Practice required health and safety procedures, including use of appropriate personal protective equipment and handling of biological materials.		x	x	x

#### A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

#### A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

#### A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

### Learning and Teaching Activities (LTAs)

LTAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures	Students will engage in formal lectures which will provide an overview of haematology, biochemistry, urinalysis, body effusions and cytology principles in common, domestic mammals.	1, 2, 4	14 hours in total
2	Wet practicals*	Students will participate in group practical activities where students will create blood smears, perform packed cell volume and total protein measurements, perform urinalysis, process and interpret body effusions and aspirate wet tissues to make cytology samples. Students are required to practice good laboratory technique and apply suitable PPE.	2, 3, 5	6 hours in total
3	Team Based Learning*	Students will engage in group activities where students will review and discuss clinical cases.	1, 4	6 hours in total

#### Additional Information for LTAs

\* These are participation and engagement-required TLA sessions. Students can be absent from no more than one of these sessions per course per semester. Additional absence will constitute a course failure.

#### Assessment Tasks / Activities (ATs)

ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1 Participation in wet practicals and Team-Based Learning (TBL) #	1, 2, 3, 4, 5	10	MUST PASS  Participation will be assessed. Rubric used to allocate a grade.	No
2 Mid-Term Examination (0.5 hour)	1, 2, 3, 4	30	MUST PASS	No

3	Final Examination (1 hour)	1, 2, 3, 4	0	Weighting: 60%  Demonstrate sound knowledge and understanding in the pathogenesis of diseases in terms of hematology, biochemistry, urinalysis, body effusions and cytology.	No
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**Continuous Assessment (%)**

40

**Examination (%)**

60

**Examination Duration (Hours)**

1

**Additional Information for ATs**

# MUST PASS: &gt; OR equal to 50% needs to be achieved for this component; &lt; 50% is a fail of the course

**Assessment Rubrics (AR)****Assessment Task**

Examination

**Criterion**

Ability to explain the pathogenesis of disease, explain collection and processing techniques of biological specimens, and interpret biologically generated data to formulate differential diagnoses.

**Excellent (A+, A, A-)**

Will exhibit high competency in;

- describing disease pathogenesis
- explaining collection and processing techniques of biological specimens
- interpreting biologically generated data to formulate differential diagnoses.

**Good (B+, B, B-)**

Will exhibit good competency in;

- describing disease pathogenesis
- explaining collection and processing techniques of biological specimens
- interpreting biologically generated data to formulate differential diagnoses.

**Fair (C+, C, C-)**

(For C+, C) Will exhibit basic competency in;

- describing disease pathogenesis
- explaining collection and processing techniques of biological specimens
- Interpreting biologically generated data to formulate differential diagnoses.

See additional information for AR regarding mark range below, as in the BVM programme only C+ and C grades are awarded.

### **Marginal (D)**

Not applicable for the BVM programme

### **Failure (F)**

Will exhibit lack of competency in;

- describing disease pathogenesis
- explaining collection and processing techniques of biological specimens
- interpreting biologically generated data to formulate differential diagnoses.

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### **Additional Information for AR**

#### **Rubric for participation in wet practicals and Team Based Learning (TBL) activities**

A maximum of 30 marks will be awarded, according to the rubric below (6 criteria; each having a maximum mark of 5: so 6 x 5 = 30. 30 will be converted to a mark out of 10; which will represent 10% of the total course grade).

Failing mark for wet practicals and TBL: obtaining a score of **less than** 15/30 (or less than 5% of the total subject grade) for practicals and TBL, according to the supplied rubric, will constitute a fail for the course.

For each 6 criteria included in the rubric below, the number of marks allocated will be as follows:

- Excellent: 5 marks
- Good: 4 marks
- Fair: 3 marks
- Inadequate: 2 marks
- No attempt / Actively Harmful: 0 marks

#### **Criterion: 1. Engagement**

**Excellent:** Fully engaged with teaching and learning activity, participates with commitment and focus.

**Good:** Usually engaged with teaching and learning activity, participates with commitment and focus.

**Fair:** Variably engaged with teaching and learning activity, lapses in participation.

**Inadequate:** Rarely engaged with teaching and learning activity, participates only when told to.

**No attempt / Actively harmful:** No attempt to participate. No acceptable reason for not participating. (Note that simply attending does not equal participation)

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#### **Criterion: 2. Initiative**

**Excellent:** Frequently volunteers for tasks and initiates discussion.

**Good:** Often volunteers for tasks and initiates discussion.

**Fair:** Occasionally volunteers for tasks and initiates discussion.

**Inadequate:** Rarely volunteers for tasks or initiates discussion.

**No attempt / Actively harmful:** Never volunteers or initiates discussion.

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#### **Criterion: 3. Getting help and giving assistance**

**Excellent:** Consistently asks for help when stuck, checks in with other participants, encourages others, helps resolve misunderstandings in a constructive manner.

**Good:** Usually asks for help when stuck, checks in with other participants, encourages others, helps resolve misunderstandings in a constructive manner.

**Fair:** Sometimes asks for help when stuck, checks in with other participants, encourages others, helps resolve misunderstandings in a constructive manner.

**Inadequate:** Limited engagement with participants and collective activities during the tutorials.

**No attempt / Actively harmful:** Disruptive to tutorial process.

**Criterion:** 4. Team tasks and role sharing

**Excellent:** Always works together with the group using a variety of resources to complete tasks.

**Good:** Usually works together with the group using a variety of resources to complete tasks.

**Fair:** Partial engagement with the group using a variety of resources to complete tasks.

**Inadequate:** Reluctant to assist others and resists taking team roles when nominated.

**No attempt / Actively harmful:** Offensive, abusive behaviour, bullying towards other students and/or the tutor.

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**Criterion:** 5. Paying attention and contributing insights

**Excellent:** Pays respectful attention to the group discussion and offers insight and suggestions that advance the group's learning using clear and non-confusing communication.

**Good:** Usually follows the group discussion and occasionally offers insight and suggestions that advance the group's learning using clear and non-confusing communication.

**Fair:** Variably attentive to the group discussion and offers few insights and suggestions that advance the group's learning using unclear communication.

**Inadequate:** Rarely offers insight or suggestions and is often detached from the group discussion offering irrelevant or confusing information.

**No attempt / Actively harmful:** Refusal or failure to respond to requests for group interaction, uncommunicative or hostile.

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**Criterion:** 6. Punctuality

**Excellent:** Arrives on time to all sessions.

**Good:** Arrives on time to all but one sessions of a case; if late keeps group updated with progress before arriving.

**Fair:** Arrives on time to all but one session of a case, no communication with group.

**Inadequate:** Arrives on time to only one session of a case.

**No attempt / Actively harmful:** Late arrival to all sessions of a case.

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**Mark Range**

The following is the mark range for each letter grade that must be used for assessment of any examinations or coursework of BVM courses (VM- and GE-coded) offered by PH and VCS:

A+:  $\geq 92\%$

A:  $\geq 87-91.99\%$

A-:  $\geq 82-86.99\%$

B+:  $\geq 75-81.99\%$

B:  $\geq 68-74.99\%$

B-:  $\geq 61-67.99\%$

C+:  $\geq 54-60.99\%$

C:  $\geq 50-53.99\%$

F:  $< 50\%$

## Part III Other Information

### Keyword Syllabus

Haematology, blood tubes, analytic processes, biochemistry, packed cell volume, total protein, urinalysis, effusions, cytology, mammals, birds, disease pathogenesis, differential diagnosis, clinical diagnosis, definitive diagnosis, sample collection, personal protective equipment, good laboratory skills.

**Reading List****Compulsory Readings**

Title	
1	Notes and learning materials are provided by the lecturer.

**Additional Readings**

Title	
1	eClinPath website: <a href="https://eclinpath.com/">https://eclinpath.com/</a>
2	Veterinary hematology and clinical chemistry (2012). 2nd edition, Thrall, Weiser, Allison and Campbell. Wiley-Blackwell.
3	Fundamentals of Veterinary Clinical Pathology (2008). 2nd edition. Stockham and Scott. Blackwell publishing.
4	Diagnostic cytology and haematology of the Dog and Cat (2019). Valenciano AC and Cowell RL. 5th edition. Elsevier