1. **Instructors**

<table>
<thead>
<tr>
<th>Instructors</th>
<th>Office</th>
<th>Extension</th>
<th>E-mail address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joyce P.Y. MAK</td>
<td>Room 6279</td>
<td>x8718</td>
<td><a href="mailto:jpymak@ust.hk">jpymak@ust.hk</a></td>
</tr>
<tr>
<td>(Course Coordinator)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pingbo HUANG</td>
<td>Room 5463</td>
<td>x7305</td>
<td><a href="mailto:bohuangp@ust.hk">bohuangp@ust.hk</a></td>
</tr>
</tbody>
</table>

2. **Teaching Assistant**

NA

3. **Meeting Time and Venue**

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday: 16:30 – 17:50 Lecture</td>
<td></td>
</tr>
<tr>
<td>Friday: 12:00 – 13:20 Lecture</td>
<td></td>
</tr>
</tbody>
</table>

| Venue: Room 4619 |

4. **Course Description**

Cellular regulation is at the heart of proper function of an organism. An understanding of the molecules and pathways that ensure proper cellular regulation is fundamental in comprehending the normal physiology of the cells and the causes of various disorders. This undergraduate core course provides backgrounds and principles in various fields of cellular regulation. In-depth discussion of selected topics is also provided to give students an appreciation of the complexity and state-of-the-art of current research. Through interactive lectures, topics including signal transduction, cell adhesions, cell differentiation, cell cycle control, checkpoints, apoptosis, aging, and cancer are covered. Moreover, timely special topics in biomedical sciences are included to increase the awareness of current trends in scientific research and application.

5. **Intended Learning Outcomes**

**Course goals:** This course provides students with the knowledge of topics in the molecular basis of cellular regulation.
On successful completion of this course, students are expected to be able to:

1. Explain the fundamental principles, general approaches and complexities in the discoveries made in the field of cellular regulation.
2. Communicate effectively in writing the principles and details of the field of cellular regulation.
3. Evaluate the principles and applications of methodology and experimental design in cellular regulation and apply them to other similar areas of study.

6. Assessment Scheme
Students are assessed by written open-book examinations at mid-term and at the end of the course. Both short questions of analytical nature and long essay questions are included in the examination. Emphasis is placed on the genuine comprehension of the subject, organization, presentation, critical analysis, and be able to apply the principles learned to solve related problems. Effective written skills, organization, and critical analysis are expected from the students.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Assessing Course ILOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>mid-term exam</td>
<td>1-3</td>
</tr>
<tr>
<td>final exam</td>
<td>1-3</td>
</tr>
</tbody>
</table>

7. Student Learning Resources
Lecture notes will be provided.

8. Teaching and Learning Activities
This course is primarily delivered through interactive lectures. Students are expected to read course materials, references, and ask questions in lectures. Through interactive discussion with the lecturers and each other, the students are able to understand the experimental approaches, methodologies, themes, and state-of-the-art development of topics in cellular regulation. Students are expected to think critically and ask questions on various aspects of the lectures. An essay-based written open-book examination at the end of the course further encourages the students to understand the principles of the subject and to apply them to solve related problems.
9. **Course Schedule**

**Pingbo Huang:**
- Feb 4  Overview of the molecular biology of cellular regulation
- Feb 7  Signaling Transduction
- Feb 11 Signaling Transduction
- Feb 14 Signaling Transduction
- Feb 18 Signaling Transduction
- Feb 21 Signaling Transduction
- Feb 25 Cell adhesions
- Feb 28 Cell adhesions
- Mar 4  Cell adhesions
- Mar 7  Cell differentiation
- Mar 11 Cell differentiation
- Mar 14 Cell differentiation / **Mid-term exam**

**Joyce P.Y. Mak:**
- Mar 18  Cell cycle control
- Mar 21  Cell cycle control
- Mar 25  Cell cycle control
- Mar 28  Maintenance of genome stability by checkpoints
- Apr 1   Maintenance of genome stability by checkpoints
- Apr 4   Mechanisms of cell division
- Apr 8   Mechanisms of cell division
- Apr 11  Programmed cell death - the functions of apoptosis
- Apr 22  Molecular mechanisms of apoptosis
- Apr 25  Molecular mechanisms of apoptosis
- Apr 29  Telomere in normal replication, senescence, and cancer
- May 6   Telomere in normal replication, senescence, and cancer

**NB:** Since the topics are highly integrated, all the estimated time and order are approximations.