VM2106: AQUACULTURE AND AQUATIC ANIMAL HEALTH

Effective Term
Semester A 2025/26

Part I Course Overview

Course Title
Aquaculture and Aquatic Animal Health

Subject Code
VM - Jockey Club College of Veterinary Medicine and Life Sciences
Course Number
2106

Academic Unit
Infectious Diseases and Public Health (PH)

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

Course Duration
One Semester

Credit Units
3

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

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Completion of Year 1 courses with C grade or above

Precursors
None

Equivalent Courses
GE2341 : Freshwater Aquaculture and Aquatic Animal Health

Exclusive Courses
None

Part II Course Details

Abstract

The Aquaculture and Aquatic Animal Health course focuses on aquaculture of food and ornamental fish and the primary health issues facing these industries. We will cover the main species used for ornamental and food production aquaculture, as well as the husbandry requirements of these species. We will also discuss the clinical presentation for health issues in fresh and saltwater aquaculture, as well as methods of diagnosing these conditions. Lastly, we will review important water quality parameters for different species and environmental issues facing aquaculture industries. This course considers a number of the key disciplines including husbandry, disease management, nutrition, and reproduction. Upon completion of the course, students will have an understanding of husbandry requirements of ornamental and food fish aquaculture species, and the primary health issues facing these industries.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Describe the key industry sectors, environmental needs, and husbandry practices associated with the captive maintenance of aquatic animals (e.g., aquaculture, ornamental pet trade, public aquaria exhibits)		x		
2	Identify environmental conditions and pathogens that cause diseases in freshwater aquatic animals and recommend appropriate mitigation strategies for aquatic health		x		
3	Evaluate water samples and identify issues with water quality parameters in aquaculture systems			x	
4	Conduct diagnostic tests and post mortems on aquatic animals, interpret results and describe normal and abnormal conditions in key aquatic animal species			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 lectures that will provide fundamental concepts and principles of freshwater and marine aquaculture systems and health issues faced by these industries.	1, 2, 3	2 hr/wk

2	Laboratory-based practical sessions	Students will be provided with laboratory practical sessions with opportunities to understand, perform and report different sampling for freshwater quality parameters and identification of freshwater fish pathogens.	1, 3, 4	4 hours every fourth week

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Midterm test	1, 2, 3, 4	30	-	No
2	Assignment	1, 3, 4	30	-	No

Continuous Assessment (%)

60

Examination (%)

40

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

Midterm and final Examination

Criterion

Students should have obtained and be able to communicate in written formats knowledge of the material covered in the classroom and the laboratory sessions on aquaculture and aquatic animal health issues.

Excellent (A+, A, A-)

Students achieve 82% or greater on the examination of the class and laboratory material.

Good (B+, B, B-)

Students achieve 61% or greater on the examination of the class and laboratory material.

Fair (C+, C, C-)

For C+ and C, students achieve 50% or greater on the examination of the class and laboratory material (C letter grade is at least 50% or greater). 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)

Students achieve less than 50% on the examination of the class and laboratory material.

Assessment Task

Assignment

Criterion

Students should be able to critically work through a fish disease-related case, evaluate literature on the topic, and present the case to their peers.

Excellent (A+, A, A-)

The student demonstrates excellent synthesis skills in assessing a fish health case by applying a critical, comprehensive analysis of literature from trusted sources. They complete a clearly written, grammatically correct assignment without any errors. They delivered a clear and professional oral presentation to the class.

Good (B+, B, B-)

The student demonstrates good synthesis skills in assessing a fish health case by applying a comprehensive literature review from trusted sources. They complete a clearly written assignment with only minor grammatical and content errors. They delivered a clear and effective oral presentation to the class with only a few minor mistakes.

Fair (C+, C, C-)

The student demonstrates some ability to synthesize a fish health case by applying a comprehensive literature review. They complete a written assignment but there are several grammatical and content errors. They present the case to the class but the presentation has errors and is not professional (choice of words, scope and relevance, etc). 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)

Students fail to complete the assignment. They cannot accurately describe and work through relevant information related to the task. They cannot communicate ideas to their peers, and may show substantial evidence of plagiarized content.

Additional Information for AR

Mark Range

The following is the mark range for each letter grade that must be used for assessment of courses offered by the PH and VCS Department of JCC (including Gateway Education (GE) courses)

Letter Grade	Mark Range	Letter Grade	Mark Range
A+	≥92%	C+	54-60.99%
A	87-91.99%	C	50-53.99%
A-	82-86.99%	F	<50%
B+	75-81.99%		
B	68-74.99%		
B-	61-67.99%		

Part III Other Information

Keyword Syllabus

aquatic animals, aquaculture, food fish, ornamental fish, infectious diseases, non-infectious diseases, water quality

Reading List

Compulsory Readings

	Title
1	Selected reading material on warm water aquaculture systems assigned during the course

Additional Readings

	Title
1	Holmes K. and Pitham T. 2011. Manual of Koi Health 2nd. Firefly Books Inc. Buffalo, NY.
2	Stoskopf, MK. Fish Medicine. 1993. WB Saunders Company, Philadelphia, Pennsylvania.
3	Leatherland, J. F., Woo, P. T. K., & Bruno, D. W. 1995. Fish diseases and disorders (V1-3).Wallingford, Oxon, UK: CABI Pub.
4	Lucas, JS. And Southgate, PC. 2012. Aquaculture arming aquatic animals and plants 2nd ed. 2012. Wiley-Blackwell, John Wiley and Sons Ltd., West Sussex, UK.
5	Noga, E, J., 2014. Fish Disease Diagnosis and Treatment 2nd ed. Wiley Blackwell, Daryaganj, New Delhi.