

Academic Year: 2021 - 2022

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### ▼ Important Message

The information provided here is for reference and may be subject to change by the course coordinator(s) or the offering department(s) concerned.

### ▼ Section A: Course Information

#### BBMS3009 - Genome Science

Faculty LKS Medical Faculty

#### Department

##### Description

Centre for PanorOmic Sciences

#### Course Coordinator

Name	Faculty/ Department	Email Address
Dr. Joshua Wing Kei Ho	School of Biomedical Sciences	jwkho@hku.hk

Credit Value 6.00

Course Grade A+ to F

Semester Offered First Semester

#### Prerequisite(s)/ Corequisite(s)/Impermissible Combination(s)

Pass in BIOL2102 Biostatistics and any one of these courses: BBMS2003 Human Genetics, BBMS2007 Essential Molecular Biology, BIOL3401 Molecular Biology, BIOL3408 Genetics, or equivalent courses

#### Approved Syllabus

This course will present topics applicable to human genetics and genomic biology in the "post-genome" era. Main topics include The Human Genome Project; technologies for genomic analysis such as microarrays and high-throughput sequencing; and bioinformatics for handling, analysing and interpreting genomic data, making use of standard analysis programs and public genomic resources such as the HapMap, 1000 Genome, ENCODE and Epigenetic Roadmap. We also show how the application of genome science to human diseases has led to improved understanding of disease aetiology and mechanisms. Student will gain knowledge and understanding genomics that will be useful in their future career, be it in science or industry.

Prerequisite: Pass in BIOL2102 Biostatistics and any one of these courses: BBMS2003 Human Genetics, BBMS2007 Essential Molecular Biology, BIOL3401 Molecular Biology, BIOL3408 Genetics, or equivalent courses  
Assessment: 40% assignment; 60% examination.

#### Course Objectives

To nurture graduates with a broad knowledge base of genomic science, who are equipped to pursue careers related to genomics, such as academic research, science teaching, genomic testing laboratories, healthcare, pharmaceuticals and biotechnology.

### ▼ Section B: Teaching/ Learning

Course Type Lecture course

#### Course Learning Outcomes

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Academic Plan Minor in Genetics and Genomics (4)

[On completing the course, students will be able to](#)

[Alignment with Programme Learning Outcomes](#)

<p>[SN: 001] 1) demonstrate solid knowledge of genomic sciences</p>	<p>[SN: 00001] Students should be able to demonstrate solid knowledge of biomedical sciences.</p> <p>[SN: 00004] Students should be able to evaluate research literature.</p> <p>[SN: 00007] Students should be able to engage in relevant and realistic self-appraisal as biomedical scientists and realize one's own capabilities and limitations.</p> <p>[SN: 00008] Students should be able to understand broader concepts of molecular and health sciences and be able to relate these to scientific issues of cultural, regional and global significance.</p> <p>[SN: 00009] Students should be able to communicate and collaborate effectively with scientific peers and healthcare professionals orally and in writing.</p> <p>[SN: 00011] Students should be able to appreciate the role of biomedical sciences in the improvement of human conditions.</p>
<p>[SN: 002] 2) determine the scientific questions that can be addressed by modern genomic technologies, with an appreciation of their limitations</p>	<p>[SN: 00002] Students should be able to develop scientific inquiry and critical thinking skills, including the ability to understand, analyze, and evaluate problems in order to develop solutions.</p> <p>[SN: 00005] Students should be able to make rational hypotheses about ill-defined biomedical sciences problems based on the best available data and evidence.</p> <p>[SN: 00007] Students should be able to engage in relevant and realistic self-appraisal as biomedical scientists and realize one's own capabilities and limitations.</p> <p>[SN: 00009] Students should be able to communicate and collaborate effectively with scientific peers and healthcare professionals orally and in writing.</p> <p>[SN: 00010] Students should be able to understand the importance of ethics and integrity of scientific research, and respect the roles and contributions of other members of the team and display capacity for team work.</p> <p>[SN: 00011] Students should be able to appreciate the role of biomedical sciences in the improvement of human conditions.</p> <p>[SN: 00012] Students should be able to participate in the generation, interpretation, application and dissemination of biomedical sciences knowledge which will improve the quality of healthcare.</p>
<p>[SN: 003] 3) apply the core knowledge and skills in genomic analysis for biomedical research</p>	<p>[SN: 00003] Students should be able to apply the core knowledge and skills for the pursuit of biomedical sciences research.</p> <p>[SN: 00006] Students should be able to identify potential approaches or research that will lead to the advancement in biomedical sciences.</p> <p>[SN: 00007] Students should be able to engage in relevant and realistic</p>

self-appraisal as biomedical scientists and realize one's own capabilities and limitations.

[SN: 00009]

Students should be able to communicate and collaborate effectively with scientific peers and healthcare professionals orally and in writing.

[SN: 00012]

Students should be able to participate in the generation, interpretation, application and dissemination of biomedical sciences knowledge which will improve the quality of healthcare.

### Course Teaching and Learning Activities

Description	Approx. number of hours (for normative student)	% of total study load
Tutorials- contact hours	15.60	13.33
Lectures- contact hours	15.60	13.33
Assessment	7.80	6.67
Reading / Self study	78.00	66.67
<b>Total</b>	<b>117.00</b>	<b>100.00</b>

### Assessment Methods and Weighting

Assessment methods	Weighting in final course grade (%)
Assignments	40.00
Examination	60.00
<b>Total</b>	<b>100.00</b>
<b>Coursework/Examination Ratio</b>	<b>40.00% / 60.00%</b>

### Assessment Methods and Assignment

Assessment Methods and Assignment	Alignment with Course Learning Outcomes
1 Assignments	<p>[SN: 001] 1) demonstrate solid knowledge of genomic sciences</p> <p>[SN: 002] 2) determine the scientific questions that can be addressed by modern genomic technologies, with an appreciation of their limitations</p> <p>[SN: 003] 3) apply the core knowledge and skills in genomic analysis for biomedical research</p>
2 Examination : Short answer questions	<p>[SN: 001] 1) demonstrate solid knowledge of genomic sciences</p> <p>[SN: 002] 2) determine the scientific questions that can be addressed by modern genomic technologies, with an appreciation of their limitations</p> <p>[SN: 003] 3) apply the core knowledge and skills in genomic analysis for biomedical research</p>

**Course Grade Descriptors** [Browse course grade descriptors](#)

**Course URL** Nil

### Related Major/ Minor/ Professional Core

Description	Associated Credit Unit Statement
Minor in Genetics and Genomics (4)	Nil

## Section C: Course Schedule

## Course Schedule for this year 2021-22

Semester	Session	Start Date	End Date	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start Time	End Time	Venue	Teaching Staff
2021-22 Sem 1	1A-LEC (1885)	06/09/2021	04/10/2021	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	03:30 PM	05:20 PM	--	Hon Yin Chung Joshua Wing Ke Ho Pak Chung Sham Sze Man Tang Wanling Yang You-qiang Song Yuanhua Huang
2021-22 Sem 1	1A-LEC (1885)	07/09/2021	05/10/2021	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	04:30 PM	05:20 PM	LE9	Hon Yin Chung Joshua Wing Ke Ho Pak Chung Sham Sze Man Tang Wanling Yang You-qiang Song Yuanhua Huang
2021-22 Sem 1	1A-LEC (1885)	18/10/2021	29/11/2021	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	03:30 PM	05:20 PM	--	Hon Yin Chung Joshua Wing Ke Ho Pak Chung Sham Sze Man Tang Wanling Yang You-qiang Song Yuanhua Huang
2021-22 Sem 1	1A-LEC (1885)	19/10/2021	30/11/2021	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	04:30 PM	05:20 PM	LE9	Hon Yin Chung Joshua Wing Ke Ho Pak Chung Sham Sze Man Tang Wanling Yang You-qiang Song Yuanhua Huang

Note: Teaching staff information will be printed once they are finalised.

### Section D: Additional Course Information

Note: Information about course content and reading materials listed below is extracted from Moodle at scheduled intervals. Please refer to Moodle for up-to-date information.

#### Course Content and Topics

Classical genetic epidemiology  
Genome-wide association studies  
Exome sequencing studies  
Transcriptome analysis  
Epigenetic analysis  
Personalized medicine  
Systems Genomics

#### Required/ Recommended Readings and Online Materials

TBC

### Course Effectiveness Profile

Academic Year	Academic Career	Enrollment #	Response #	Response Rate (%)	Mean Course Effectiveness	Course Coordinator's Comments
1 2019	UG	7	2	28	50.0	
2 2018	UG	15	9	60	71.4	
3 2017	UG	12	5	41	70.0	

Note: If the number of response is less than 6, "Mean Course Effectiveness" will be masked. For further details, please refer to [Operational Guide for Student Feedback on Teaching & Learning](#).

### Section E: University Information

#### Academic Misconduct and Plagiarism

##### Academic honesty

The University highly values honesty in the academic work submitted by students, and adopts a policy of zero tolerance on cheating in examinations and plagiarism in any work submitted for assessment. Any student who commits such an academic offence is liable to be considered by the University's Disciplinary Committee for possible disciplinary action which can result in serious consequences - including expulsion from the University.

Plagiarism is copying the work of another person without proper acknowledgement. There are two parts in the definition: copying and the absence of proper acknowledgement. As a result, it gives an impression to an ordinary reader that the work is the original work of the author when in fact it was copied from some others' work. Copying does not necessarily only mean copying word for word. Closely paraphrasing or substantial copying with minor modifications (such as changing grammar, adding a few words or reversing active/passive voices) is still copying for this purpose. It does not matter what the nature of the source is: it may be a book, an article, lecture notes or simply an assignment of another student, or in electronic form such as a website, an audio-visual production or other non-textual material, to name but a few. It does not matter whether the source has been published or not. Plagiarism covers any form of work submitted for assessment, including theses, dissertations, take-home examinations, assignments, projects and other forms of coursework.

Students are strongly advised to read the booklets "What is Plagiarism?" (<http://www.hku.hk/plagiarism/>) and "Plagiarism and How to Avoid it" (<http://www4.caes.hku.hk/plagiarism/>) and to consult your teachers if you have any questions on the definition of plagiarism and how to avoid it. Students are also advised to familiarise themselves with issues in relation to copyright as publicized in the section on "Copyright and Plagiarism" in the Student Handbook (<http://www.handbook.hku.hk/ug/>). These guidelines cover lecture notes, course materials, photocopies, internet materials as well as dissertations.

Students should read these guidelines carefully and revisit them from time to time.

#### University Assessment Policy

Please refer to the [University Assessment Policy](#) available online.

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