DIPLOMA IN VETERINARY TECHNOLOGY (T45)

Course Overview

Achieve your lifelong dream of working with animals. Delve into the only polytechnic course that offers veterinary science and technology, aquatic animal and pet care, and animal model studies. Here, you will get a head start by assisting real-life surgeries and treatments at our licenced TP Animal Clinic. Through our unique collaboration with veterinary clinics, you'll be clinically trained in all aspects of veterinary practice and support.

What more—your technical competency is further honed through our internships locally or abroad in research institutions, aquaculture and marine animal parks or veterinary hospitals and clinics. Get ready to graduate as a technically competent veterinary or animal technologist!

Entry Requirements

To be eligible for consideration for admission, applicants must obtain 26 points or better for the net ELR2B2 aggregate score (i.e. English Language, 2 relevant subjects and best 2 other subjects, including CCA Bonus Points) and meet the minimum entry requirements of this course. CCA cannot be used to meet the minimum entry requirements.

Subject	Grade
English Language (EL1)*	1-7
Mathematics (E or A)	1-6
One of the following Science subjects: • Biology • Biotechnology • Chemistry • Combined Science • Food & Nutrition • Physics/Engineering Science • Science (Chemistry, Biology) • Science (Physics, Biology) • Science (Physics, Chemistry)/Physical Science	1-6

Any two other subjects, excluding CCA	
2021 Planned Intake	**65**
Net ELR2B2 aggregate range (2021 JAE)	**3 - 10**

Note: *Applicants with complete colour appreciation deficiency are not eligible to apply.*

See also the minimum entry requirements for:

- International Students

What You'll Learn

YEAR

Build your foundation in the basic sciences and learn on the go with interesting field studies and community service projects designed to enhance your learning.

TP Fundamentals (TPFun) Subjects —

Subject Code	Subject	Credit Units
ACS1005	**Communication & Information Literacy** In this subject, you will learn how to conduct research for relevant information and validate information sources. You will also learn to recognise and avoid plagiarism, and follow standard citation and referencing guidelines when presenting information. In the course of learning, you will be required to plan, prepare and present information appropriately in written and oral form. You will also be taught to consider the **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) when writing and delivering oral presentations.	**2**
ACS1007	**Persuasive Communication** In this subject, you will be taught how to use persuasive language in written documents. You will be required to use information to your advantage to verbally communicate and convince an audience about your idea, product or service. Skills such as persuasive vocabulary, language features, graphical illustrations, tone and style would also be covered. The **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) will also be applied when engaging in verbal and written communication.	**2**
GCC1001	**Current Issues & Critical Thinking** This subject presents you with a panoramic view of current local and global issues, which may have long term implications for Singapore. You will learn to apply critical thinking tools to examine current issues, support your views with relevant research and up-to-date data, articulate an informed opinion and mature as civic-minded individuals.	**2**

^	**LEA1011**	**Leadership: Essential Attributes & Practice 1** LEAP 1, 2 and 3 are three fundamental subjects that seek to cultivate in you, the attitude, skills and knowledge for the development of your leadership competencies. This character-based leadership programme enables you to develop your life-skills through establishing personal core values, which will become the foundation for your leadership credibility and influence.	**1**	^
^	**LSW1002**	**Sports & Wellness** This subject will help you develop both the physical and technical skills in your chosen sports or fitness activities. Through a structured curriculum that facilitates group participation, practice sessions and mini competitions, you will learn to build lifelong skills such as resilience, leadership, communication and teamwork. Physical activity sessions will be supplemented by health-related topics to provide you with a holistic approach to healthy living.	**2**	^
^	**MCR1001**	**Career Readiness 1** This Career Readiness programme comprises three core subjects - Personal Management, Career Preparation and Career Management. It seeks to help you understand your career interests, values, personality and skills for career success. It also equips you with the necessary skills for seeking and securing jobs, and to develop professional work ethics.	**1**	^
^	**AGS1002**	**Global Studies** This subject provides essential skills and knowledge to prepare you for an overseas experience. You will examine the elements of culture and learn the key principles of cross-cultural communication. In addition, you will gain an appreciation and awareness of the political, economic, technological and social landscape to function effectively in a global environment.	**3**	^

Core Subjects —

	Subject Code	Subject	Credit Units	
^	**AMB1004**	**Basic Microbiology** This subject investigates the important fundamentals of microbiology and its relevance to the food, biomedical and biotechnology industries. It covers the types of microorganisms, their cultivation and growth as well as their control.	**3**	^
^	**AMT1001**	**Biochemistry** This subject introduces the fundamentals of organic chemistry and the essential biomolecules present in biological systems. The structures and properties of biomolecules, as well as the basic concepts of bioenergetics will also be introduced to illustrate how these interactions lead to metabolism.	**5**	^

	ACH1009	**Principles of Inorganic and Physical Chemistry 1** This subject covers the basic theory and practical knowledge of inorganic and physical chemistry. Topics include fundamentals of chemistry, atomic structure and chemical bonding, stoichiometry and equilibria concepts of a chemical reaction.	**4**	
	AMA1004	**Statistics for Applied Science** This subject provides you with the basic statistical techniques that are essential for your course of study. Topics covered include basic probability and distributions, basic statistics, sampling distribution, hypothesis testing, analysis of variance and chi-square testing.	**3**	
	AVT1010	**Animal Ecology and Conservation** This subject covers the principles of ecology as well as ecosystems and the study of plant and animal distributions including their interactions with one another and their environment. Theoretical and practical skills used in the study of conservation biology in relation to nature and marine conservation would also be covered.	**2**	
	AVT1006	**Animal Anatomy and Physiology** This subject covers an introduction to veterinary anatomy related to systematic, applied and comparative anatomy. It also covers veterinary physiology in relation to anatomy, using the basic principle of form and function, to explain the functions of the various organ systems.	**4**	
	AVT1007	**Animal Nutrition, Feeds & Feeding** This subject focuses on concepts and principles of nutritional requirements for both aquatic and selected domestic animals. Students would also learn formulation techniques, principle of feed processing technology, feed ingredients and feed additives for application in growth and development, health, physical performance and appearance.	**4**	
	ABT1001	**Cell Biology** This subject covers the biology of cells of higher organisms, including structure-function relationships of cellular membranes and internal organelles, cell cycle and nuclear division, transport mechanisms and cell communication, cell motility and the cytoskeleton and cell death. Basic laboratory skills involving the study of cell structures with the use of cell staining techniques and microscopy will also be introduced in this subject.	**4**	

AVT1009	**Animal Care, Husbandry & Behaviour** This subject focuses on animal welfare and care of companion animals and selected animals. Care for the young and senior animals would be covered. Handling techniques with basic understanding of animal behaviour under normal conditions and stress would also be emphasised as part of animal care and behavioural management.	3	

** Students must choose to take either one of these three subjects or TGL1001 Guided Learning.*

YEAR 2

Strengthen your knowledge of the key concepts and build skills in the diploma-specialised content during your second year. You can dabble in a variety of subjects in aqutic and veterinary studies to discover your passions.

TP Fundamentals (TPFun) Subjects

Subject Code	Subject	Credit Units	
ACS1006	**Workplace Communication** In this subject, you will be taught how to conduct effective meetings while applying team communication strategies and the skills for documenting meeting notes. You will be required to write clear emails, using the appropriate format, language, tone and style for an audience. You will also be taught to communicate appropriately in and for an organisation when using various platforms. In all aspects, the principles of applying **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) will be covered.	2	
AIN1001	**Innovation & Entrepreneurship** The Innovation & Entrepreneurship subject is designed for learners from all disciplines to embrace innovation in either their specialised elds or beyond. You will rst learn the Design Thinking framework, where you will develop problem statements and ideate solutions. Next, you will discover the tools for prototyping and innovation, such as 3D printing and laser cutting, at TP's Makerspace+ facility. Finally, you will acquire commercial awareness through the LEAN Startup framework of idea crystallisation, prototype building, customer testing and validation, re nement of business model canvas, and crowdfunding or crowdsourcing avenues.	2	
LEA1012	**Leadership: Essential Attributes & Practice 2** LEAP 1, 2 and 3 are three fundamental subjects that seek to cultivate in you, the attitude, skills and knowledge for the development of your leadership competencies. This character-based leadership programme enables you to develop your life-skills through establishing personal core values, which will become the foundation for your leadership credibility and influence.	1	

	MCR1002	**Career Readiness 2** This Career Readiness programme comprises three core subjects – Personal Management, Career Preparation and Career Management. It seeks to help you understand your career interests, values, personality and skills for career success. It also equips you with the necessary skills for seeking and securing jobs, and to develop professional work ethics.	**1**	
	AGS1003	**Managing Diversity at Work*** This subject explores the concepts of identity, diversity and inclusion at the workplace. It examines the relationship between identity and diversity, the benefits and challenges of diversity and the strategies that promote inclusion and inspire collaboration in a diverse workplace. Examples of the elements of diversity covered in this subject include nationality, generation, ethnicity and gender. A one week residential stay is mandatory for this subject.	**3**	
	AGS1004	**Global Citizenship & Community Development*** Students will examine the meaning and responsibilities of being a Global Citizen, in order to contribute towards a more equitable and sustainable world.? In addition, students will learn how sustainable solutions can support community development, and, execute and critique a community action plan that addresses the needs of a specific community/cause.	**3**	
	AGS1005	**Expressions of Culture*** This subject provides a platform for an understanding of culture and heritage through modes of expression. Students will be introduced to global and local cultures via everyday objects, places and human behaviour seen through time and space. Students will explore issues and challenges in culture and heritage sustainability in community, national and global contexts.	**3**	
	TGL1001	**Guided Learning** The subject introduces students to the concepts and process of self-directed learning in a chosen area of inquiry. The process focusses on four stages: planning, performing, monitoring and reflecting. Students get to plan their individual learning project, refine and execute the learning plan, as well as monitor and reflect on their learning progress and project. The learning will be captured and showcased through a curated portfolio. The self-directed learning project will broaden and/or deepen a student's knowledge and skills.	**3**	

Core Subjects

Subject Code	Subject	Credit Units
AVT2006	**Veterinary Immunology** This subject covers immunology of animals including fish. Topics covered include an overview of the immune system across species, organs involved, structure and function of immunoglobulins, and cell mediators of immunity, normal immunity in animals, as well as dysfunction of the immune system. The major histocompatibility complex (MHC), antigen processing and presentation, cell signalling molecules (cytokines), complement system, immune responses to infection and immunopathologies (hypersensitive reactions), serological testing, biology of B-cells and T-cells, antigen-antibody interactions, transplantation and tumour immunology.	3
AVT2009	**Veterinary Pharmacology and Toxicology** This subject covers the basic principles and knowledge of pharmacology and toxicology. Topics include an introduction to pharmacology, pharmacodynamics, pharmacokinetics and toxicology.	3
AVT2017	**Aquatic Care, Health and Diseases** This subject covers knowledge and skill training in care and husbandry, disease detection, identification and prevention for common freshwater and marine aquatic species.	3
AVT2018	**Clinical Diagnostic Techniques** This subject covers knowledge and skill training on various types of veterinary diagnostic procedures. Topics include clinical chemistry and haematology, skin examination, faecal analysis, urinalysis, cytology and other techniques of relevance to working veterinary clinics and animal hospitals. Techniques on basic necropsy or post-mortem procedure, histochemical and histological techniques will also be covered.	4
AVT2022	**Molecular Genetics & Genomics** This subject is designed to provide basic theoretical and practical knowledge of molecular genetics and genomics. It covers fundamental concepts of the molecular composition and structure of deoxyribonucleic acids (DNA), ribonucleic acids (RNA) and the gene. You will be introduced to the concept of the central dogma of biology, DNA replication and gene expression. The subject will also introduce you to techniques of DNA sequencing and use of basic bioinformatics tools for DNA analysis. You will also be introduced to whole genome sequencing and its application in personalised veterinary medicine. The subject also includes studies on the potential applications, present use and future trends in molecular genetics and genomics.	4

	AVT2023	**Clinical Practicum** This subject will enable students acquire and perform a variety of medical procedures in small animal practice setting. Students will perform skills in anaesthesia, surgical assisting, veterinary practice management, radiography, sample collection and laboratory analysis, reception, patient assessment and treatment administration. Students will be attached on and off site veterinary clinics or hospitals.	**5**	
	AVT2024	**Molecular and Cell Technology** This subject is designed to provide theoretical and practical knowledge in the areas of molecular biology and cell culture technology. It covers techniques and applications used to assess and manipulate deoxyribonucleic acids (DNA), ribonucleic acids (RNA) and proteins in veterinary medicine and aquaculture, with an emphasis on diagnostic and transgenic technology. The subject also introduces you to basic cell culture techniques as well as its potential applications in developing in vitro-grown tissue and organs for veterinary medicine. You will also be exposed to recent advances and future trends in molecular biology and cell culture technology such as the use of CRISPR/Cas9 in the development of transgenic/knockout animals.	**3**	
	AVT2025	**Veterinary Pathology** This subject covers an introduction to animal diseases of veterinary significance. Topics include pathogenic agents, their modes of action, and the observed symptoms. It also covers principles of pathology including etiology, cause and termination of disease other than fundamental knowledge on general and systemic pathology.	**4**	
	AVT2026	**Veterinary Surgery & Anaesthesia** This subject covers the principles of surgery and anaesthetic management for laboratory and selected companion animals. Topics covered include anaesthetic administration, monitoring and recovery from anaesthesia, basic suturing skills, preoperative preparations and postoperative care of animals. Fundamentals on good dispensing practice, simple patient counselling skills, record keeping and veterinary reception would also be covered.	**4**	

YEAR 3

You will choose to specialise in either aquaculture or veterinary research. You can look forward to exciting local or overseas internships in various industries such as research laboratories, fish farms, wildlife reserves, veterinary clinics and universities.

TP Fundamentals (TPFun) Subjects

Subject Code	Subject	Credit Units

^	**ASI3030**	**Student Internship Programme** This structured programme is designed to link your learning with the real work environment. You will be placed in organisation(s) with opportunities to apply the concepts and skills acquired in the course of your study. Besides reinforcing technical concepts and mastering of skills in areas that you have been trained, the practical training will enable you to build important skills such as problem-solving, communication, teamwork, and to cultivate good attitude and a strong work ethic.	**16**	^
^	**LEA1013**	**Leadership: Essential Attributes & Practice 3** LEAP 1, 2 and 3 are three fundamental subjects that seek to cultivate in you, the attitude, skills and knowledge for the development of your leadership competencies. This character-based leadership programme enables you to develop your life-skills through establishing personal core values, which will become the foundation for your leadership credibility and influence.	**1**	^
^	**MCR1003**	**Career Readiness 3** This Career Readiness programme comprises three core subjects – Personal Management, Career Preparation and Career Management. It seeks to help you understand your career interests, values, personality and skills for career success. It also equips you with the necessary skills for seeking and securing jobs, and to develop professional work ethics.	**1**	^

Core Subjects —

	Subject Code	Subject	Credit Units	
^	**AMP3011**	**Major Project** This subject provides a framework for you to solve practical problems, conduct research work and/ or develop studies, through a self-managed project. The scope of the subject includes project proposal, investigative studies, analysis, interpretation of results, written report and presentation.	**8**	^

Diploma Subjects – Elective Cluster Subjects

Veterinary —

	Subject Code	Subject	Credit Units	
^	**AVT3010**	**Animal Breeding and Reproduction** This subject covers animal breeding programmes, reproduction fundamentals and techniques. You will also be introduced to analysis and experimental design in animal breeding.	**4**	^

^	**AVT3011**	**Laboratory Animal Science and Technology** This subject focuses on care, animal behaviour, handling and husbandry requirements of small and large animals often used as animal models for study. You will also acquire experiential learning through husbandry rotations at animal facilities. Techniques used in animal model study will also be introduced.	**5**	^

Aquaculture —

	Subject Code	Subject	Credit Units	
^	**AVT3012**	**Aquaculture Product Quality & Safety** This subject provides students with knowledge and skill based training in harvest and post-harvest processes and food product quality and safety. The importance of good culture environment and postharvest technology on fishery product quality and safety will be emphasised. Innovative technology for enhancing aquatic health and better quality produce will be covered.	**4**	^
^	**AVT3013**	**Aquaculture Technology** This subject focuses on good aquaculture practices and management, culture systems, breeding, reproduction and technology important for sustainable aquaculture. Topics covered include water quality management, feed and feeding management, hatchery, larviculture, grow-out and broodstock, breeding and reproduction. Basic engineering principles and system design applicable for aquaculture will also be emphasised. Students will receive hands-on training in farm operation and management.	**5**	^

GRADUATION REQUIREMENTS

Cumulative Grade Point Average	min 1.0
TP Fundamentals Subjects	40 credit units
Diploma Core Subjects	73 credit units
Elective Subjects	min 9 credit units
Total Credit Units Completed	min 122 credit units