Genomics and Precision Medicine Track with Specialisation in

Genomics and Bioinformatics

基因組學與精準醫學方向

專修範疇：基因組學與生物信息學

The **Specialisation in Genomics and Bioinformatics** is designed to equip students with comprehensive knowledge and practical skills in genetics, genomics, and bioinformatics, with a strong emphasis on their applications in biomedical research and healthcare. The programme provides an in-depth exploration of genomics and other omics data analysis, preparing graduates for the future of medicine, where genome sequencing and molecular diagnostics will be integral to healthcare.

「**基因組學與生物信息學**」**專修課程**旨在為學生提供全面的遺傳學、基因組學與生物信息學知識與實踐技能，特別強調其在生物醫學研究與醫療保健中的應用。該課程深入探討基因組學及其他組學數據分析，為畢業生進入未來醫學領域做好準備。

Highlights 課程亮點

- Comprehensive training in **genetics, genomics, and bioinformatics**

  全面培訓**遺傳學、基因組學與生物信息學**知識

- Hands-on experience with **bioinformatics tools and data analysis**

  提供**生物信息学工具與數據分析**的實作經驗

- Emphasis on **applications in research, clinical practice, and industry**

  強調在**研究、臨床實踐與產業中的應用**

- Integration of **omics technologies and big data analytics**

  融合**組學技術與大數據**分析

Target Students 適合報讀人士

- Medical professionals seeking training in **precision and genomic medicine**

  希望接受**精準醫學與基因組學**訓練的醫療專業人士

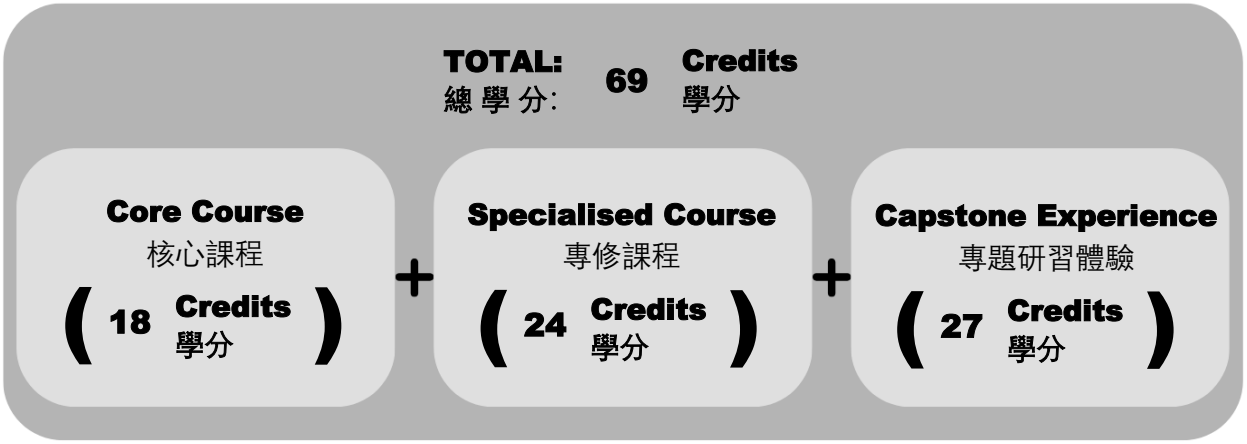
- Students in biomedicine-related fields aiming to develop skills in **modern biomedical research and big data analysis**

  希望提升**現代生物醫學研究與大數據分析**技能的生物醫學相關領域學生

- Students with background in computation or statistics but interested in applying their expertise to **biomedical research** (foundational biology knowledge required)

  具備計算或統計背景，並希望將其專業應用於**生物醫學研究**的學生（需具備基礎生物學知識）

Curriculum 課程大綱



The courses listed below are offered subject to availability and minimum student number.
Courses marked with an asterisk "*" are compulsory.

下列課程之開辦須視乎師資安排及最低收生人數而定。標有星號（*）者為必修科目。

Core Courses (18 credits required)

核心課程（需修讀 18 學分）

Course Code 課程編號	Course Name 課程名稱	Credits 學分
CMED7100	Introduction to Biostatistics 生物統計學概論	6
CMED7200	Introduction to Epidemiology 流行病學概論	6
PAED7100	Principles to Genetic Counselling 遺傳諮詢原理	6
PAED7200	**Introduction to Genomic Medicine and Precision Health*** **基因組醫學與精準健康導論***	**6**
PATH6600	Fundamentals of Common Human Diseases 人類常見疾病基礎	6
PATH6700	Recent Advances in Cancer Biology 癌症生物學前沿進展	6
SBMS7200	Molecular Biology of the Gene and Diseases 基因與遺傳疾病的分子生物學	6

Specialised Courses (24 credits required)

專修課程（需修讀 24 學分）

Course Code 課程編號	Course Name 課程名稱	Credits 學分
SBMS7100	**Essential Skills in Next-Generation Sequencing Data Analysis*** **次世代定序數據分析的基本技能***	**6**
SBMS7300	**Foundations in Biomedical Data Science*** **生物醫學數據科學基礎***	**6**

PAED7210	**Molecular Diagnosis of Mendelian Diseases by NGS Technology*** **以次世代测序技術進行孟德爾疾病的分子診斷***	**3**
PAED7220	**Genetic Studies of Complex Diseases*** **複雜疾病的遺傳研究***	**3**
PAED7230	**Cancer Genomics and Precision Treatment*** **癌症基因組學與精準治療***	**3**
PAED7240	**Scientific Methods, Experimental Design, and Data Interpretation in Genetics and Genomics*** **遺傳與基因組學中的科學方法、實驗設計與數據詮釋***	**3**

Capstone Experience

專題研習體驗

Course Code 課程編號	Course Name 課程名稱	Credits 學分
PATH7000	**Capstone: Genomics and Bioinformatics*** **專題研習：基因組學與生物信息學***	**27**
MMSC6001	**Dissertation Writing*** **論文寫作***	**N/A**
MMSC6003	**Research Ethics*** **研究倫理***	**N/A**

Students will undertake a **thesis project**, selecting one topic from the following areas:

研究項目包括專題研究、文獻回顧、數據分析與報告撰寫，並由教師提供密切指導與輔導。學生可以選擇以下領域之一進行論文研究：

- Genomics Research
  基因組學研究
- Medical Genetics
  醫學遺傳學
- Cancer Genomics
  癌症基因組學
- Diagnostic Genomics
  診斷基因組學
- Public Health Genomics
  公共衛生基因組學

Admission Advisor 招生顧問

Professor Wanling Yang 楊萬嶺教授
Professor,
Department of Paediatrics and Adolescent Medicine,
School of Clinical Medicine, LKS Faculty of Medicine
香港大學李嘉誠醫學院臨床醫學學院
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Professor Wanling Yang is a faculty member in the Department of Paediatrics and Adolescent Medicine at The University of Hong Kong. A medical graduate from China, he earned his Ph.D. from the University of Minnesota and completed postdoctoral training at the Medical University of South Carolina before joining HKU in 2006.

楊萬齡教授現任香港大學兒童及青少年科學系教員，於美國明尼蘇達大學取得博士學位，隨後在南卡羅來納醫科大學完成博士後訓練，於2006年加入香港大學。

Professor Yang's research focuses on genetic factors in systemic lupus erythematosus (SLE) through genome-wide association studies, as well as the development of molecular diagnostics for Mendelian diseases using next-generation sequencing. Leading a multidisciplinary team, his lab integrates omics data analysis and bioinformatics to bridge the gap between big data and biomedical applications.

楊教授的研究重點包括透過全基因組關聯研究探索系統性紅斑狼瘡（SLE）的遺傳因素，以及利用次世代定序技術開發孟德爾疾病的分子診斷方法。他領導的跨學科團隊整合組學數據分析與生物資訊技術，致力於縮短大數據與生物醫學應用之間的距離。

https://paed.hku.hk/menu/staff/wanlingyang/wanlingyang.html