

## **REGULATIONS FOR THE DEGREE OF MASTER OF MEDICAL SCIENCES (MMedSc)**

*(See also General Regulations)*

Any publication based on work approved for a higher degree should contain a reference to the effect that the work was submitted to the University of Hong Kong for the award of the degree.

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### **M.18 Admission requirements**

To be eligible for admission to the programme leading to the Master of Medical Sciences, a candidate shall:

- (a) comply with the General Regulations;
  - (b) hold a Bachelor's degree with honours or the degrees of MBBS of this University, or another qualification of equivalent standard from this University or from another University or comparable institution accepted for this purpose; and
  - (c) satisfy the examiners in a qualifying examination if required.
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### **M.19 Qualifying examination**

- (a) A qualifying examination may be set to test the candidate's formal academic ability or his /her ability to follow the courses of study prescribed. It shall consist of one or more written papers or their equivalent and may include a project report.
  - (b) A candidate who is required to satisfy the examiners in a qualifying examination shall not be permitted to register until he/she has satisfied the examiners in the examination.
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### **M.20 Award of degree**

To be eligible for the award of the degree of Master of Medical Sciences a candidate shall

- (a) comply with the General Regulations; and
  - (b) complete the curriculum and satisfy the examiners in accordance with the regulations set out below.
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### **M.21 Length of curriculum**

The curriculum shall normally extend over one academic year of full-time study, or two academic years of part-time study, with a minimum of 400 hours of prescribed work.

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### **M.22 Completion of curriculum**

To complete the curriculum, a candidate shall

- (a) follow courses of instruction as prescribed in the syllabuses and complete satisfactorily all required written, practical and/or clinical work;
- (b) satisfy the examiners in the modules by continuous assessments and/or by written examinations; and
- (c) complete and present a satisfactory dissertation on an approved research project.

The examiners may also prescribe an oral examination.

### **M.23 Title of dissertation**

The title of the dissertation shall be submitted for approval before the end of the second semester of the final academic years, and the dissertation shall be presented not later than the end of the final academic year. The candidate shall submit a statement that the dissertation represents his/her own work (or in the case of conjoint work, a statement countersigned by his/her co-worker, which shows his/her share of the work) undertaken after registration as a candidate for the degree. The examiners may also prescribe an oral or a written examination on the subject of the dissertation.

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### **M.24 Examinations**

- (a) A candidate who has failed to satisfy the examiners in the written paper but has presented a satisfactory dissertation and has satisfactorily completed the prescribed written and practical work may be permitted to undertake a further period of study in the course of failure and to be re-examined by a specified date not less than one month after the publication of results.
  - (b) A candidate who has presented an unsatisfactory dissertation but has satisfied the examiners in the written paper and has satisfactorily completed the prescribed written and practical work, may be permitted to revise the dissertation and to re-present it within a specified period of not more than four months after receipt of a notice that it is unsatisfactory.
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### **M.25**

A candidate

- (a) who has failed to satisfy the examiners in the written paper and has presented an unsatisfactory dissertation; or
- (b) who has failed to satisfy the examiners in a second attempt in the written paper or his/her dissertation

shall be recommended for discontinuation of studies under the provisions of General Regulation G12.

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### **M.26 Examination results**

At the conclusion of the examinations a pass list shall be published. A candidate who has shown exceptional merit in all examinations may be awarded a mark of distinction which shall be recorded in the candidate's transcript.

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## **SYLLABUS FOR THE MASTER OF MEDICAL SCIENCES PROGRAMME**

### **A. INDUCTION COURSE**

All candidates will be required to attend the induction course (7.5 hours):

MMSC6001 *Dissertation Writing*

Communicative success in reporting research:  
research as communication; features of scientific/research language; signposting to guide the reader

The IMRAD formula:

the structure of dissertations; the Introduction: stating the research gap and the research questions; the Discussion section: making claims about the research findings

Research ethics and citing research:

referring to current knowledge; paraphrasing without plagiarizing; writer's stance and citation

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## B. CORE MODULES

Candidates will be required to take **four** modules (20 hours each) from the following core modules. **At least one module** should be selected **from either of the two main sections**, i.e. Research Methods and Biological Systems.

### I. RESEARCH METHODS

#### BIOC6100 *Practical Bioinformatics*

(Advice to Applications: candidates choosing this Core Module should have molecular biology background.)

Gene identification;  
Information searching and retrieval: Entrez and SRS;  
Internet resources: DNA and protein sequence databases;  
Patterns, Motifs, and Profiles analysis;  
Phylogenetic analysis;  
Sequence alignment: multiple sequence alignment;  
Sequence database searching: FASTA, BLAST, Smith-Waterman, algorithm and parameters;  
Simple sequence analysis.

#### CMED6100 *Introduction to Biostatistics*

Statistics in clinical practice, measures for location and spread, normal distribution, probability and binomial distribution, logic in statistical inference, significance tests on the means, association, correlation, simple regression analysis, multiple regression, analysis of variance, logistic regression, survival analysis, non-parametric methods, sample size.

#### CMED6200 *Epidemiology and Critical Appraisal*

Critical appraisal, meta-analysis and causality;  
Descriptive epidemiology: person, place and time;  
Epidemiology: definitions, uses, concepts of health, disease and risk factors;  
Measurements: rates, proportions, variation, validity and reliability;  
Screening, prevention and evaluation;  
Sources of information and vital statistics;  
Study designs in epidemiology.

#### CMED6400 *Evidence Based Practice: An Introduction to Clinical Epidemiology and Decision Analysis*

Clinical practice guidelines and consensus statements;  
Critical appraisal of the evidence – diagnosis, therapy and prognosis;  
EBP and knowledge management in the local health care environment; Searching the evidence-based literature;  
Summary point-of-care tools such as POEMS and CATs;  
Systematic reviews and meta-analysis.

MDEU6100      *Introduction to Contemporary Biomedical Ethics*

Clinical research with human subjects and clinical trials;  
Common principles of biomedical ethics;  
Concepts of health and disease, and nature and goals of medicine and biotechnology;  
Emerging infectious diseases, global epidemics and bio-warfare;  
Ethical, legal and social implications of genetic testing & research;  
Ethical theories and sources of moral authority;  
Ethics-based policies of human stem cell research;  
Healthcare workers as professionals and patients as persons;  
Law and ethics of assisted reproductive technologies;  
Limited medical resources, equitable access to healthcare and termination of medical treatment.

PATH6100      *Laboratory Methods and Instrumentation*

Basic concepts in automated DNA sequencing and genotyping;  
Basic concepts in conventional and molecular cytogenetics;  
Human identity by DNA typing;  
Hybridoma technology;  
Immunoassays-ELISA and related methods;  
In-situ hybridisation techniques (ISH, FISH, CISH);  
Principle and applications of flow cytometry;  
Principles of gene therapy;  
Study of tissue morphology-ultrastructural and confocal microscopy;  
Tissue processing and immunohistochemistry.

SURG6910      *Laboratory Animal Handling and Surgical Techniques*

Animal models for human diseases;  
Animal surgical techniques;  
Audio-visual instruction on animal handling techniques;  
Cancer models;  
Common laboratory animal species in the Laboratory Animal Unit;  
Drug/radiation induced animal disease models;  
Ethics in using laboratory animals;  
Genetically modified (GM) animal disease models;  
Transplantation immunology;  
Transplantation models;  
University & Government regulations governing the use of animals for experimental purposes.

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## II. BIOLOGICAL SYSTEMS

BIOC6200      *Genes and Gene Functions*

Physico-chemical properties of genetic material and gene products; the concept of pedigree and gene linkage and their applications; reverse genetics, the human genome; bioinformatics; functional genomics; and transgenics and the molecular basis of some genetic diseases.

BIOC6400      ***Working with Genes and Proteins***

Applications of radioisotopes in DNA research: hybridizations;  
Applications of radioisotopes in protein research: protein labeling;  
DNA sequencing technologies and genome projects;  
Gene expression analysis (differential gene expression, cDNA microarray, DNA chips);  
Gene function analysis: Transgenic animal technology and animal cloning;  
Gene function analysis: Yeast two-hybrid system and phage display system;  
Gene mapping, FISH;  
Laboratory safety in the use of radioisotopes for biochemical research;  
Manipulation of large DNA fragment, large scale manipulation of genomes;  
Preparation of nucleic acid samples; labeling nucleic acids: radioactive and non-radioactive approaches;  
Protein production in different host systems;  
Protein purification and separation – the basics and advances;  
Understanding radioisotopes commonly used in biochemical research.

CMED6600      ***Biological Basis of Common Health Problems***  
(not for students with Medical/Dental background)

Biology and pathophysiology of common diseases including cancer, diseases of the cardiovascular, respiratory, gastrointestinal, neurological, musculoskeletal and reproductive systems, infections and psychiatric diseases; for each selected disease, the following will be included: aetiology and risk factors, pathophysiology and clinical manifestations, pattern and distribution in populations.

PATH6300      ***General Cytopathology***

Ancillary laboratory techniques that can apply in cytopathology;  
Application and limitation of clinical cytopathology;  
Collection of cell samples;  
Interpretation of cytology samples;  
Laboratory accreditation;  
Laboratory processing of cytology specimens;  
Medicolegal aspect of clinical cytopathology;  
Organization of a cytopathology laboratory;  
Quality assurance program.

PHAR6100      ***Principles of Drug Action***

Drug interactions;  
Immunochemical basis of drug allergy;  
Mechanism of drug resistance;  
Molecular mechanisms of drug-receptor interaction;  
Pharmacogenetic basis of drug idiosyncrasy;  
The adverse effects of drugs and the mechanisms responsible;  
The development of drug tolerance and physical dependence;  
The fate of drugs in the body - their absorption, distribution, excretion and metabolism;  
The theoretical basis of dose-response relations.

PHYO6100      *Cell Biology*

Biology of tumour cells;  
Cell cycle and cell death;  
Cell differentiation;  
Cell surface receptors;  
Cellular interaction and immune response;  
Intercellular communication;  
Intracellular signal transduction;  
Neural regeneration;  
Neurotrophic factors;  
Structure and function of cells.

PHYO6200      *Concepts of Human Physiology*

Brain and behaviour;  
General principles of endocrine physiology;  
Homeostasis and concept of control system;  
Motor co-ordination;  
Nutrition and energy balance;  
Physiological signals;  
Respiratory physiology;  
Sensation and perception;  
The heart and the circulatory system;  
The internal environment and regulation of body fluid.

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**C.      SPECIALISED MODULES**

In addition, each candidate will be required to choose one specialised field of study.

A total of **six** modules (i.e. total module values = 6) should be selected. At least four must be taken in the Department in which the candidate is based; the remaining two can be taken in another Department but must be related to the chosen specialised field of study.

**DEPARTMENT OF ANATOMY**

ANAT6100      *Current Topics in Morphological Sciences, Cell Biology and Neuroscience*

A candidate is required to choose a total of **six** modules (i.e. total module values =6) from the modules listed below.

<u>Module Value</u>	<u>Modules</u>
1	Adrenomedullin and reproduction;
1	Basic molecular biology techniques for medical students;
1	Biological mechanisms of neurodegenerative diseases;
1	Cancer metastasis;
1	Control of cell proliferation and apoptosis;

1	Current topics in neuroimmunology;
1	Factors affecting implantation;
1	Growth factors;
1	Neurobiology;
1	Neuroprotection in glaucoma;
1	Neurotrophic factors in health and disease;
1	Non-alcoholic fatty liver disease;
1	Pathophysiology and models of neurodegenerative disorders;
1	Preventive medicine and neurodegeneration;
1	Stem cells.

## DEPARTMENT OF BIOCHEMISTRY

### BIOC6300 *Biochemistry and Molecular Biology*

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below.

<u>Module Value</u>	<u>Modules</u>
2	Advanced biochemistry: Signal transduction, biomodulators, enzyme kinetics, catalytic mechanisms, protein chemistry, post-translational modification of proteins.
2	Biochemistry seminar: Present and attend seminars, criticise, think, write and talk about biochemical issues, organise mini-conferences, technical reviews, research proposals, communication skills, personal and career development.
2	Molecular biology of the gene: Eukaryotic gene regulation, control of gene expression, transcription factors, DNA-protein interaction.
2	Practical bioinformatics: (Advice to Applications: candidates choosing this Specialised Module should have molecular biology background.) Gene identification; Information searching and retrieval: Entrez and SRS; Internet resources: DNA and protein sequence databases; Patterns, Motifs, and Profiles analysis; Phylogenetic analysis; Sequence alignment: multiple sequence alignment; Sequence database searching: FASTA, BLAST, Smith-Waterman, algorithm and parameters; Simple sequence analysis.

BIOC6500      ***Bioinformatics and Systems Biology***

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below.

<u>Module Value</u>	<u>Modules</u>
2	Biocomputing: To introduce and practice basic programming and statistical skills, to introduce basic concepts in data structure and algorithms.
2	Genomics and systems biology: To introduce the state-of-art high throughput genomic technologies, bioinformatics methods and tools analyzing these data.
2	Protein bioinformatics: To introduce basic concepts in protein sequence, structure and function. To introduce experimental methods that determine protein structure and protein structure prediction and function annotations.
2	Practical bioinformatics: (Advice to Applications: candidates choosing this Specialised Module should have molecular biology background.) To introduce sequence analysis and other web-based analysis tools; to introduce concepts in the search and retrieval of sequence information from biological databases and their analyses.

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**DEPARTMENT OF DIAGNOSTIC RADIOLOGY AND CLINICAL ONCOLOGY**

DRAD6200      ***Clinical Physics in Radiation Oncology and Medical Imaging***

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below.

<u>Module Value</u>	<u>Modules</u>
1	Basic radiological physics and dosimetry;
1	Brachytherapy physics;
1	Health physics with focuses on radiological protection in medical sectors;
1	Molecular imaging and medical cyclotron;
1	Nuclear medicine sciences;
1	Physics in medical imaging;
1	Principles and practice of radiotherapy physics;
1	Quality assurance (QA) in radiation therapy and medical imaging;
1	Use of computer in medical imaging.



## DEPARTMENT OF MEDICINE

### MEDI6100                    *Introduction to Stem Cells*

<u>Module Value</u>	<u>Modules</u>
1	An Introduction to stem cells;
1	Adult stem cells;
1	Cancer stem cells;
1	Embryonic stem cells;
1	Haematopoietic stem cells (HSC) and clinical applications;
1	Stem Cells and their niches.

### MEDI6300                    *Geriatric Medicine*

<u>Module Value</u>	<u>Modules</u>
2	Common diseases and impairments in the elderly: Appropriate drug prescribing; Chronic medical diseases and management; Impairment, disability, handicap and rehabilitation.
1	General principles in ageing and geriatric medicine: Current concepts in ageing and healthy ageing; Ethical and medico-legal issues; Geriatric assessment.
2	Geriatric syndromes: Evaluation and interventions on syndromes: falls, incontinence, malnutrition and dysphagia, pressure ulcers, dementia.
1	Health and long term care for the elderly: Organisation and service delivery models; Principles and values.

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## DEPARTMENT OF MICROBIOLOGY

### MICR6100                    *Medical Microbiology*

<u>Module Value</u>	<u>Modules</u>
1	Biosafety and handling of infectious waste;
1	Conventional and molecular techniques in detection and typing of microbial agents;
1	Infection control and hospital epidemiology;
1	Laboratory and clinical interphase in infectious diseases;
1	Trends and mechanism of antimicrobial resistance;
1	Virological diagnosis of infectious diseases.

MICR6200

***Infectious Diseases***

*(The following modules are available to medical graduates only)*

<u>Module Value</u>	<u>Modules</u>
1	Common problems in infectious diseases;
1	Daily infectious diseases rounds: QMH case records. Immunology, radiology, and radionuclide imaging in ID. Genitourinary medicine and HIV problems;
1	Infections in immunocompromised hosts and common infective problems in general practice;
1	Infectious disease emergencies, indwelling device and surgical infections;
1	Infectious disease update and emerging infections;
1	Surprises in daily medical practice: tropical diseases in the developed world.

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**DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY**

OBGY6200

***Assisted Reproduction Technology (Laboratory)***

<u>Module Value</u>	<u>Modules</u>
0.5	Advanced laboratory techniques in assisted reproduction;
1	Embryo culture and cryopreservation in assisted reproduction;
0.5	Reproductive physiology, assessment and principles of management of patients with subfertility;
3	Running of an assisted reproduction laboratory;
1	Semen preparation and assessment of sperm function.

OBGY6600

***Genetic Counselling***

<u>Module Value</u>	<u>Modules</u>
1	Clinical application of genetic, cytogenetic & biochemical analyses in genetic diagnosis and screening;
2	Genetics in Medicine;
1	Principles of genetic counselling;
1	Public Health Genomics;
1	Risk calculation and effective communication in genetic counselling.

## DEPARTMENT OF ORTHOPAEDICS AND TRAUMATOLOGY

### OSUR6100 *Hand Surgery*

A candidate is required to choose a total of six modules (i.e. total module values = 6) from the modules listed below.

<u>Module Value</u>	<u>Modules</u>
0.5	Applied anatomy and physiology of the hand;
0.5	Functional assessment of hand injuries;
0.5	Gait analysis;
1.5	Laboratory techniques with skin flaps, tendon repairs/transfers, nerve repairs, fracture reconstruction, microvascular surgery;
1	Microsurgery training in orthopaedics; <i>(This course may involve the use of live animals in teaching experiments. For details on the University's Conscientious Objection Policy, please refer to the document available at <a href="http://www.hku.hk/facmed/images/document/04research/culatr/ConscientiousObjectionPolicy.pdf">http://www.hku.hk/facmed/images/document/04research/culatr/ConscientiousObjectionPolicy.pdf</a>, or the website of the Committee on the Use of Live Animals in Teaching and Research (CULATR) at <a href="http://www.hku.hk/facmed/04research_animal.htm">http://www.hku.hk/facmed/04research_animal.htm</a>.)</i>
1.5	Rehabilitation of function after hand injury;
2	Study of clinical problems: traumatic, congenital, or infective problems.

### OSUR6200 *Spine Surgery*

<u>Module Value</u>	<u>Modules</u>
0.5	Biomechanics and assessment of patients with back problems;
0.25	Imaging for spinal problems, applications of computed imaging such as computed tomography and magnetic resonance imaging (This module will be given by the Department of Diagnostic Radiology);
0.5	Intraoperative spinal cord monitoring;
0.5	Laboratory techniques: approaches to the spine, anterior instrumentation, posterior instrumentation;
2	Operative surgery;
0.25	Spinal rehabilitation;
2	Study of clinical problems in 200 patients.

### OSUR6300 *Joint Replacement Surgery*

<u>Module Value</u>	<u>Modules</u>
1	Applied anatomy and biomechanics of the hip and knee;
1	Biomaterials in joint replacement;
1	Operative surgery;
1	Quality of life assessment;
1	Study of clinical problems;
1	Surgical management of chronic arthritis.

OSUR6400                    ***Foot and Ankle Surgery***

<u>Module Value</u>	<u>Modules</u>
2	Diabetic foot problems;
1	Foot and ankle biomechanics;
1	Foot deformities and reconstruction;
1	Foot pressure measurement;
1	Orthosis for foot and ankle.

OSUR6500                    ***Advanced Musculoskeletal Imaging***

<u>Module Value</u>	<u>Modules</u>
2	Clinical study on cervical myelopathy and spinal instability;
1	Micro-CT on musculoskeletal research;
1	Muscle imaging by ultrasound and surface electromyography;
1	Principle of spinal cord MRI/DTI/fMRI (Bold);
1	Principle of X-ray and dynamic videofluoroscopy for spinal disorders.

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**DEPARTMENT OF PAEDIATRICS AND ADOLESCENT MEDICINE**

PAED6300                    ***Child Neurology, Development and NeuroHabilitation***

<u>Module Value</u>	<u>Modules</u>
2	Clinical skills in diagnosis and assessment of neurological and developmental diseases in children;
2	NeuroHabilitation in paediatric practice – concept and outcome measures;
2	Problem solving skills for clinical cases.

PAED6600                    ***Paediatric Cardiology***

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below.

<u>Module Value</u>	<u>Modules</u>
1	Cardiac catheterization: Indications for cardiac catheterization; Interpretation of cineangiography; Interpretation of haemodynamic results ; Introduction to interventional cardiac catheterization; Principles and techniques of cardiac catheterization.

1	Echocardiography: 2-dimensional, Doppler, colour flow mapping and M-mode echocardiography; Newer modalities: acoustic quantification and Doppler tissue imaging; Prenatal screening: foetal echocardiography; Stress echocardiography; Transoesophageal echocardiography.
1	Investigations in paediatric cardiology: Interpretation of chest roentgenograms; Interpretation of electrocardiograms; Interpretation of results of 24-hour ambulatory electrocardiography; Introduction to electrophysiological study; Exercise testing.
1	Long-term outcomes of congenital heart diseases: Approach to management of adolescents and adults with congenital heart disease; Cardiac function after definitive and palliative cardiac surgery; Exercise capacity long after definitive cardiac surgery; Quality of life after surgical repair of congenital heart disease.
3	Principles and practice of paediatric cardiology: Approach to diagnosis of congenital heart disease; Clinical presentation; Intensive care after open and closed heart surgery; Interpretation of clinical signs; Medical and surgical management of congenital heart disease; Pathology, haemodynamics and natural course of acyanotic and cyanotic congenital heart diseases.

PAED6700

***Paediatric Endocrinology***

Module Value

Modules

1	Basic concepts in paediatric endocrinology: Anatomy, physiology, embryology and development of endocrine glands; Inborn error of metabolism; Mechanisms and actions of hormones and growth factors; Molecular genetics of endocrine disorders; Principles and practice of radioimmunoassays, radioreceptor assays, radioligand blotting, western blotting and tissue culture.
1	Dynamic tests of endocrine functions in children: Interpretation; Practical conduct of various tests; Theoretical basis of endocrine testing.
0.5	Growth: Abberant growth patterns; Factors affecting growth; Growth standards - use and abuse; Methods of auxological anthropometry; Normal foetal and postnatal growth.

0.5	Laboratory research techniques and molecular studies of hereditary diseases: General and special laboratory techniques in paediatric research; Molecular basis of some common hereditary diseases; Molecular biology tools for studying hereditary diseases.
3	Study of clinical endocrine problems: Clinical manifestations; Diagnosis and management; Pathogenesis.

PAED6800

***Community Child Health***

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below.

Module Value

Modules

Common child health problems in the community:

1.25	Common health problem in Hong Kong;
1	Common renal and urinary tract problems in children;
0.75	Common skin problems in children;
0.75	Long term outcome of childhood cancer survival;
0.5	Obesity epidemic and growth problem in the community.

Adolescent health and behavioural medicine:

0.25	Eating disorders in adolescents;
0.75	Sexually transmitted disease, high-risk sex and contraception;
0.5	Substance abuse in adolescents.

Environment and child-related public health:

0.75	Asthma and common respiratory diseases in children;
0.75	Common food and allergy problems;
0.75	Environment, childhood allergy and health promotion;
0.5	Environmental pollution, smoking and child health.

Safeguarding children and child development:

0.5	Childhood injury and prevention;
0.25	Childhood poisoning;
0.25	Early child development;
0.25	Play and child rights.

PAED6909

***Paediatric Haematology/Oncology/Immunology***

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below.

Module Value

Modules

1	Allergy;
1	Rheumatology/Immunology;
1	Haematology I: Clinical aspects;

1	Haematology II: Basic Science;
1	Oncology I;
1	Oncology II & transplantation;
1	Practical statistical applications in paediatric haematology/oncology/immunology;
1	Supportive care in paediatric haematology/oncology/immunology;
0.5	Imaging in paediatric haematology/oncology/rheumatology.

## DEPARTMENT OF PATHOLOGY

### PATH6200 *Clinical and Molecular Pathology, Haematopathology, and Immunology*

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below. When there are insufficient students enrolling in any one module, it may not be offered and our coordinator will advise the candidate to choose a related one.

<u>Module Value</u>	<u>Modules</u>
1	Blood cell and bone marrow pathology: Biology of normal haemopoietic cells; Bone marrow failure and transplantation; Common haematological malignancies.
1	Current topics and techniques in immunology: Application of flow cytometry in immunology; Basic principles/parameters of flow cytometry; Dendritic cell immunology; Immunofluorescence and confocal microscopy; Immunohistochemistry in diagnostic pathology; Lymphocyte development and function; Monoclonal antibody production and application; Overview of the immune system.
1	Molecular and clinical laboratory immunology methods and applications: Applications of molecular and clinical immunology to autoimmune diseases, allergy, immunodeficiency and monoclonal gammopathy; Molecular, serological and cellular techniques of clinical laboratory immunology; Quality and accreditation issues.
2	Molecular genetics and cytogenetics of cancer: Genetic basis of cancer and implications for clinical diagnosis, prognostication and disease monitoring e.g. liver cancer, nasopharyngeal carcinoma, lung cancer; Principles and analysis of cytogenetics and molecular cytogenetics of malignancy.

- 2 Techniques and applications of molecular pathology:  
 Basic concepts and research methodology in the  
 molecular pathology of human diseases;  
 Molecular basis of the pathogenesis of various human  
 cancers – e.g. malignant lymphoma, colonic cancer,  
 breast and ovarian cancer.

PATH6400 *Clinical Cytology*

<u>Module Value</u>	<u>Modules</u>
1	Fine needle aspiration cytology;
1	Gynaecological cytology I;
1	Gynaecological cytology II;
1	Hematological cytology and ancillary techniques in cytopathology;
1	Non-gynaecological cytology: Cytology of respiratory tract, effusion fluid, urinary tract, cerebrospinal fluid and joint fluid.

**DEPARTMENT OF PHARMACOLOGY AND PHARMACY**

PHAR6200 *Current Development in Pharmacology and Pharmaceutics*

A candidate is required to choose a total of **six** modules (i.e. total  
 module values = 6) from the modules listed below.

<u>Module Value</u>	<u>Modules</u>
2	Advanced drug delivery and nanomedicines: To provide a broad overview of the current challenges in delivering therapeutic biomacromolecules, and various aspects of the rapidly growing field of nanomedicine. Main topics of the course include delivery of proteins, peptides and nucleic acids, strategies to achieve specific targeting, development of nanotechnology and nanomedicines, with discussion of potential nanotoxicology.
2	Basic and applied toxicology: The nature and mechanism of the toxicity of natural and synthetic substances, current methods for determining and evaluating potential health hazards and risks.
2	Drugs for the treatment of heart and lung diseases: Brief introduction on normal physiology of the cardiac and respiratory function, the different pathologies associated with the cardiac and respiratory systems, with discussion on the therapeutic strategy for management of cardiac and respiratory diseases.



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Vascular biology and therapeutics:

Current knowledge on vascular function and the different regulatory systems in the maintenance of vascular tone and vascular integrity, the underlying mechanisms leading to various pathology of the vascular system, and current and prospective drug treatment for vascular diseases and vascular complications of diabetes and hypertension.

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## DEPARTMENT OF PHYSIOLOGY

PHYO6300

### *Current Topics in Physiology*

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below.

<u>Module Value</u>	<u>Modules</u>
6	Cardiopulmonary sciences;
6	Cell physiology;
6	Endocrinology;
6	Neurophysiology and brain function.

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## DEPARTMENT OF PSYCHIATRY

PSYS6200

### *Sleep Disorder*

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below.

<u>Module Value</u>	<u>Modules</u>
2	Clinical assessment of sleep disorder;
2	Physiological assessment of sleep disorder;
2	Physiology of sleep;
2	Sleep pathology;
2	Treatment of sleep disorder.

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## DEPARTMENT OF SURGERY

SURG6100

### *Breast Surgery*

<u>Module Value</u>	<u>Modules</u>
1	Breast cancer genetics and its clinical application;
1	Breast surgery including reconstruction and cosmetic surgery of the breast;
1	Psychological morbidity of breast disease (in conjunction with the Department of Psychiatry);

1	Radiological investigations in breast disease and screening for breast cancer (in conjunction with the Department of Diagnostic Radiology);
1	Surgical anatomy and physiology of the breast;
1	Surgical pathology of breast disease.

**SURG6200                      *Colorectal Surgery***

<u>Module Value</u>	<u>Modules</u>
1	Diagnosis and management of benign diseases of colon, rectum and anus;
1	Enhanced postoperative recovery after colorectal surgery;
2	Minimally invasive surgery for colorectal diseases;
1	Multidisciplinary management of colorectal cancer;
1	Surgery for colorectal malignancy.

**SURG6300                      *Ear, Nose and Throat Surgery***

<u>Module Value</u>	<u>Modules</u>
1	Balance test;
1	Brainstem-evoked response audiometry;
1	Investigatory procedure: Acoustic rhinomanometry;
1	Investigatory procedure: Otoacoustic emission;
2	Use of the laser in ENT.

**SURG6400                      *Gastroduodenal Surgery***

<u>Module Value</u>	<u>Modules</u>
1	Anatomy and physiology of the stomach and duodenum;
1	Diagnostic and therapeutic endoscopy;
1	Gastric tumours;
1	Laparoscopic surgery;
1	Surgical treatment of benign and malignant conditions;
1	Ulcer diseases and their complications.

**SURG6500                      *Head and Neck Surgery***

<u>Module Value</u>	<u>Modules</u>
1	Assessment of the extent of head and neck cancer: a) endoscopy, b) other investigations;
2	Laboratory practice of microsurgery;
2	Microvascular free flap reconstruction;
1	Regional flap reconstruction.

SURG6600

***Hepatobiliary and Pancreatic Surgery***

Module Value

Modules

1	Hepatectomy and other major surgical procedures;
1	Laparoscopic surgery;
1	Percutaneous, laparoscopic and intraoperative ultrasonography;
2	Study of specific clinical problems, e.g. hepatocellular carcinoma, recurrent pyogenic cholangitis, acute pancreatitis (250 patients);
1	Surgical anatomy of the liver, biliary tract and pancreas.

SURG6700

***Neurosurgery***

Module Value

Modules

1	Microsurgical vascular anastomosis;
5	Neuroanatomy of operative approaches.

SURG6800

***Oesophageal Surgery***

Module Value

Modules

1	Benign diseases of the oesophagus;
1	Diagnostic and therapeutic endoscopy;
1	Epidemiology;
1	Minimal access surgery of the oesophagus (benign and malignant diseases);
1	Surgery for oesophageal cancer;
1	Treatment options for oesophageal carcinoma.

SURG6900

***Paediatric Surgery***

A candidate is required to choose a total of **six** modules (i.e. total module values = 6) from the modules listed below.

Module Value

Modules

1	Developmental biology and molecular genetics for congenital anomalies and paediatric surgical conditions;
1	General paediatric surgery;
1	Neonatal surgery;
1	Paediatric endosurgery: endoscopy, laparoscopy and minimally invasive surgery;
1	Paediatric hepatobiliary surgery, including transplantation;
1	Paediatric surgical oncology;
1	Paediatric urology.

SURG6010

***Plastic and Reconstructive Surgery***

Module Value

Modules

2	Care of acute and chronic wounds;
1	Congenital deformities and management;
1	Microsurgery for reconstruction;
1	Principles of flap surgery;
1	Traumatic injuries and management.

SURG6920

***Principles and Practice of Endoscopy***

Module Value

Modules

1	Basic principles;
1	Diagnostic endoscopy;
1	Preparation and patient care;
2	Research in endoscopy;
1	Therapeutic endoscopy.

SURG6030

***Surgical Endocrinology***

Module Value

Modules

1	Endocrine surgical pathology;
1	Laparoscopic adrenal surgery;
1	Localisation of endocrine tumours;
1	Management of common surgical endocrine problems including thyroid nodule, thyroid cancer and primary hyperparathyroidism;
1	Surgical anatomy of the thyroid, parathyroid and adrenal glands;
1	Thyroid and parathyroid surgery.

SURG6090

***Surgery in General***

Module Value

Modules

3	Principles and practice of general surgery;
2	Surgical education and training;
1	Surgical research.

SURG6070

***Vascular Surgery/Non-Invasive Vascular Laboratory Imaging Techniques***

Module Value

Modules

1	Anatomy, physiology, haemodynamics and ultrasound physics;
1	Basic principles of Doppler assessment of blood flow in normal and pathological conditions;
1	Colour Doppler assessment of venous obstruction and incompetence;

1	Detection, quantitation, and prediction of cerebrovascular insufficiency;
2	Real-time colour Doppler imaging of cerebral and peripheral arteries.

SURG6940                      *Neurovascular Diseases*

<u>Module Value</u>	<u>Modules</u>
1	Applied neurovascular anatomy and physiology;
1.5	Endovascular treatment of cerebral aneurysms and arteriovenous malformations;
1	Laboratory practice on microvascular anastomosis;
1.5	Management of cerebral ischemic problem;
1	Operative surgery for neurovascular diseases.

**D. DISSERTATION**

The dissertation shall comprise a record of substantial experimental or clinically-based work on the project, or a review of the existing literature on the subject of the project, presented in a form suitable for publication. A minimum of 200 hours is required for the project.