**Academic Year:** 2020 - 2021
**This version is as of** 13/08/2020 12:51PM

## 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

**BIOC4612 - Molecular biology of the gene**

**Faculty** Science Faculty

**Department**

| Description |
|---|
| School of Biomedical Sciences |

**Course Coordinator**

| Name | Faculty/ Department | Email Address |
|---|---|---|
| Prof K S E Cheah | School of Biomedical Sciences | hrmbdkc@hku.hk |

**Credit Value** 6.00

**Course Grade** A+ to F

**Semester Offered** Second Semester

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

Pass in BIOC3601 Metabolism or BIOL3401 Molecular biology or BIOL3402 Cell biology and cell technology or BIOL3404 Protein structure and function or BBMS2007 Essential Molecular Biology

**Approved Syllabus**

To provide an up-to-date knowledge of molecular biology, especially with respect to the regulation of eukaryotic gene expression.

## Section B: Teaching/ Learning

**Course Type** Lecture-based course

**Course Learning Outcomes** Find | View All First 1 of 2 Last

**Academic Plan** Major in Biochemistry (4)

| | On completing the course, students will be able to | Alignment with Programme Learning Outcomes |
|---|---|---|
| 1 | [SN: 001]<br>On successful completion of this course, students should be able to describe the mechanisms for regulation of transcription, RNA processing and translation in eukaryotes. | [SN: 00001]<br>By the end of this programme, students should be able to describe the principles of biomolecular structure, metabolism, molecular interactions, molecular processes and their regulation, genetics and systems biology critical to contemporary biochemistry and molecular biology.<br><br>[SN: 00002]<br>By the end of this programme, students should be able to apply biochemical, bioinformatics and molecular genetics technologies for new observations, measurements and analyses; and to design experiments that bring discovery and insight into the unknown.<br><br>[SN: 00003]<br>By the end of this programme, students should be able to interpret and communicate scientific data and literature using appropriate scientific language.<br><br>[SN: 00004]<br>By the end of this programme, students should be able to work effectively as a team and synergize with their colleagues in a supportive manner. |
| 2 | [SN: 002]<br>On successful completion of this course, students should be able to explain how cellular homeostasis can be maintained by a combination of controls of gene expression at multiple levels. | [SN: 00001]<br>By the end of this programme, students should be able to describe the principles of biomolecular structure, metabolism, molecular interactions, molecular processes and their regulation, genetics and systems biology critical to contemporary biochemistry and molecular biology.<br><br>[SN: 00002]<br>By the end of this programme, students should be able to apply biochemical, bioinformatics and molecular genetics technologies for new observations, measurements and analyses; and to design experiments that bring discovery and insight into the unknown.<br><br>[SN: 00003]<br>By the end of this programme, students should be able to interpret and communicate scientific data and literature using appropriate scientific language.<br><br>[SN: 00004]<br>By the end of this programme, students should be able to work effectively as a team and synergize with their colleagues in a supportive manner. |
| 3 | | |

| | | |
|---|---|---|
| | [SN: 003]<br>On successful completion of this course, students should be able to illustrate the hierachy of gene expression regulation in stem cells and developmental processes. | [SN: 00001]<br>By the end of this programme, students should be able to describe the principles of biomolecular structure, metabolism, molecular interactions, molecular processes and their regulation, genetics and systems biology critical to contemporary biochemistry and molecular biology.<br><br>[SN: 00002]<br>By the end of this programme, students should be able to apply biochemical, bioinformatics and molecular genetics technologies for new observations, measurements and analyses; and to design experiments that bring discovery and insight into the unknown.<br><br>[SN: 00003]<br>By the end of this programme, students should be able to interpret and communicate scientific data and literature using appropriate scientific language.<br><br>[SN: 00004]<br>By the end of this programme, students should be able to work effectively as a team and synergize with their colleagues in a supportive manner. |
| 4 | [SN: 004]<br>On successful completion of this course, students should be able to interpret experimental results in gene regulation studies. | [SN: 00001]<br>By the end of this programme, students should be able to describe the principles of biomolecular structure, metabolism, molecular interactions, molecular processes and their regulation, genetics and systems biology critical to contemporary biochemistry and molecular biology.<br><br>[SN: 00002]<br>By the end of this programme, students should be able to apply biochemical, bioinformatics and molecular genetics technologies for new observations, measurements and analyses; and to design experiments that bring discovery and insight into the unknown.<br><br>[SN: 00003]<br>By the end of this programme, students should be able to interpret and communicate scientific data and literature using appropriate scientific language.<br><br>[SN: 00004]<br>By the end of this programme, students should be able to work effectively as a team and synergize with their colleagues in a supportive manner. |
| 5 | [SN: 005]<br>On successful completion of this course, students should be able to work effectively with classmates in tutorial classes. | [SN: 00001]<br>By the end of this programme, students should be able to describe the principles of biomolecular structure, metabolism, molecular interactions, molecular processes and their regulation, genetics and systems biology critical to contemporary biochemistry and molecular biology.<br><br>[SN: 00002]<br>By the end of this programme, students should be able to apply biochemical, bioinformatics and molecular genetics technologies for new observations, measurements and analyses; and to design experiments that bring discovery and insight into the unknown.<br><br>[SN: 00003]<br>By the end of this programme, students should be able to interpret and communicate scientific data and literature using appropriate scientific language.<br><br>[SN: 00004]<br>By the end of this programme, students should be able to work effectively as a team and synergize with their colleagues in a supportive manner. |

## Course Teaching and Learning Activities

| Description | Aprrox. number of hours (for normative student) | % of total study load |
|---|---|---|
| Lectures- contact hours | 36.00 | 24.32 |
| Tutorials- contact hours | 12.00 | 8.11 |
| Reading / Self study | 100.00 | 67.57 |
| **Total** | 148.00 | 100.00 |

## Assessment Methods and Weighting

| Assessment methods | Weighting in final course grade (%) |
|---|---|
| Assignments | 20.00 |
| Examination | 80.00 |
| **Total** | 100.00 |
| **Coursework/Examination Ratio** | 20.00% / 80.00% |

## Assessment Methods and Assignment

| | Assessment Methods and Assignment | Alignment with Course Learning Outcomes |
|---|---|---|
| 1 | Assignments | [SN: 001]<br>On successful completion of this course, students should be able to describe the mechanisms for regulation of transcription, RNA processing and translation in eukaryotes.<br><br>[SN: 002]<br>On successful completion of this course, students should be able to explain how cellular homeostasis can be maintained by a combination of controls of gene expression at multiple levels.<br><br>[SN: 003]<br>On successful completion of this course, students should be able to illustrate the hierachy of gene expression regulation in stem cells and developmental processes. |

| | | |
|---|---|---|
| | | [SN: 004]<br>On successful completion of this course, students should be able to interpret experimental results in gene regulation studies.<br><br>[SN: 005]<br>On successful completion of this course, students should be able to work effectively with classmates in tutorial classes. |
| 2 | Examination | [SN: 001]<br>On successful completion of this course, students should be able to describe the mechanisms for regulation of transcription, RNA processing and translation in eukaryotes.<br><br>[SN: 002]<br>On successful completion of this course, students should be able to explain how cellular homeostasis can be maintained by a combination of controls of gene expression at multiple levels.<br><br>[SN: 003]<br>On successful completion of this course, students should be able to illustrate the hierachy of gene expression regulation in stem cells and developmental processes.<br><br>[SN: 004]<br>On successful completion of this course, students should be able to interpret experimental results in gene regulation studies. |

**Course Grade Descriptors** Browse course grade descriptors

**Course URL** http://webapp.science.hku.hk/sr4/servlet/enquiry

**Related Major/ Minor/ Professional Core**

| Description | Associated Credit Unit Statement |
|---|---|
| Major in Biochemistry (4) | Nil |
| Minor in Biochemistry (4) | Nil |

## Section C: Course Schedule

**Course Schedule for this year 2020-21**

| Semester | Session | Start Date | End Date | Mon | Tue | Wed | Thu | Fri | Sat | Sun | Start Time | End Time | Venue | Teaching Staff |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020-21 Sem 2 | 2A-LEC (1681) | 19/01/2021 | 09/02/2021 | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 09:30 AM | 10:20 AM | RHT | Kwok Ming Yao<br>Pengtao Liu<br>Song Eng Cheah<br>Zhongjun Zhou |
| 2020-21 Sem 2 | 2A-LEC (1681) | 22/01/2021 | 05/02/2021 | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | 09:30 AM | 11:20 AM | RHT | Kwok Ming Yao<br>Pengtao Liu<br>Song Eng Cheah<br>Zhongjun Zhou |
| 2020-21 Sem 2 | 2A-LEC (1681) | 19/02/2021 | 05/03/2021 | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | 09:30 AM | 11:20 AM | RHT | Kwok Ming Yao<br>Pengtao Liu<br>Song Eng Cheah<br>Zhongjun Zhou |
| 2020-21 Sem 2 | 2A-LEC (1681) | 23/02/2021 | 02/03/2021 | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 09:30 AM | 10:20 AM | RHT | Kwok Ming Yao<br>Pengtao Liu<br>Song Eng Cheah<br>Zhongjun Zhou |
| 2020-21 Sem 2 | 2A-LEC (1681) | 19/03/2021 | 26/03/2021 | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | 09:30 AM | 11:20 AM | RHT | Kwok Ming Yao<br>Pengtao Liu<br>Song Eng Cheah<br>Zhongjun Zhou |
| 2020-21 Sem 2 | 2A-LEC (1681) | 23/03/2021 | 30/03/2021 | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 09:30 AM | 10:20 AM | RHT | Kwok Ming Yao<br>Pengtao Liu<br>Song Eng Cheah<br>Zhongjun Zhou |
| 2020-21 Sem 2 | 2A-LEC (1681) | 09/04/2021 | 30/04/2021 | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | 09:30 AM | 11:20 AM | RHT | Kwok Ming Yao<br>Pengtao Liu<br>Song Eng Cheah<br>Zhongjun Zhou |
| 2020-21 Sem 2 | 2A-LEC (1681) | 13/04/2021 | 27/04/2021 | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 09:30 AM | 10:20 AM | RHT | Kwok Ming Yao<br>Pengtao Liu<br>Song Eng Cheah |

Zhongjun Zhou

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

This is a comprehensive course covering many detailed molecular aspects of gene regulation and gene function. Through this course an understanding of how gene expression can be regulated at levels of transcription and post transcription will be gained.

### Required/ Recommended Readings and Online Materials

Alberts B et al. (2014) Molecular Biology of the Cell, 6th ed. Garland Science, New York.
Watson JD et al. (2014) Molecular Biology of the Gene, 7th ed. Pearson/Benjamin Cummings, San Francisco.

### Course Effectiveness Profile

| | Academic Year | Academic Career | Enrollment # | Response # | Response Rate (%) | Mean Course Effectiveness | Course Coordinator's Comments |
|---|---|---|---|---|---|---|---|
| 1 | 2019 | UG | 24 | 2 | 8 | 62.5 | |
| 2 | 2018 | UG | 30 | 6 | 20 | 55.0 | |
| 3 | 2016 | UG | 16 | 1 | 6 | 75.0 | Low response, small class. Need the person collecting feedback to be more active in ensuring response |

Note: Course effectiveness ratings are provided by the Social Sciences Research Centre (SSRC). 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 Evaluation of 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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