

# BACHELOR OF HEALTH SCIENCE IN VETERINARY TECHNOLOGY

(Qualification type: Professional Bachelor's Degree)

Qualification code: BPVT20 - NQF Level 8 (502 credits)

SAQA ID: 110813, CHE NUMBER: H/H16/E173CAN

Campus where offered:

Arcadia Campus

## REMARKS

a. *Admission requirement(s) and selection criteria:*

• **APPLICANTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

**Admission requirement(s):**

A Senior Certificate with a matriculation endorsement or equivalent qualification, with a D symbol at Higher Grade, or C symbol at Standard Grade for: English, Mathematics, Physical Science and Biology or Agricultural Sciences.

**Selection criteria:**

To be considered for this qualification, candidates must have an Admission Point Score (APS) of at least **24**.

• **APPLICANTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE IN OR AFTER 2008:**

**Admission requirement(s):**

A National Senior Certificate or an equivalent qualification, with a bachelor's degree endorsement, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 4 for Mathematics or Technical Mathematics, 4 for Physical Sciences or Technical Sciences and 4 for Life Sciences or a 4 for Agricultural Sciences.

**Selection criteria:**

To be considered for this qualification, candidates must have an Admission Point Score (APS) of at least **24** (excluding Life Orientation).

b. *Assessment procedure(s):*

**For 2021:** Top candidates will be selected based on their relevant APS scores. Candidates will be contacted and potential students will be required to submit a motivational letter on why they would like to be considered for the programme as well as a motivational portfolio. The APS will contribute 80%, the motivational letter 10% and the motivational portfolio 10% towards the final score. The motivational portfolio will be based on previous year's interview questions.

**As from 2022:** Applicants will be invited for a TUT Potential Assessment Test (TUTPTA) and depending on the results will be invited for an interview. The APS will contribute 40%, the TUT Potential Assessment will contribute 20% and the interview will contribute 40% of the final score.

Please take note that all completed applications received within the published due dates will be ranked. After consideration of the Departmental Student Enrolment Plan, only the top ranking applicants will be selected. Once a programme is full, a waiting list will be in place to provide an opportunity for applicants to fill places of those who did not register on time. Applicants will be informed of their status per official letter from the Office of the Registrar, alternatively, they can check their application status on the TUT website, [www.tut.ac.za](http://www.tut.ac.za).

c. *Minimum duration:*

Four years.

d. *Presentation:*

Day classes.



- e. *Intake for the qualification:*  
January only.
- f. *Exclusion and readmission:*  
See Chapter 2 of Students' Rules and Regulations.
- g. *Other requirements:*  
Students will be required to be vaccinated as required in the veterinary field.
- h. *Practicals:*  
100% attendance is compulsory for all practical classes. Students must pass the practical component of a subject to obtain admission to sit for the examination.
- i. *Personal protective equipment:*  
Specific safety wear is compulsory in the practical laboratories.
- j. *Registration as a veterinary technologist:*  
Registration in the first year with the South African Veterinary Council (SAVC) as a veterinary technologist is compulsory. Registration must be renewed each year.
- k. *Recognition of Prior Learning (RPL), equivalence and status:*  
See Chapter 30 of Students' Rules and Regulations.

## CURRICULUM

### FIRST YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
CAP105X	Communication for Academic Purposes	(5)	(10)	
CPL105X	Computer Literacy	(5)	(10)	
CVT105P	Introduction to Clinical Veterinary Technology I	(5)	(24)	
FLF125P	Foundation Life Skills (block module)	(5)	(2)	
MAS105X	Mathematics and Statistics I	(5)	(12)	

### FIRST SEMESTER

ANM115P	Animal Anatomy I	(5)	(12)	
ANP115P	Animal Physiology I	(5)	(12)	
CHC115P	Chemistry for Health Science I	(5)	(12)	
PHS115P	Physics for Health Sciences I	(5)	(12)	

### SECOND SEMESTER

MBL115P	Microbiology I	(5)	(12)	
RPL115P	Research Principles I	(5)	(6)	

TOTAL CREDITS FOR THE FIRST YEAR: **124**

### SECOND YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
CVT206P	Clinical Veterinary Technology II	(6)	(42)	Animal Anatomy I Animal Physiology I Chemistry for Health Science I Introduction to Clinical Veterinary Technology I Microbiology I



## FIRST SEMESTER

BCH216P	Biochemistry II	(6)	(12)	Chemistry for Health Science I
IMM216P	Immunology II	(6)	(12)	Animal Anatomy I Animal Physiology I
MBL216P	Microbiology II	(6)	(12)	Microbiology I
RPL216P	Research Principles II	(6)	(6)	Research Principles I
VHT216P	Veterinary Haematology II	(6)	(12)	Animal Anatomy I Animal Physiology I

## SECOND SEMESTER

HST216P	Histology II	(6)	(12)	Animal Anatomy I Animal Physiology I
SER216P	Serology II	(6)	(12)	Immunology II

TOTAL CREDITS FOR THE SECOND YEAR: **120**

## THIRD YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
EMY307P	Clinical Veterinary Technology III in Entomology	(7)	(18)	Clinical Veterinary Technology II Microbiology II
HMY307P	Clinical Veterinary Technology III in Helminthology	(7)	(18)	Clinical Veterinary Technology II Microbiology II
MCB307P	Clinical Veterinary Technology III in Molecular Biology	(7)	(24)	Biochemistry II Clinical Veterinary Technology II
PZY307P	Clinical Veterinary Technology III in Protozoology	(7)	(18)	Clinical Veterinary Technology II Microbiology II
VLY307P	Clinical Veterinary Technology III in Virology	(7)	(18)	Clinical Veterinary Technology II Immunology II Serology II
VRM307P	Clinical Veterinary Technology III in Veterinary Microbiology	(7)	(18)	Clinical Veterinary Technology II Microbiology II
RPL307P	Research Principles III	(7)	(6)	Research Principles II

TOTAL CREDITS FOR THE THIRD YEAR: **120**

## FOURTH YEAR

**After completion of all third-year modules (except for Research Principles III). Research Principles IV and Project has a different prerequisite.**

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
BTY408P	Clinical Veterinary Technology IV in Bacteriology	(8)	(24)	
LBT418P	Laboratory Management IV (first-semester module)	(8)	(12)	
MCB408P	Clinical Veterinary Technology IV in Molecular Biology	(8)	(24)	
PAR408P	Clinical Veterinary Technology IV in Parasitology	(8)	(24)	
RPP408P	Research Principles IV and Project	(8)	(30)	Research Principles III



VLY408P Clinical Veterinary Technology IV (8) (24)  
in Virology

TOTAL CREDITS FOR THE FOURTH YEAR: 138

TOTAL CREDITS FOR THE QUALIFICATION: 502

## MODULE INFORMATION (OVERVIEW OF SYLLABUS)

The syllabus content is subject to change to accommodate industry changes. Please note that a more detailed syllabus is available at the Department or in the study guide that is applicable to a particular module. At time of publication, the syllabus content was defined as follows:

### A

**ANIMAL ANATOMY I (ANM115P) 1 X 3-HOUR PAPER**

*(Module custodian: Department of Biomedical Sciences)*

This module prepares the student to acquire an informed understanding of the basic principles of structure and form of animals to include definitions, characteristics of the different types of cells, tissues, organ systems, organisms, the systems' apparatus and the comparative morphology of animals of different classes. (Total tuition time: not available)

**ANIMAL PHYSIOLOGY I (ANP115P) 1 X 3-HOUR PAPER**

*(Module custodian: Department of Biomedical Sciences)*

This module prepares the student to acquire an informed understanding of the basic principles of concepts and theories including functions of the body and its constituent parts, the biophysical and biochemical processes of cells, muscles, organs and organ systems. (Total tuition time: not available)

### B

**BIOCHEMISTRY II (BCH216P) 1 X 3-HOUR PAPER**

*(Module custodian: Department of Biomedical Sciences)*

This module prepares the student to acquire detailed knowledge and understanding of the fundamental and specialised aspects of Biochemistry and Biological Chemistry in the field of Veterinary Technology. The student will gain knowledge of structural biochemistry, reagent preparation, cellular processes, laboratory automation and analytical techniques to offer solutions to simple and complex problems and answer routine diagnostic questions related to the field of Veterinary Technology. (Total tuition time: not available)

### C

**CHEMISTRY FOR HEALTH SCIENCES I (CHC115P) 1 X 3-HOUR PAPER**

*(Module custodian: Department of Chemistry)*

The student will be able to apply his/her knowledge of atomic theory, nomenclature, stoichiometry, chemical equilibrium, organic chemistry and gases and liquids to basic chemistry related problems. Upon completion, the student will be able to discuss fundamental concepts in chemistry and do related calculations. (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY II (CVT206P) CONTINUOUS ASSESSMENT**

*(Module custodian: Department of Biomedical Sciences)*

This module prepares the student to acquire an informed understanding of principles of methods, techniques and procedures in biochemistry, microbiology, haematology, immunology, serology and histology. The student will be able to demonstrate the ability to identify, define and evaluate routine and new calculations and scientific problems in the respective disciplines. Through this module, students will obtain the ability to integrate aspects of theoretical knowledge and methodology to the application thereof in the different disciplines' laboratory fields. (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY III IN ENTOMOLOGY (EMY307P) 1 X 3-HOUR PAPER**

**(Module custodian: Department of Biomedical Sciences)**

This module prepares the student to be able to demonstrate integrated knowledge of the arthropod morphology, taxonomic classification, ecology, epidemiology, pathogen transmission and zoonotic significance to effectively choose and apply appropriate diagnosis, prevention, biochemical control and eradication strategies. Furthermore, the student will be able to demonstrate the ability to apply advanced knowledge of various principles and methods in evaluating and selecting the appropriate identification and diagnostic tools and techniques for diagnosis of parasitic arthropods and related infections. (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY III IN HELMINTHOLOGY (HMY307P) 1 X 3-HOUR PAPER**

**(Module custodian: Department of Biomedical Sciences)**

This module prepares the student to be able to demonstrate integrated knowledge of the helminth morphological characteristics, taxonomic classification, ecology, epidemiology and zoonotic significance to effectively choose and apply appropriate control and eradication strategies. (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY III IN MOLECULAR BIOLOGY (MCB307P) 1 X 3-HOUR PAPER**

**(Module custodian: Department of Biomedical Sciences)**

This module prepares the students to acquire integrated knowledge, understanding and the application of biology on a molecular level including the structure, function, and makeup of biologically important macromolecules such as DNA, RNA, and proteins. Molecular biology explores cells, their characteristics, parts, and chemical processes. Students will gain the ability to select and apply techniques, methods and procedures in order to perform clinical laboratory procedures/tests pertaining to the molecular biology discipline. (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY III IN PROTOZOOLOGY (PZY307P) 1 X 3-HOUR PAPER**

**(Module custodian: Department of Biomedical Sciences)**

This module prepares the student to be able to demonstrate integrated knowledge of protozoan morphological characteristics, taxonomic classification, ecology, epidemiology and zoonotic significance to effectively choose and apply appropriate control and eradication strategies. (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY III IN VIROLOGY (VLY307P) 1 X 3-HOUR PAPER**

**(Module custodian: Department of Biomedical Sciences)**

This module prepares students to integrate the acquired in depth theoretical knowledge and understanding of the concepts and theories of virology with the clinical laboratory practice environment through a structured and managed work-integrated learning programme. (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY III IN VETERINARY MICROBIOLOGY (VRM307P) 1 X 3-HOUR PAPER**

**(Module custodian: Department of Biomedical Sciences)**

This module prepares students to integrate the acquired in depth theoretical knowledge and understanding of the concepts and theories of microbiology with the clinical laboratory practice environment through a structured and managed work-integrated learning programme. Students will gain the ability to select and apply technology-driven standard operating procedures, clinical veterinary laboratory techniques, and methods to perform diagnostic tests pertaining to the microbiology discipline. (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY IV IN BACTERIOLOGY (BTY408P) 1 X 3-HOUR PAPER**

**(Module custodian: Department of Biomedical Sciences)**

This module prepares the student to acquire in-depth theoretical knowledge, as well as the necessary applied skills to select methods and techniques to accurately perform diagnostic laboratory tests within the scope of Veterinary Technology. It will also prepare the students to be able to select procedures/techniques that will assist to examine and illustrate knowledge and understanding of the isolation of bacteria and fungi of veterinary importance and diagnostic problems through critical and innovative thinking being responsible and independent in decision-making and application of basic and advanced scientific techniques within the field of Veterinary Technology practice (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY IV IN MOLECULAR BIOLOGY (MCB408P) 1 X 3-HOUR PAPER**

**(Module custodian: Department of Biomedical Sciences)**

This module prepares students to acquire forefront knowledge of the fundamental aspects of Molecular Biology in the field of Veterinary Technology and biological research. Students will be able to apply their knowledge of techniques such as PCR, gene cloning, gene sequencing, laboratory automation and molecular biology-based analytical techniques to offer solutions to simple and complex problems and answer routine diagnostic questions related to the field of Veterinary Technology. (Total tuition time: not available)



**CLINICAL VETERINARY TECHNOLOGY IV IN PARASITOLOGY (PAR408P) 1 X 3-HOUR PAPER****(Module custodian: Department of Biomedical Sciences)**

This module prepares the student to acquire an in depth understanding and integration of the basic and advanced principles of parasitology including definitions, characteristics, parasite host interaction, epidemiology, methods of diagnosis, control and possible eradication strategies of parasites of veterinary, economic and zoonotic significance. (Total tuition time: not available)

**CLINICAL VETERINARY TECHNOLOGY IV IN VIROLOGY (VLY408P) 1 X 3-HOUR PAPER****(Module custodian: Department of Biomedical Sciences)**

This module prepares students to acquire in-depth and analysed theoretical knowledge and understanding of the concepts and theories related to specific Single- and Double-stranded RNA, and DNA viruses and their presence in the veterinary environment, as well as the application of knowledge in clinical laboratory practice through a structured and managed work-integrated learning programme. Students will gain the ability to select and apply a range of techniques, methods and procedures in order to perform clinical laboratory procedures/tests pertaining to single- and double-stranded RNA, and DNA viruses. (Total tuition time: not available)

**COMMUNICATION FOR ACADEMIC PURPOSES (CAP105X) 1 X 3-HOUR PAPER****(Module custodian: Department of Applied Languages)**

A workable knowledge of English is an essential skill for any graduate who is required to conduct themselves successfully in a professional working environment. This module will equip students with the competencies required to compose a selection of written texts related to communicating both internally and externally within a professional environment. In addition, the module includes strategies that are essential for the effective communication in various situations, including small groups to avoid unproductive conflict, a multicultural context, etc. (Total tuition time: not available)

**COMPUTER LITERACY (CPL105X) CONTINUOUS ASSESSMENT****(Module custodian: End User Computing Unit)**

Introduction of information literacy. Development of a search strategy and application of a search string to search engines and academic databases. Evaluation of information sources. Ethical and legal use of information. (Total tuition time: not available)

**F****FOUNDATION LIFE SKILLS (FLF125P) CONTINUOUS ASSESSMENT****(Module custodian: Directorate of Student Development and Support)**

Academic, personal and socio-emotional skills development for students in higher education. Personal and social dimensions address: effective planning and self-management (goal setting and time management); Adjusting to university life (student life, diversity and change); Intra- and interpersonal skills development (conflict management, self-esteem, relationship management); Effective living (healthy living, HIV education, substance abuse); Academic dimension addresses: academic skills for university (e.g. critical thinking, creativity, managing assignments and assessments). (Total tuition time: not available)

**H****HISTOLOGY II (HST216P) 1 X 3-HOUR PAPER****(Module custodian: Department of Biomedical Sciences)**

This module introduces the student to the fundamental safety practices and instrumentation used in the routine histology laboratory and provides knowledge and skills in histological techniques of tissue collection, accessing, grossing, decalcification, fixation, processing, embedding, microtomy, staining and mounting. The student will be able to apply his/her knowledge of histological techniques to process samples until obtaining stained microscope slides for diagnostic purposes (Total tuition time: not available)

**I****IMMUNOLOGY II (IMM216P) 1 X 3-HOUR PAPER****(Module custodian: Department of Biomedical Sciences)**

This module prepares learning to acquire detailed knowledge and understanding of the structure and function of the immune system, innate and acquired immunity, as well as the application of laboratory techniques involving the interaction of antigens with antibodies required in the veterinary laboratory environment. The student will master the ability to demonstrate and apply his/her knowledge and understanding of the fundamental principles and concepts of Immunology, as well as how knowledge of the biological mechanisms evolved and manifest in the pathogenesis of other related diseases in an organism. (Total tuition time: not available)



## **INTRODUCTION TO CLINICAL VETERINARY TECHNOLOGY I (CVT105P)**

**CONTINUOUS ASSESSMENT**

**(Module custodian: Department of Biomedical Sciences)**

This module equips students with pre-requisite knowledge in preparation to the clinical environment of the Veterinary Technology Profession, including its code and ethics, laboratory and personnel safety and witnessing of laboratory test methods, techniques and procedures. Students should furthermore familiarise themselves with key terms used in quality control as well as guidance when reporting notifiable diseases as well as rules in the use of animals in laboratories. (Total tuition time: not available)

## **L**

### **LABORATORY MANAGEMENT IV (LBT418P)**

**CONTINUOUS ASSESSMENT**

**(Module custodian: Department of Biomedical Sciences)**

To provide students with standard operational management of veterinary laboratories, as well as their financial and human resources. Furthermore, this module introduces students to Quality Management Systems which is necessary as more Veterinary Laboratories are becoming Quality Assured. (Total tuition time: not available)

## **M**

### **MATHEMATICS AND STATISTICS I (MAS105X)**

**1 X 3-HOUR PAPER**

**(Module custodian: Department of Mathematics and Statistics)**

Numerical computations, mensuration, equations, functions, descriptive statistics, linear regression and curve fitting. (Total tuition time: not available)

### **MICROBIOLOGY I (MBL115P)**

**1 X 3-HOUR PAPER**

**(Module custodian: Department of Biotechnology and Food Technology)**

This module prepares the student to understand the role of microorganisms and their importance in the field of Microbiology. It is therefore suitable for continuing specialisation by reiterating general microbiology concepts and a systematic understanding of the diversity of microorganisms in terms of their morphology, physiology and their behaviour as they interact with the components of their habitats. This module will contribute to the preparation of technologists to perform microbiological techniques applicable to, water, food, soil and the medical and veterinary fields. (Total tuition time: not available)

### **MICROBIOLOGY II (MBL216P)**

**1 X 3-HOUR PAPER**

**(Module custodian: Department of Biomedical Sciences)**

This module prepares the student to be able to apply detailed knowledge of microbiology to be knowledgeable in the field of veterinary technology. The student will be able to apply and evaluate his/her knowledge of principles, procedures and correlation for diagnostic testing and organ-specific function testing for microbiology for the purpose to attain practical and professional competence in the workplace. Furthermore, through the integration of the theoretical and practical component of this module, the student will acquire knowledge, skills, and values in a practical laboratory environment to manage him/herself on an elevated professional level, as well as the awareness to take responsibility for the learning of others in a professional career environment, contributing to an informed and highly skilled veterinary technologist. (Total tuition time: not available)

## **P**

### **PHYSICS FOR HEALTH SCIENCES I (PHS115P)**

**1 X 3-HOUR PAPER**

**(Module custodian: Department of Physics)**

This module is aimed at enhancing student knowledge in fundamental concepts in mechanics, mechanical properties of fluids, thermal properties of matter, general and geometrical properties of waves, static electricity and electric circuits and their applications thereof. (Total tuition time: not available)



**R****RESEARCH PRINCIPLES I (RPL115P)****CONTINUOUS ASSESSMENT****(Module custodian: Department of Biomedical Sciences)**

This module prepares the student to acquire an informed understanding of the basic principles of research and academic writing to include definitions, characteristics, as well as the concepts of scholarly writing, scholarly literature, the methodologies and designs. The student will be able to demonstrate the ability to select and apply the correct academic writing principles, citation methods, and procedures in order to avoid any form of plagiarism. Through this module, students will obtain the ability to integrate aspects of research principles and methodology in their field of study. Relevance of research is in line with national needs and biomedical ethical policies and procedures, and suitable resources need to be critically evaluated and used to facilitate the research project on postgraduate level. (Total tuition time: not available)

**RESEARCH PRINCIPLES II (RPL216P)****CONTINUOUS ASSESSMENT****(Module custodian: Department of Biomedical Sciences)**

This module prepares the student to demonstrate detailed understanding and knowledge of the main areas of research principles and the ability to apply concepts, principles and theories related to the framework of a research proposal, the different research methodologies and designs, as well as data collection principles, analysis, reliability, validity, rigour, trustworthiness, budget and funding. Through this module, the student will demonstrate understanding of the research problem and objectives within the context of a particular research methodology, as well as the ability to evaluate, select and apply the optimal sampling procedures, data collection principles relevant to a research methodology and design. Knowledge and the ability to analyse, synthesise, and evaluate information from different sources of scholarly academic information, including definitions, criteria, purposes, questionnaire designs, data collection principles and methods for the application during the research process will be obtained in preparation to the next level of research principles and procedures to follow. (Total tuition time: not available)

**RESEARCH PRINCIPLES III (RPL307P)****CONTINUOUS ASSESSMENT****(Module custodian: Department of Biomedical Sciences)**

This module prepares the student to demonstrate integrated knowledge of the central and crucial areas of research principles and methodologies including the ability to apply concepts, principles and theories necessary for the compilation of a research proposal in the context of an academic and/or health science related environment. Through this module, students will gain understanding of the roles and responsibilities pertaining to the research supervisor and the researcher. Students will learn to differentiate between research methods and their suitability and ability to resolve specific research enquiries, act ethically and professionally with dignity and integrity, as well as to manage the processing of gathered data through advanced bio-statistical methods. (Total tuition time: not available)

**RESEARCH PRINCIPLES IV AND PROJECT (RPP408P)****CONTINUOUS ASSESSMENT****(Module custodian: Department of Biomedical Sciences)**

This module which prepares the student to demonstrate knowledge of and engagement in the advanced aspects of research principles and techniques at the forefront related to a particular medical field of study or specialisation. Students should further be able to demonstrate understanding of the analysis and interpretation of research results, the structure and composition of a research report, as well as publications and presentations. Students will gain knowledge in the use of specialised skills to identify, analyse and address abstract problems related to a research project in a field of study or specialisation, as well as to incorporate body of knowledge and methods during the problem solving process. On completion of this module, students should show their ability to present and communicate scientific research results to a range of audiences in the format of a research article for a given journal, poster design, as well as in the form of a verbal and visual research presentation. (Total tuition time: not available)

**S****SEROLOGY II (SER216P)****1 X 3-HOUR PAPER****(Module custodian: Department of Biomedical Sciences)**

This module prepares students to acquire detailed knowledge and understanding of the main areas in serology, but with specific reference to the general introduction to serological tests, antibody and antigen, enzyme-linked immunosorbent assay (ELISA), fluorescent antibody techniques. Through this module, students will acquire the necessary knowledge and skills to be able to select and apply appropriate methods and techniques related to basic test performance measurements and the evaluation of diagnostic test results during practical training on campus. (Total tuition time: not available)





**VETERINARY HAEMATOLOGY II (VHT216P)****1 X 3-HOUR PAPER****(Module custodian: Department of Biomedical Sciences)**

This module prepares students to acquire detailed knowledge and understanding of normal and abnormal erythrocytes, leucocytes and haemostasis. The student will master the ability to demonstrate and apply his/her knowledge and understanding of the fundamental principles and concepts of Veterinary Haematology, as well as the analytical techniques to determine these parameters pertaining to the field of veterinary laboratory science. (Total tuition time: not available)

