

OUR VISION

To be the Premier Educator for Service Excellence

OUR MISSION

To inspire Passion for Service and Contribution to Society through Excellence in Continuous Education

OUR VALUES

Responsibility, Integrity, Passion and Excellence (RIPE)

OUR CULTURE

An Open and Conducive Learning Environment, With Mutual Respect and Professionalism to Build A High Performance Organization

COURSE MODULES & SYNOPSIS

Microbiology

This module will extend the knowledge of microbiology from the introductory module by relating structure and function. Topics to be covered will include bacterial growth and death and methods for the isolation and characterism of micro-organisms. Also, covered will be a comparison of methods for measuring bacterial growth and for controlling their growth which will include anti-biotics, disinfectants, ultraviolet light and pasteurisation. A topic of key importance in modern biomedical science relates to the ways in which genetic information is exchanged and this will introduce the students to the concepts of conjugation, transformation and transduction.

Physiology

Building on the structural aspects of anatomy and physiology developed in the introductory module, this module will extend the study of human physiology to deal with the cardiovascular system, the respiratory system, the digestive system, the urinary system and the reproductive system. In dealing with these topics, relevant learning from other modules such as biochemistry metabolism and genetics will be integrated into appropriate parts of the module. Such cross referencing will help the students to acquire a more holistic view of the biomedical science discipline.

Biochemistry

The primary focus for this module will be to relate the structures of the key biological molecules to cellular function. The key aspects of the organisation and regulation of metabolic pathways will be described and will include glycolysis, the TCA cycle, the electron transport chain and oxidative phosphorylation. Also covered are the mechanisms for energy storage and biosynthesis of such molecules such as glycogen, glucose, fatty acids, lipids and amino acids. The biological functions of the nucleic acids will be further developed through a study of the molecular mechanisms for replication, transcription and translation. In terms of the key functions of proteins in biological systems (in vivo and in vitro), students will be introduced to the topics of enzymology and enzyme kinetics.

Genetics & Molecular Biology

This module provides an introduction to the subject of genetics and introduces a range of modern molecular biology concepts & techniques. General molecular biology, molecular biology of genetic diseases, and the use of molecular biology for biomedical applications will be addressed. Students will be given a thorough introduction to the principles of sequence analysis and how these techniques have revolutionised all areas of molecular biology. Particular attention will be paid to the technique of PCR. The module content will be delivered via a series of lectures and tutorials that allow students to gain insight into the theoretical aspects of molecular biology. A series of laboratory practical sessions will introduce the basic techniques that lie at the heart of modern molecular biology such as DNA purification, PCR, restriction digestion, control of gene expression and nucleic acid / protein analysis via agarose and SDS PAGE gels.

Clinical Laboratory Development

Clinical laboratory management is included in the curriculum because it is essential that professionals in these particular fields should be able to manage efficiently a clinical laboratory. From a recent survey of employment opportunities in Singapore, it would appear that there is a shortage of skilled laboratory managers in order to provide a reliable diagnostic service. Included in the study of laboratory management are four principal topics, these being:

1. Quality control systems for laboratory tests which would also include validation of laboratory methods, design of experiments, collection of data from validation experiments, quality planning for laboratory testing processes, and finally, quality assurance practices applicable to healthcare laboratories (laboratory regulations and accreditation standards are reviewed and quality plans and procedures are developed to satisfy regulatory and accreditation requirements).
2. Financial management in which issues such as budgets, cost / benefit analysis, purchasing, accounting, reimbursements, inventory control, capital equipment acquisitions, billing and collection, cash flow analysis, the essential elements of the business plan and effective budgeting will be covered.
3. Laboratory Information Systems (LMS) which deals with powerful laboratory information management systems that enable laboratories to manage complex workflows and processes, ensure regulatory compliance, and promote performance and enterprise-wide collaboration.
4. Laboratory health & safety and risk assessment which are of paramount importance in the laboratory. This will help make the students more aware of the hazards and risks involved in laboratory and research work, as well as giving them an overview of the legal requirements attached to this work. The curriculum discusses issues involved in the handling of chemical and biological agents, basic safety procedures and common hazards.

Biology of Diseases

The module aims to provide an introduction to human disease at various physiological levels (cell, tissue, organ and system) and provide general principles that underlie pathological processes, such as epidemiology, microbial pathogenicity, immunology and the study of a range of diseases of specific human organs. The module will also examine the role of a biomedical scientist and methods required to analyse and understand specific human diseases.



CSM ACADEMY
INTERNATIONAL



ADVANCED DIPLOMA

**BIOMEDICAL
SCIENCE**

**BEHIND EVERY
BREAKTHROUGH**

IS A TEAM OF SELFLESS INDIVIDUALS.



Certificate No: EDU-2-2105
Validity: 31-08-2017 to 30-08-2021
CSM Academy International
ERF Registration No: 200505735M
ERF Validity: 20/5/2018 - 19/5/2022

CSM Academy International
ERF Registration No. 200505735M
ERF Validity: 20/5/2014 - 19/05/2018

www.csmacademy.edu.sg

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ADVANCED DIPLOMA IN BIOMEDICAL SCIENCE



INTRODUCTION - REAL LAB, REAL EXPERIENCE.

The Diploma and Advanced Diploma programmes in Biomedical Science have been designed in such a way that students will benefit from state-of-the-art knowledge and skills, critical thinking and a focused training on innovation and design thinking that will be of value to the existing and emerging biomedical industries in Singapore, the wider Asian market and beyond.

The programme aims to provide knowledge and experience leading to career opportunities in a wide array of areas including biomedical, pharmaceutical, environmental monitoring, public health, agrochemical and food sectors. With the increased importance of globalisation of education and training, these programmes will incorporate, where appropriate, issues of global significance.

In an effort to best match the needs of industry in this area, the Diploma and Advanced Diploma in Biomedical Science have a significant focus on skills development and employer-led, industry-required knowledge acquisition in areas such as technology and knowledge exchange, IPR, entrepreneurship, health & safety, marketing, growth strategies and innovation - these to be presented and developed through business planning exercises, simulations and relevant case studies.

ABOUT CSM ACADEMY

CSM Academy was established since 2005 as a Private Education Institute to deliver Service Management programmes with a major focus on healthcare services education. It delivers multi-level courses ranging from Certification and Diplomas to Bachelor's and Master's Degrees. Other than healthcare, CSM Academy also provides educational courses across a wide range of other disciplines including biomedical research, digital media, and hospitality & tourism.

CSM Academy emphasises skills competency, applied workplace knowledge and service excellence, developing several of their own intellectual property programmes in Aged Care, Therapy Services and Biomedical Science, all designed to help students make a positive impact in the lives of someone else.

COURSE DURATION

Full time: 8 months (3-hour lessons/day, 5 days/week)
Part time: 12 months (5-hour lessons/day, 3 days/week)

DELIVERY MODE

Classroom-based lectures and laboratory sessions. Laboratory sessions will be conducted at an industrial laboratory.

COURSE COMMENCEMENT

January, April, July, October

Note:

- A minimum number of 15 students for the commencement of the class.
- Students will be informed 2 weeks before the commencement of the class.

COURSE DEVELOPER AND AWARDDING BODY

CSM Academy International, Singapore

ASSESSMENT METHODOLOGY

A combination of examinations, critical analysis and synthesis or laboratory reports, abstracts, business planning exercises, simulation and case studies will be among the assessment tools.

Note:- In case students fail the main examination of a particular module, they are allowed to sit for "one" supplementary assessment with payment of the appropriate fee*. Students are to re-take the module, shall they fail the supplementary assessment. Modules are independent of each other.

* Refer to the Miscellaneous Fees

GRADUATION REQUIREMENTS

Students must complete and pass all 6 modules each for the Diploma and Advanced Diploma program to be awarded Diploma in Biomedical Science and Advanced Diploma in Biomedical Science respectively. Attendance requirement for local students is 75% and for international students is 90% in any month of the course.

CAREER OPPORTUNITY

Employment opportunities include technical posts in a variety of biomedical science specialists laboratories within the hospital environment (haematology, medical microbiology, clinical biochemistry, pathology, etc.) or technical posts within pharmaceutical companies or research groups (academic and industrial), for example:



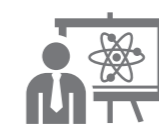
Cardiac Technologist



Medical Technologist



Research Assistant



Sales and Marketing Personnel for Health Sectors

The topics covered by the curriculum are sufficiently broad to allow students to also diversify into allied disciplines such as biological sciences, biotechnology and life sciences. Students would also have the relevant knowledge and skills to consider further education and training in a range of health-related programme (physiotherapy, radiography, nursing).



ENTRY REQUIREMENT

For Advanced Diploma:
Minimum Entry Requirements:

- Diploma in biomedical science awarded by local polytechnic, CSM Academy International or other relevant Diploma holders

English Language Requirement:

- IELTS with a minimum overall band of 5.0
or
• 'A' Level pass in English or equivalent.

FEES

Application Fee

(Non-Refundable and non-transferrable)
Local Students: S\$50
International Students: S\$600

Course Fee

For local students: S\$ 1,600.00 per module
totalling S\$ 9,600.00 (6 modules) – before GST

For International students: S\$10,500 (before GST)

Note:

Students are required to pay for the following miscellaneous fees on modules with lab sessions:

- S\$30 for Lab Coat ((before GST)
- S\$150 for material cost for modules with lab experiment (before GST)

Insurance Fees

Fee Protection Scheme***: Subject to prevailing market rate

Medical Insurance Fee****: Subject to prevailing market rate

*** The Fee Protection Scheme (FPS) serves to protect students' paid fees.

**** It is compulsory for all local and international students to purchase medical insurance which is valid throughout their course of studies with the CSM Academy International. Local students (Singaporeans, PRs & Non-student's Pass holders) may opt-out for this scheme if they can provide the proof of adequate medical insurance coverage in Singapore.

Note:

- Payment of fees is in Singapore Dollars.
- Payment method only by Cheque/ Nets/ Telegraphic Transfer

Miscellaneous Fees

Please ask for a copy from our Programme Executives or Recruitment Agents.