

**REGULATIONS FOR THE  
MASTER OF PUBLIC HEALTH (MPH)**

*(Applicable to candidates admitted in the 2023/24 academic year and thereafter)*

*(See also General Regulations and Regulations for Taught Postgraduate Curricula)*

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**M.87 Admission requirements**

To be eligible for admission to the curriculum leading to the Master of Public Health, a candidate shall:

- (a) comply with the General Regulations;
  - (b) comply with the Regulations for Taught Postgraduate Curricula;
  - (c) 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;
  - (d) satisfy the University English language requirement applicable to higher degrees as prescribed under General Regulation G2(b); and
  - (e) satisfy the examiners in a qualifying examination, if required.
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**M.88 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 or she has satisfied the examiners in the examination.
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**M.89 Award of degree**

To be eligible for the award of the degree of Master of Public Health, a candidate shall:

- (a) comply with the General Regulations;
- (b) comply with the Regulations for Taught Postgraduate Curricula; and
- (c) complete the curriculum requirements and satisfy the examiners in accordance with the regulations set out below.

Advanced standing may be granted to a candidate in recognition of prior studies completed at a comparable level before admission to the Master of Public Health subject to the following conditions:

- (a) such course(s) should be completed no more than 5 years prior to the candidate's commencement of the Master of Public Health curriculum;
- (b) such course(s) should be appropriate for the Master of Public Health concentrations the candidate has applied for; and
- (c) advanced standing for up to 9 credits may be granted.

A candidate may choose to exit the curriculum after having successfully completed a minimum of 45 credits and be considered for the award of a Postgraduate Diploma in Public Health. Those who have been granted a Postgraduate Diploma in Public Health as an exit award shall not be re-admitted to the curriculum leading to the Master of Public Health.

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## **M.90 Period of Study**

The curriculum shall normally extend over one academic year of full-time study, or two academic years of part-time study. Candidates shall not be permitted to extend their studies beyond the maximum period of registration of three academic years of full-time study, or four academic years of part-time study, unless otherwise permitted or required by the Board of the Faculty.

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## **M.91 Completion of curriculum**

To complete the curriculum, a candidate shall:

- (a) satisfy the requirements prescribed in TPG 6 of the Regulations for Taught Postgraduate Curricula;
- (b) take not less than 69 credits in the manner specified in these regulations and the syllabi, and follow the instructions in the syllabi prescribed for the curriculum and complete satisfactorily all required written, practical or clinical work;
- (c) satisfy the examiners in the courses by continuous assessments and/or written examinations;
- (d) complete an approved practicum; and
- (e) complete a satisfactory capstone project on a topic approved by the Board of Studies and may be required to present for an oral examination.

A candidate who fails to fulfil the requirements within the prescribed maximum period of registration shall be recommended for discontinuation under the provisions of General Regulation G12.

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## **M.92 Course selection**

Selection of courses shall be made within the curriculum structure delineated for each concentration, in consultation with the Academic Director and subject to the approval of the Board of Studies.

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## **M.93 Title of the capstone report (capstone experience)**

The title of the capstone report shall be submitted for approval in the year of graduation. The candidate shall submit a statement that the capstone report represents his/her own work (or in the case of conjoint work or work on a secondary dataset, a statement countersigned by his/her co-worker/supervisor, which shows his/her share of the work) undertaken after registration as a candidate for the degree.

All capstone reports may be subject to oral examination.

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## **M.94 Assessment**

- (a) A candidate who has failed to satisfy the examiners in a course in the first attempt may be permitted:
  - (i) to attend a re-examination; or
  - (ii) to re-submit the failed coursework(s) without having to re-take the same course; or
  - (iii) to re-take the course and the prescribed examination(s); or
  - (iv) to enrol in another course in lieu if the failed course is not a core course.
- (b) A candidate who has presented an unsatisfactory capstone report in the first attempt may be permitted to revise the capstone report and to re-present it within a specified period of not more than four months after receipt of a notice that it is unsatisfactory.

- (c) A candidate who has failed the practicum in the first attempt shall be permitted to undertake a supplementary practicum within a specified period of not more than four months after receipt of a notice that it is unsatisfactory.
  - (d) A candidate who has failed to satisfy the examiners in the second attempt in any course(s), capstone report or practicum, or exceeded the prescribed maximum period of registration shall be recommended for discontinuation of studies under the provisions of General Regulation G12, or may be required to exit the curriculum by the Faculty Board, on recommendation of the Board of Examiners, with an award of Postgraduate Diploma in accordance with M.89.
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### **M.95 Grading system**

Individual courses (except the practicum) will be graded according to the following grading system:

<b>Grade</b>	<b>Standard</b>	<b>Grade Point</b>
A+	Excellent	4.3
A		4.0
A-		3.7
B+	Good	3.3
B		3.0
B-		2.7
C+	Satisfactory	2.3
C		2.0
C-		1.7
D+	Pass	1.3
D		1.0
F	Fail	0

The practicum will be graded according to the “Pass” and “Fail” grading system.

On successful completion of the curriculum, a candidate who has shown exceptional merit may be awarded a distinction as determined by the Board of Examiners for the degree.

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### **M.96 Publication based on work approved**

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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## SYLLABUS FOR THE MASTER OF PUBLIC HEALTH

### Overall curriculum structure

Candidates are required to complete a minimum of 69 credits curriculum requirement for the Master of Public Health as set out below:

Curriculum Structure	Credit Weight
<b>Courses</b>	
Core Courses	18
Concentration Courses	18
Elective Courses	6
<b>Total Course Credits</b>	<b>42</b>
<b>Practicum</b>	<b>12</b>
<b>Capstone</b>	<b>15</b>
<b>Total credits</b>	<b>69</b>

The mode of assessment for core and elective courses comprises continuous assessments (40%-100%) and written examination (0%-60%). Candidates are also required to undertake a practicum and submit a capstone report to the satisfaction of the examiner(s).

### CURRICULUM REQUIREMENTS

Candidates are required to:

- 1) Choose one of the four **Areas of Concentration**
  - a) Public Health Practice (PHP)
  - b) Epidemiology and Biostatistics (EB)
  - c) Control of Infectious Diseases (CID)
  - d) Health Economics, Policy and Management (HEPM)
- 2) Choose courses by **Area of Concentration**
  - a) All candidates must enrol in the following core courses:

Code	Title	Credit Units
CMED6100	Introduction to biostatistics	3
CMED6200	Introduction to epidemiology	3
CMED6201	Principles of public health	3
CMED6704	Health behaviour and communication	3
CMED6901	Health leadership and management	3
CMED6900	Health policy and politics	3

- b) All candidates must enrol in the Practicum

Code	Title	Credit Units
CMED6224	Practicum	12

- c) All candidates must enrol in the Capstone

Code	Title	Credit Units
CMED6000	Capstone	15

- d) All candidates must select additional courses as specified for each **Area of Concentration**

### **Concentration 1: Public Health Practice (PHP)**

Candidates must take the PHP concentration courses listed below and at least **6** credits from elective courses in the course list.

Public Health Practice (PHP) concentration courses		Credits
CMED6912	Environmental health hazards and interventions	3
CMED6204	Health and society	3
CMED6218	Human health: futures in a globalized world	3
CMED6216	Personalised public health	3
CMED6208	Risk: perception, decisions and communication	3
CMED6202	The practice of public health	3

### **Concentration 2: Epidemiology and Biostatistics (EB)**

Candidates must take the EB concentration courses listed below and at least **6** credits from elective courses in the course list.

Epidemiology and Biostatistics (EB) concentration courses		Credits
CMED6030	Advanced epidemiological methods I	3
CMED6020	Advanced statistical methods I	3
CMED6040	Advanced statistical methods II	3
CMED6211	Infectious disease epidemiology	3
CMED6300	Intermediate epidemiology	3
CMED6207	Non-communicable disease epidemiology and control	3

### **Concentration 3: Control of Infectious Diseases (CID)**

Candidates must take the CID concentration courses listed below and at least **6** credits from elective courses in the course list.

Control of Infectious Diseases (CID) concentration courses		Credits
CMED6104	Emerging infectious diseases and "one health"	3
CMED6230	Epidemics and endemic diseases	3
CMED6228	Field epidemiology	3
CMED6211	Infectious disease epidemiology	3
CMED6105	Infectious diseases in public health	3
CMED6208	Risk: perception, decisions and communication	3

#### **Concentration 4: Health Economics, Policy and Management (HEPM)**

Candidates must take the HEPM concentration courses listed below and at least 6 credits from elective courses in the course list.

Health Economics, Policy and Management (HEPM) concentration courses		Credits
CMED6109	Accounting and financial management in health care	3
CMED6902	Health economics	3
CMED6905	Economic Evaluation for Public Health	3
CMED6907	Perspectives in health care management	3
CMED6903	Resources for health	3
CMED6910	Strategies in health care	3

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#### **COURSE LIST**

(The courses are offered subject to availability and minimum student number.)

##### **CMED6109. Accounting and financial management in health care (3 credits)**

This course is designed to introduce students to financial accounting, management control and financial management concepts in the healthcare industry. Topics include (1) understanding of financial statements, management of working capital, and financial statement analysis, (2) cost behavior and analysis, cost allocation, activity-based costing, departmental cost allocation, budgeting, responsibility accounting, and variance analysis, (3) time value of money, financing, cost of capital, and capital budgeting. This course uses a number of cases to demonstrate the applications of concepts in the healthcare environment.

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##### **CMED6401. Advanced clinical epidemiology and decision analysis (3 credits)**

**(Pre-requisite: (i) CMED6200 Introduction to epidemiology, (ii) CMED6100 Introduction to biostatistics)**

This is an intermediate/advanced-level course on methods of clinical epidemiology and decision science. It covers the techniques and growing range of applications of decision analysis and cost effectiveness analysis in health care technology assessment, health policy analysis, medical decision making, and health resource allocation. Students will learn to apply methods that are currently used at the frontiers of clinical epidemiology and decision science research in clinical and public health settings. While the primary emphasis is not mathematical theory, a certain amount of theoretical background is presented for each topic.

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##### **CMED6030. Advanced epidemiological methods I (3 credits)**

**(Pre-requisite: (i) CMED6200 Introduction to epidemiology and (ii) CMED6300 Intermediate Epidemiology)**

The overarching conceptual framework for this course centres on the use of structural causal models to design, analyze and interpret studies commonly used in epidemiology, including observational studies, instrumental variable studies, quasi-experimental studies and experimental study designs. This course will consider how structural causal models, mediation analysis, effect modification, multi-level models, sensitivity analysis and consideration of missing data, can be applied to the pursuit of making valid and generalizable causal inferences in epidemiology.

**CMED6050. Advanced epidemiological methods II (3 credits)**  
**(Pre-requisite: (i) CMED6200 Introduction to epidemiology and (ii) CMED6030 Advanced epidemiological methods I)**

This course will provide an in depth investigation of statistical methods for drawing causal inferences from observational studies. Informal epidemiologic concepts such as confounding, comparability, intermediate variables, total effects, controlled direct effects, natural direct and indirect effects for mediation analysis, and selection bias will be formally defined within the context of a counterfactual causal model. Methods for estimating a total causal effect in the context of a point exposure will be discussed, including regression methods, propensity score techniques and instrumental variable techniques for continuous, discrete or binary outcome. Mediation analysis will be discussed from a counterfactual perspective, which methods for making inferences about the joint effects of time- varying exposures in the presence of time dependent covariates that are simultaneously confounders and intermediate variables will be emphasized. These methods include g-estimation of structural nested models, inverse probability weighted estimators of marginal structural models, and g- computation algorithm estimators.

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**CMED6107. Advanced immunology (3 credits)**  
**(Pre-requisite: A Bachelor of Science degree in biology or immunology or equivalent. Prior approval of the HKU-Pasteur Research Pole.)**

Each year, this course will focus on a different topic, including innate immunity, inflammation, mucosal immunity, vaccination, and or adaptive immunity. Special emphasis is placed on diseases that represent a threat to public health in this region. Lectures are given by internationally renowned scientists, workshops/round tables are supervised by junior faculty members, and practical sessions organized together with local and/or invited faculty members.

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**CMED6020. Advanced statistical methods I (3 credits)**  
**(Pre-requisite: CMED6100 Introduction to biostatistics)**

This course covers generalized linear models, meta-analysis, and instrumental variable analysis. This course will provide a practical overview of commonly used biostatistical methods, building on the basic methods introduced in CMED6100.

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**CMED6040. Advanced statistical methods II (3 credits)**  
**(Pre-requisite: CMED6100 Introduction to biostatistics; CMED6020 Advanced statistical methods I)**

This course will provide a basic, yet thorough introduction to the probability theory and mathematical statistics that underlie many of the commonly used techniques in public health research. The frequentist and Bayesian approaches to parameter estimation, interval estimation and hypothesis testing will be compared and contrasted. All theoretical material will be motivated by problems from epidemiology and public health.

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**CMED6106. Advanced virology (3 credits)**  
**(Pre-requisite: A Bachelor of Science degree in biology or immunology or equivalent. Prior approval of the HKU-Pasteur Research Pole.)**

Each year the course focuses on a different set of viruses/diseases that are relevant for public health in Asia and worldwide. Topics include: epidemiology, molecular and cellular biology of viruses; virus/host

molecular interactions; pathogenetic mechanisms, prevention strategies against viral diseases and therapeutical approaches. Lectures are given by internationally renowned scientists, workshops/round tables are supervised by junior faculty members, and practical sessions organized together with local and/or invited faculty members.

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**CMED6914. Air pollution and human health (3 credits)**

This course covers air pollution, ambient and household, as a public health issue. It will introduce the latest research findings in the field of health effects of air pollution as well as the epidemiological and toxicological study methods, which are evolving as we call for improved causal inference from observational and experimental data. It will discuss the risk reduction measures including health-based air quality management and coherent policies on air pollution and climate change mitigation. Case studies and special topics such as cancer will be included. It is hoped that the skills learned in this air pollution course can be applied to analyse broader environmental health issues.

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**CMED6271. Bioethics foundations (3 credits)**

This is a course in bioethics offering an introduction to the fundamentals of bioethics.

The course provides a firm grounding in traditional approaches to bioethics and relevant basics of legal and philosophical theory, while also introducing students to non-Western perspectives. By making connections to moral and legal philosophy as well as to bioethics, students will be able to locate current questions of policy and law within a broader academic context. The course will emphasize building student understanding of philosophical fundamentals, which are involved in and may provide a different perspective to more specific topics in bioethics such as the end of life and the physician-patient relationship.

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**CMED6227. Biological basis of disease (3 credits)**

This course analyses the basic features of cellular functioning at different levels and the molecular basis of diseases and provides an overview of the recent technological advances that are impacting the health care and public reaction to scientific discoveries. Examples will be drawn for non-communicable and communicable diseases.

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**CMED6909. Comparing Systems of Care for Older People (3 credits)**

This virtual international course in comparative systems of care for older people takes an Age Friendly approach to aging and public health. It employs a partnership between the University of Hong Kong and the University of Pennsylvania as the basis for building a global perspective on care for older people. It examines topics from ageism, the climate crisis, and gerontechnology to hospital care, social welfare, and care at the end of life, drawing on renowned experts from around the world. Learners use professional reflection and critical comparison to generate relevant situational analyses and Age Friendly innovation through interactive synchronous sessions and a series of focused individual assignments.

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**CMED6000. Capstone (15 credits)**

The Capstone will demonstrate the acquisition and synthesis of skills and competencies acquired in the curriculum. Each candidate will undertake a Capstone project on a topic approved by the *Capstone Advisor* and submit a Capstone report.



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**CMED6905. Economic evaluation for public health (3 credits)**

This class covers the standard methods used in economic evaluation with a focus on public health interventions. Methods used to produce models of costs and health benefits are covered as well as approaches to measure and convey uncertainty. At the end of the class a student should be able to design and carry out a study that complies with professional guidelines such as the Consolidated Health Economics Evaluation Reporting Standards 2022.

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**CMED6104. Emerging infectious diseases and "one health" (3 credits)**

Emerging infectious diseases continue to pose major threats to global public health, with SARS, MERS, pandemic influenza, Ebola and Zika being recent examples. Many of these diseases emerge through inter-species transmission from animals. The factors that contribute to the emergence of such diseases and other zoonotic diseases include environmental, ecological, societal, microbial and host factors. A "One Health" approach that envisions an integrated approach to enhancing the health of humans, animals and the environment is a paradigm relevant to responding emerging infections. This interactive course is designed for postgraduate students who are interested in understanding the factors that contribute to infectious disease emergence, prevention, and control.

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**CMED6231. Emergency medicine for disaster and humanitarian crises responders (3 credits)**

The human suffering and destruction following a disaster or humanitarian crisis impose a significant demand for emergency healthcare resources. These catastrophes, which occur with intimidating frequency, present to responders a wide range of problems. This course addresses these problems from the perspective of Emergency Medicine. It will specifically cover the clinical challenges associated with disasters or humanitarian crises and their management, the principles of disaster response and the related ethical and legal issues.

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**CMED6913. Measuring the spatial built environment for public health (3 credits)**

Built environment, the communities they support and human health are intrinsically interlinked. This course will introduce the science and practice of Healthy Cities through a holistic overview of the linkages between urban built environment and public health and introduce objective GIS-based methodologies to spatially measure the built environment to study their impacts on health.

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**CMED6912. Environmental health hazards and interventions (3 credits)**

This is a foundation course in environmental health which addresses how the environmental factors may adversely affect human health and what can be done to prevent or minimize the negative impact of environmental health hazards. Whereas environmental science tends to address how human beings affect the environment, this public health oriented course focuses on how the environment may adversely affect human health. Topics include: exposure and dose; hazard and risk; natural and anthropogenic factors; physical, chemical and biological hazards in the air, water, soil and food; local and global environmental health issues.

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**CMED6230. Epidemics and endemic diseases (3 credits)**

Infectious diseases have been an important public health issue since the beginning of human history. With

frequently observed emergence and re-emergence of infectious diseases, it is essential to examine previous major disease outbreaks/epidemics and interventions in preventing transmission of these diseases in order to inform public health decisions in disease control in the future. In this course students will examine major epidemic and endemic human infectious diseases and dissect infectious diseases from historical and contemporary perspectives using an integrated approach to improve their ability to apply public health approaches to prevent and control infectious diseases and formulate appropriate strategies in response to disease epidemics/outbreaks in society.

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**CMED6205. Epidemiology of important health conditions (3 credits)**

Global burden of diseases, epidemiology of cancer, cardiovascular, respiratory, infectious, mental and musculoskeletal diseases, lifestyle factors (smoking, alcohol, diet, exercise, environment, occupation) and health.

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**CMED6400. Evidence-based practice (3 credits)**  
**(Pre-requisite: CMED6200 Introduction to epidemiology)**

This course builds on the principles of epidemiology covered in Introduction to Epidemiology (CMED6200) and introduces clinical epidemiology. Students will learn how to evaluate the validity and relevance of information from research about diagnostic tests, therapy, and prognosis, as well as from conventional information sources (including experts, reviews, and practice guidelines) and consider the efficiency and effectiveness of clinical decisions. Students will also be introduced to methods of searching for and keeping up with new, valid, and relevant clinical information at the point of patient care. Finally, meta-research as an approach to improve the quality of clinical and public health research will be discussed.

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**CMED6228. Field epidemiology (3 credits)**

The course introduces the theory of disease surveillance and includes a review of the relevant epidemiological and bio-statistical skills needed for field investigation. The operational aspects of field investigations including study and questionnaire design, sampling and data collection, data analysis and interpretation, formulation of recommendations, and risk communication. Field investigations in some special settings will also be considered.

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**CMED6906. Financial management of health care organisation (3 credits)**  
**(Pre-requisite: (i) CMED6910 Strategies in health care or (ii) Previous health care working experience)**

This course builds on CMED6910 Strategies in health care, and introduces the use of financial information to inform strategic decision making, and covers topics such as financing of health care services, role of internal/ external audit, role of director of finance, corporate governance, strategic and business planning. This course is designed for students with prior working experience in health care industry and requires in-class discussions.

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**CMED6204. Health and society (3 credits)**

This course offers an overview of the role of social determinants in promoting health and health equity. We will critically evaluate how social structures, economic systems, and political structures contribute to health inequities and explore strategies and methodologies to advance health equity.

By the end of the course, students will be familiar with the key social determinants of health, the principles of social justice (i.e., access to resources, equity, participation, diversity, and human rights) and its influence on population health, the application of Critical Race Theory in understanding racial bias and health disparities in marginalized communities, as well as the global movement to decolonize global health.

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#### **CMED6704. Health behaviour and communication (3 credits)**

This course provides a comprehensive review of the social and behavioural science theories commonly used in public health. The utility of these theories in planning, implementing, and evaluating public health interventions and programs will be critically examined. The theories addressed in this course are not limited to the individual-level, but also that take a broader perspective and examine the role of health communication in influencing health behaviours.

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#### **CMED6219. Health communication (3 credits)**

The course covers the development of public communication campaigns in the field of health promotion. Students will explore how the mass media can be used to promote health; design mass media messages that are consonant with principles of behavioural science and the public health model; and determine a strategic plan for an integrated mass media campaign.

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#### **CMED6902. Health economics (3 credits)**

This course introduces the field of health economics from first principles. It covers key economic concepts including demand and supply, markets and market failures, uncertainty and information asymmetry, and health economic evaluation. Students will learn how to critically appraise health economic evaluation studies and explore the uses and limitations of economic analysis in health and health care. The course also gives hands-on practice of simple modelling exercises and data analysis using the R programming language.

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#### **CMED6220. Health informatics (3 credits)**

**(Co-requisite: CMED6901 Health leadership and management)**

This course will provide students with an introduction to the fundamentals of population health informatics, its history, relevant concepts and related informatics domains. The course will further describe the fundamentals of computing, data, information and knowledge principles, information architecture of population health systems and role of data standards in the development of population health information systems. Students will be introduced to some of the examples of applications of health informatics such as personal health record, electronic health record, telehealth, decision support system, mobile health and other emerging technological innovations that can contribute to the improvement of population health. The course will also provide students with a knowledge of issues related to privacy, security and confidentiality related to health data collection, storage, and its processing. Students will also be introduced to concepts of evaluating quality of health information on the internet and design principles that need to be taken into consideration when developing human centered health information systems.

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#### **CMED6901. Health leadership and management (3 credits)**

Strong and effective health care systems leaders and managers are needed to achieve greater efficiency and responsiveness, local, regional or international health goals, and ultimately to improve health outcomes. This

introductory course addresses the core competencies needed for effective leadership and management. From a systems level perspective, the course considers how concepts such as systems thinking and organizational design influence outcomes, how resources are budgeted and used to achieve system goals, and the importance of mediation, negotiation and leadership in facilitating organizational change.

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**CMED6900. Health policy and politics (3 credits)**

This course introduces the core theories of public policy and health policy to understand and assess the effectiveness, efficiency, and equity of national or regional health systems. Students are guided through the policy process and learn about the role of policymakers and stakeholders in influencing policy outcomes. The trade-offs that are made in setting priorities in health policy (equity, efficiency, and other outcomes) are discussed. Using these theoretical considerations, students are led through a survey of health system typologies to understand the way in which political economy has influenced the adoption of health policies in select health systems. Students are given the opportunity to make policy recommendations to address a specific health issue by analyzing the causes and consequences of this issue, making arguments as to why it should be on the policy agenda, evaluating potential strategies to address this issue, developing strategies to overcome resistance from opposing stakeholders, and proposing a framework to evaluate the effectiveness of the policy on health and health equity outcomes. Students are taught strategies to advocate for their policy solution. Finally, students are given the opportunity to conduct research on a key health policy issue and debate whether a given policy should be adopted to address it.

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**CMED6206. Health promotion and health education (3 credits)**

This course provides students with a broad overview and understanding for health, health-related human behaviour and how to effect change. Through guided mock practices individually or in groups, students are led through the processes of assessment, planning and evaluation of a variety of health promotion and health education approaches and actions that can be employed in real life.

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**CMED6218. Human health: futures in a globalized world (3 credits)**

This “big picture” course has as its focus the implications of environmental degradation and global warming for the next 25 years. Globalization, economics, resource depletion, food and agricultural issues, population change and societal reactions, and climatological impacts from current patterns of human population behaviour within an ecological systems-based perspective to infer likely futures and their health implications are explored. In particular, students examine current trends and models to attempt to estimate emerging public health issues and hazards linked to these.

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**CMED6911. Human resources in health care organisations (3 credits)**

This course provides an overview of human resource issues in health care. Through individual case studies, group assignments and presentations, students will have a basic understanding of human resource principles, how these apply to health care organisations and the consequent impact on patient care. Topics covered will include, among others, manpower planning and recruitment, staff motivation and performance, leadership and teamwork.

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**CMED6211. Infectious disease epidemiology (3 credits)**

**(Pre-/Co-requisite: (i) CMED 6100 Introduction to biostatistics; (ii) Basic programming skills in R or**

**similar languages including the use of loops and functions. Students who have little or no experience at computer programming are expected to self-learn these skills via free online courses such as R Programming on Coursera (<https://www.coursera.org/learn/r-programming>).)**

This course covers the fundamental concepts of infectious disease epidemiology and current methods for infectious disease surveillance and control. Topics include epidemiologic triangle, transmissibility and severity, outbreak investigations and responses, infectious disease surveillance, vaccination, molecular epidemiology, and epidemic modelling. Exemplary cases will focus on recent emerging infectious diseases (e.g. COVID-19, SARS, pandemic influenza, avian influenza, MERS) will be used to facilitate students' learning.

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**CMED6210. Infectious disease modelling (3 credits)**

**(Pre-requisite: (i) CMED6211 Infectious disease epidemiology and (ii) strong programming skills in R or equivalent (including the use of loops, conditional statements, and functions). Fulfillment of such pre-requisites before or during the course is solely the responsibility of the enrolled students. Students who have little or no experience in computer programming are expected to self-learn these skills via free online courses such as R Programming on Coursera (<https://www.coursera.org/learn/r-programming>).)**

This course is an introduction to mathematical modeling of infectious disease dynamics and control. The course is designed for students who have a strong background in infectious disease epidemiology and determine to advance their knowledge and skills with infectious disease modeling. Topics include basic epidemic theory, estimation of transmissibility and clinical severity, parameter estimation, stochasticity, evidence synthesis, assessment of uncertainty, cost and effectiveness evaluation of interventions, and optimization of control strategies under resource constraints.

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**CMED6105. Infectious diseases in public health (3 credits)**

Infectious diseases are of major public health concern. This course focuses on the study of microbiology from a public health point of view. This course covers basic microbiology, common infectious diseases in community and health care settings, and provides the biological basis for the methods used for prevention and control of communicable diseases. This course has a strong emphasis on the practical aspects of infectious disease and is important to those who are working or pursue their career in the fields of epidemiological investigations, public health surveillance, and other public health responses that are related to microbial infections.

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**CMED6232. Infectious Outbreaks and Disasters (3 credits)**

Human history has been intertwined with infectious outbreaks. From the outbreak of plague in the early 20<sup>th</sup> century in Manchuria to the most recent outbreak of Zika virus disease in South America, infectious outbreaks have claimed millions of lives and posed a major problem to the global healthcare system. Infectious outbreaks are closely related to disasters. By definition, infectious disease disasters are events that involve a biological agent or disease and cause mass casualties. They require a different management approach from other types of disasters in terms of mitigation, preparedness, response and recovery. This course is designed to provide students an overview of infectious outbreaks and disasters so that they can appraise the relationship between the two and critically analyze and propose strategic interventions in response to an infectious disease disaster from the public health perspective.

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**CMED6300. Intermediate epidemiology (3 credits)**

**(Pre-requisite: CMED6200 Introduction to epidemiology)**

This course builds on the introductory course in epidemiology (CMED6200). Causal inference is undoubtedly one of the most important epidemiological concepts in current epidemiological and population health research. Epidemiological research which focuses on ‘risk factor’ analysis though important does not always lead public health practitioners and scientists to identify modifiable factors relevant for changing health outcomes. The application of causal inference thinking in epidemiological study design and the use of more advanced data analysis helps ameliorate this problem.

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**CMED6100. Introduction to biostatistics (3 credits)**

Biostatistics concerns the collection, analysis, interpretation and presentation of biological data. Specific applications include epidemiology, clinical trials and public health. This course covers descriptive statistics and elementary probability, and introduces basic topics in inferential biostatistics, including regression, confidence intervals and hypothesis tests. The course provides students with introductory skills in biostatistics to complete their capstone reports; therefore its primary focus is on the practical use and interpretation of statistical methods.

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**CMED6200. Introduction to epidemiology (3 credits)**

Epidemiology is the study of the occurrence and distribution of illness in a population, the causes and determinants of illnesses and diseases, and the application of this knowledge to control health problems at the community level. Epidemiology provides the scientific basis of understanding of the health problems and evidence to support public health interventions. This course introduces the basic concepts and approaches used in epidemiologic research, and serves as a prerequisite for several other courses.

The course begins with an introduction to common approaches to measure the occurrence and distribution of illness in populations and the relationship between different measures. The course then moves on to introduce the major types of epidemiological study designs. Students will learn to design, interpret and critically appraise each type of study, with the aim of differentiating between the study designs and appreciating their relative strengths and limitations in identifying the determinants and causes of illness and disease. The concept of causal inference will be introduced with focus on common pitfalls in epidemiological studies that could lead to biased estimation of the causal relationship. To complement the above quantitative methods, students will also learn how to collect and analyze qualitative data to inform public health practice. Finally practical issues in designing and implementing epidemiological studies will be discussed, and students will learn to use appropriate terminology and language to report epidemiological findings. Throughout the course, major historical and contemporary epidemiological studies will be described.

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**CMED6269. Introduction to medical law (3 credits)**

The introductory portion of the course will consist of Legal System and Methods: an overview of the nature of legal method and precedent and of sources of law, as well as the framework of the Basic Law and general legal system in Hong Kong. In particular, the workings and methodology of the English common law system (on which Hong Kong medical law is largely based) will be examined. Students will be equipped with the necessary academic tools for legal analysis, research and writing. The course will familiarize students without legal backgrounds with distinctions between civil and common law systems as well as the role of international law. Within the common law framework, students will build understanding of the role of precedent, sources of law and governmental authority and distinctions between procedural and substantive law. The course will also cover the topic of health as a human right and its relation to national and international law.

The second portion of the course will cover Introduction to Medical Law. In this section, students will be given an introduction to the law of tort, with an emphasis on the torts of trespass and negligence. Case studies drawn from medico-legal claims will be used. The concept of causation and damages will also be covered briefly. A short introduction to the differences between the various kinds of actions that may be faced by healthcare professionals (coroners' inquiries, professional disciplinary proceedings, criminal proceedings, and civil claims in trespass, negligence or in contract) will also be given. Consideration will also be given to the legal responsibilities of healthcare professionals other than physicians, including nurses, allied healthcare professionals, medical social workers and counsellors.

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### **CMED6108. Molecular epidemiology: microbial genetics and evolution (3 credits)**

The genomes of pathogenic microorganisms determine their infection and transmission in hosts. Emergence and re-emergence of infectious diseases are usually associated with the evolution of these pathogens in response to the host defense and environmental challenges. This course introduces the genomic and evolutionary biology of pathogens causing human infections, and the implications to the public health policies for disease control and management, such as regarding to vaccine strain selection and drug administration. Modern research methods for studying pathogen genome and evolution to understand their transmission and epidemiology, are also introduced, with demonstration using real examples from recent epidemics.

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### **CMED6203. Measurement in health (3 credits)**

Measuring health status is central to health services research and clinical trials. This course examines the basic science of health measurement for health services research and public health. The theoretical aspects of health measurement including empirical validity analyses of an existing instrument and the process of developing an instrument where a suitable one does not already exist are considered. The use and utility of a number of evaluative instruments and measurement methods including, screening tools, clinician rating scales and self-report health indicators among others are critically evaluated.

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### **CMED6291. Mental disability and the law (3 credits)**

This is a course that explores the relationship between mental disability and the law.

This course deals with the relationship between mental disability and the law, examining various aspects of how the law deals with those with mental disability in both the civil and criminal context. The course also addresses the key ethical principles underlying mental health law, as well as the international human rights instruments (such as the UN Convention on the Rights of Persons with Disabilities) that have had or should have an impact on the development of mental health law.

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### **CMED6207. Non-communicable disease epidemiology and control (3 credits) (Pre-requisite: (i) CMED6200 Introduction to epidemiology and (ii) CMED6201 Principles of public health)**

Non-communicable diseases (NCDs), such as cardiovascular disease, diabetes, cancer and chronic respiratory disease, are major causes of death and disability. This course builds on the fundamental courses CMED6200 Introduction to Epidemiology and CMED6201 Principles of Public Health by exploring the distribution, predictors and causes of major NCDs. Students will review the global burden, prevailing theories and controversies regarding the aetiology of major NCDs and formulate effective public health strategies for their prevention and control. This course focuses on the critical appraisal of epidemiological studies and the translation of research findings into practice, which will be relevant to students pursuing a career in

epidemiology or public health practice.

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**CMED6216. Personalised public health (3 credits)**

Personalised public health is the study of the impact of advancements in genetic, genomic, information and other relevant technologies on advancing modern public health practice. The course will start with an exploration on the inter-relationship of genetic, environmental, and other factors on shaping disease susceptibility, and followed by a detailed examination on the potential impact and challenges on modern public health practice given by these technological advancement. Specific issues to be discussed include advanced approaches in health promotion, disease screening, control and prevention, health risk prediction, individualized disease management and prevention, and ethical, legal, cultural, economic and policy issues involved when applying genomics and digital health technologies to inform modern public health practice.

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**CMED6907. Perspectives in health care management (3 credits)**

**(Pre-requisite: (i) CMED6901 Health leadership and management or (ii) Previous health care work experience)**

This course is designed to introduce the framework of healthcare management and clinical governance, clinical leadership, problem solving skills driving quality improvement, clinical and non-clinical risk management, evidence-based medicine, and performance management in healthcare setting. The aims of the course are to study the application of knowledge on healthcare leadership and management using a case-based approach. The course also intends to recognize the complexity in healthcare environment, professional and organization ethics, appraise the essence of public health measures, and impact of health policies on healthcare and acquire basic skills of leaders and managers in healthcare at global and local levels.

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**CMED6916. Practice management in the private sector (3 credits)**

**(Pre-requisite: (i) CMED6901 Health leadership and management or (ii) Previous health care work experience)**

This course seeks to build on students' own experiences and knowledge of health care provision and health care systems and develop the relevant managerial skills for private sector health care management. Health care provision and health care systems are understood both from the perspective of a private health care provider within the mixed medical economy that is Hong Kong.

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**CMED6224. Practicum (12 credits)**

The Practicum aims to prepare students with a broad mastery of subjects and methods necessary for the field of public health practice, bridging theory and practice. The practicum is a planned, supervised and evaluated and students are expected to demonstrate competency as per learning outcomes.

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**CMED6201. Principles of public health (3 credits)**

This is the fundamental survey course which encompasses the full spectrum of contemporary public health issues locally and globally.

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### **CMED6221. Public health ethics and law (3 credits)**

This course will introduce students to public health law and ethics. With the understanding that ethics and law are two different domains of praxis and governance, and that ideally ethics should ground law, the first part of the course will focus on the ethics of public health. Through particular case studies such as the COVID-19 pandemic, this course will discuss emerging as well as recurrent themes in public health ethics discourse, including the tensions between private interest and the common good, and between the right to health and other human rights; as well as the practice of distributive justice and solidarity in the protection and promotion of population health. Specific topics will include the ethics of isolation/quarantine and the social determinants of health. The second part of the course, informed by ethical perspectives from the first part, will focus on Hong Kong public health law in comparative perspective. Topics include the conceptual and historical foundations of public health law; the legal infrastructure of the public health system and the constitutional duties of actors within this system; the legal control of communicable diseases and non-communicable diseases; the law of public health emergencies; the legal regulation of food and drug safety; and occupational and environmental health law.

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### **CMED6915. Public health leadership (3 credits)**

**(Pre-requisite: (i) CMED6901 Health leadership and management or (ii) Previous health care work experience)**

This course focuses on the challenges of managing complex health care systems. It explores the leadership and motivational skills acquired by effective leaders, and discusses the different roles associated with managing the individual, the unit, the organization, and the larger system.

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### **CMED6217. Qualitative health research (3 credits)**

This course will provide a comprehensive introduction to qualitative health research, with the aim to helping students to acquire a sound knowledge base of the qualitative research process and to develop an appreciation of the importance of qualitative research in health science. During the course, various qualitative methods will be introduced and discussed. Students will have the opportunity to engage in activities involved in data collection, analysis, as well as appraising qualitative research evidence.

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### **CMED6908. Quality health care (3 credits)**

Methods and strategies for quality measurement in quality improvement and accountability. Measurement of clinical quality using process or outcome data. Measurement of patient expectations/experience with the health care system. Nature and causes of variation in quality, variation related to overuse, underuse and misuse of services. Strategies for changing physician and organizational practice. Traditional quality improvement techniques, regulation, credentialing education, CQI, organizational learning, systems design, managed care, practice guidelines, information systems, performance reports, mediation.

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### **CMED6903. Resources for health (3 credits)**

**(Pre-requisite: CMED6900 Health policy and politics)**

This course analyses the origins and flow of resources through health systems. The course begins with an overview of health financing, including revenue generation, risk pooling, and purchasing. It then discusses the production of health, the productivity of health care, and the major drivers of growth in health expenditures. Adopting a universal health coverage framework, the course then discusses how resources are

important to achieving both coverage of essential health services and financial protection in health. Basic economic theories of supply and demand will also be covered to enhance the students' understanding of the underlying economic mechanisms affecting the performance of health systems. Student will also learn about the importance of non-financial resources ( i.e. human resources and health technologies) in the production of healthcare and the financing of public health systems. Tutorials will cover obtaining health resource data, tracking health expenditures, measuring financial protection, calculating equity, and monitoring progress towards UHC in Hong Kong. Finally, the political economy of improving the availability of resources in a health system will also be discussed.

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**CMED6208. Risk: perception, decisions and communication (3 credits)**

Risk is inevitable in life, yet the ability to accurately judge risk and the decisions made thereafter are usually quite skewed by psychological, social and contextual factors, so much so that serious errors can occur in decision making. In health care, the ability to accurately assess risk and the psychological strategies that people adopt to avoid the threat that risk presents means that health hazards are often completely misrepresented both to one self and to others. Health professionals also have the task of communicating health risk information to the community as well as individuals. How can information be presented in such a way as to effectively communicate the true nature of a hazard without distorting or falling into the trap of being ignored? This course looks in detail at the area of risk perceptions, the distortions of decisions by psychological and other factors and the communication of risk, all core skills for public health professionals.

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**CMED6910. Strategies in health care (3 credits)**

**(Pre-requisite: (i) 2 years of work experience and (ii) have completed courses on healthcare accounting (CMED 6109 accounting and financial management in health care))**

This course aims to introduce different conceptual frameworks and methodologies required to develop sustainable strategies for organisations in health care – including but not limited to governmental organisations, NGOs, hospitals/clinics, pharmaceutical companies, medical device companies.

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**CMED6274. The beginning and end of life (3 credits)**

The course examines in depth some of the most compelling ethical, legal and social issues brought about by the advent of modern technology which has blurred the certainty traditionally taken for granted as regards the constructs of the beginning of life and of its end.

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**CMED6275. The legal foundations of global health and development (3 credits)**

This course introduces students to global health law, international moves towards a right to global health, the fundamental human right of access to basic medical services, national and coordinated international responses to and the management of global health hazards (including responses to emergent infections, epidemics, antimicrobial resistance (AMR), addiction and substance abuse), the socio-legal management of and responses to risky behaviours (including STDs, addiction and substance abuse).

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**CMED6272. Medical law and ethics (3 credits)**

The course examines in-depth the legal relationship between the physician and the patient, with a particular focus on the basic ethical and legal duties and responsibilities owed by registered medical practitioners to their patients. The aim is to equip students with a sound understanding of the basic legal principles and

doctrines underlying the legal and ethical responsibilities and duties owed to their patients.

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**CMED6202. The practice of public health (3 credits)**

This course aims to promote the application of public health sciences to a wide range of common problems and issues. Students will be given various scenarios simulating real-world public health problems which can be used to illustrate the wide range of disciplines applicable (from an evidence-based perspective) to the practice of public health. Students will practise the development of a systematic approach to define these problems, search for information to support their assessment, and propose and execute actions to deal with the problems.

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**CMED6250. The regulation of biomedical research (3 credits)**

The course is aimed at students seeking a understanding of the framework of legal and ethical regulation (both locally and internationally) of biomedical research in all its common aspects, particularly in the context of international standards for clinical trials (pharmaceutical trials); direct human experimental and biomedical research involving human subjects; ‘non-invasive’ epidemiological and other studies involving only the use of data; human tissue banking; cohort studies; biobanking; genetic testing and screening, genomic research; the use of ‘legacy’ diagnostic tissue or data collections; the sharing of personal, medical and genomic information; public ‘diseases registries’ and the use of medical information for public health purposes; the legal and ethical regulation of multi-centre and multi-jurisdictional collaborative biomedical research; international standards for ethical governance of biomedical research at the institutional level (through IRBs, ECs, HRECs); EMR (electronic medical records) databases; data-mining and the implications of migration to large-scale national health records systems.