VETERINARY BIOSCIENCE COURSE MODULES (YEAR 3)

Do you love animals and care for their welfare? Keen to work with animals in the future? Our Diploma in Veterinary Bioscience [VBS] will teach you how to care for, handle and manage various animals, ranging from laboratory animals to pets. You will be trained to assist veterinarians in a clinical setting, as well as learn about the importance of animal models in the search for new drugs and vaccines. You will also get a head start in a career in biomedical research.

In your first year, you will learn about the maintenance and well-being of animals through modules such as Animal Anatomy & Physiology, Animal Nutrition and Animal Welfare, Behaviour & Handling. Modules such as Wildlife Conservation & Biodiversity will give you an understanding of animals in their natural habitats.

You will learn about the importance of the animal immune system in the prevention of infection, as well as the clinical diagnosis and treatment of animal diseases in your second year. The role of genes in animal health will be covered through modules such as Animal Developmental Biology & Genetics.

In your final year, you will carry out a research project and undertake a four-month internship either locally or abroad, where you could be attached to research laboratories, veterinary clinics or animal theme parks such as the Singapore Zoo and River Safari.

LEVEL 3.1

Animal Genomics & Proteomics

This module provides current information on a range of topics, including animal genome projects, transgenic animals and cloning, and ethical issues involved in the genetic engineering of animals. Application of genomics & proteomics to the study of animal disease, reproduction & breeding will also be discussed. The practical component covers gene and protein expression, with an emphasis on protein identification and separation strategies.

Animal Husbandry & Breeding

This module introduces students to the field of good animal husbandry management and breeding. Students will learn how to take proper care of farm and pet animals. Students will acquire knowledge and skills on animal husbandry and understand the role of animals and the impact of animal health in the economy. This module covers the essentials of farming practice, particularly the breeding and raising of livestock. The impact of genetics on breeding and the selection of desirable heritable traits will be discussed. Techniques which are used to improve herd genetics, such as artificial insemination and embryo transfer, will also be discussed.

Preclinical & Clinical Trials

This module introduces students to the various stages in biomedical research, ranging from preclinical to clinical trials. Students will be introduced to various important government authorities that are involved in the approval and establishment of both scientific and ethical guidelines pertaining to biomedical research.

Project A

In Project A, students will work on a research project in groups of two or three in an area that is of interest to them, under the supervision of a staff member. Students will commence Project A by attending a series of lectures covering aspects such as writing a literature review, basic laboratory safety, project management and statistical analysis of data, which is then followed by practical work in the laboratory.

Project ID: Connecting the Dots^

This module aims to prepare students for an increasingly globalized and interconnected world where problems are multi-faceted and require interdisciplinary research and collaboration to solve. Using a project-based learning approach, students will have the opportunity to work in a multi-disciplinary team to investigate and propose comprehensive recommendations for a pressing real-world problem affecting Singapore. They will be guided to step out of their disciplinary silos and effectively communicate and collaborate with peers from different backgrounds. Ultimately, the module seeks to develop independent learning skills and the ability to synthesize diverse strands of knowledge to solve a complex problem, while impressing on students the importance of being a responsible global citizen.

LEVEL 3.2

4-Month Internship

Students will undertake a four-month internship, which gives them opportunities to relate and apply the knowledge acquired in classrooms to work situations and in research. Students will be attached to local research institutes and

companies in various industries (such as veterinary clinics and hospitals, animal theme parks, animal breeding facilities, biomedical science research laboratories, and veterinary regulatory bodies). Students will also have the opportunity to go on overseas internships.

Project B

In Project B, students will continue to work on their research project in the laboratory. Upon completion of their project, students will submit a written scientific report and present their findings by giving an oral PowerPoint presentation and a scientific poster presentation.

COURSE CURRICULUM (YEAR 3)

Module Name	Credit Units
YEAR 3	
Level 3.1 (24.5 hours per week)	
Animal Genomics & Proteomics	6
Animal Husbandry & Breeding	4
Preclinical & Clinical Trials	2.5
Project A	8
Project ID: Connecting the Dots ^	4
Level 3.2 (24 hours per week)	
4-Month Internship	16
Project B	8

Notes:

^ For more details on Interdisciplinary Studies (IS) electives, please log on to www.np.edu.sg/is/

IS Modules

The School of Interdisciplinary Studies (IS) delivers a broad-based curriculum, which nurtures a new generation of professionals with multidisciplinary skills and an innovative and entrepreneurial spirit to meet the challenges of a knowledge economy. IS offers both prescribed modules and electives to challenge boundaries. Prescribed modules develop students' competencies in core areas such as Communication, Innovation and Enterprise, Culture and Communication, and Personal Mastery and Development, while elective modules provide insights into Arts and Humanities, Business, Design, and Science and Technology.