SCBM 344
Cellular and Molecular Pathology

Semester 2/2017

Department of Pathobiology
Faculty of Science
Mahidol University
Course Syllabus

(Lecture-Lab-Self study)

SCBM 344 Cellular and Molecular Pathology 2(2-0-4)

Course description
Biochemical, molecular and cellular changes leading to the development and progression of human diseases, such as those from pathogenic microorganism infection, toxic chemical and physical agents, ischemia, hypoxia, free radical-mediated oxidative stress and other types of stress.

Prerequisite: SCBM 341 General Pathology

Type of course: Required course

Session: 2nd semester, 3rd year student

Course Condition class size: None

Course objectives
By the end of this course the students are able to;
1. Explain how the cells response to stress and injurious stimuli
2. Describe general mechanisms of cell injury
3. Explain cellular and molecular changes leading to the development and progression of human diseases
## Course outline

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Topic</th>
<th>Lecturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 Jan</td>
<td>1.00-3.00</td>
<td>Introduction to cellular and molecular pathology</td>
<td>L1 ANJ</td>
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<tr>
<td>26 Jan</td>
<td>1.00-3.00</td>
<td>Mechanisms of cell injury: Oxidative stress</td>
<td>L2 PS</td>
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<tr>
<td>2 Feb</td>
<td>1.00-3.00</td>
<td>Mechanisms of cell injury: Loss of calcium homeostasis</td>
<td>L3 ANJ</td>
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<tr>
<td>9 Feb</td>
<td>1.00-3.00</td>
<td>Mechanisms of cell injury: Mitochondrial damage</td>
<td>L4 PC</td>
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<tr>
<td>16 Feb</td>
<td>1.00-3.00</td>
<td>Mechanisms of cell injury: ATP depletion and hypoxia</td>
<td>L5 PC</td>
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<tr>
<td>23 Feb</td>
<td>1.00-3.00</td>
<td>Cellular and molecular pathology from chemical and physical injuries</td>
<td>L6 WJ</td>
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<tr>
<td>2 March</td>
<td>1.00-3.00</td>
<td>Q&amp;A session</td>
<td>L7 Staff</td>
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<tr>
<td>13 March</td>
<td>1.00-3.00</td>
<td><strong>Midterm Examination (L1-L6)</strong></td>
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<tr>
<td>21 March</td>
<td>1.00-3.00</td>
<td>Cellular and molecular pathology of Immunological disorders</td>
<td>L8 WP</td>
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<tr>
<td>28 March</td>
<td>1.00-3.00</td>
<td>Cellular and molecular pathology of neurodegenerative disorders</td>
<td>L9 YN</td>
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<td>30 March</td>
<td>1.00-3.00</td>
<td>Cellular and molecular pathology of parasitic infection</td>
<td>L10 NK</td>
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<td>20 April</td>
<td>1.00-3.00</td>
<td>Cellular and molecular pathology of viral infection</td>
<td>L11 PC</td>
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<tr>
<td>27 April</td>
<td>1.00-3.00</td>
<td>Cellular and molecular pathology of bacterial infection</td>
<td>L13 YN</td>
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<td>4 May</td>
<td>1.00-3.00</td>
<td>Cellular and molecular pathology of fungal infection</td>
<td>L12 SN</td>
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<tr>
<td>11 May</td>
<td>1.00-3.00</td>
<td>Cellular and molecular pathology of cancer</td>
<td>L14 PS</td>
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<td>18 May</td>
<td>1.00-3.00</td>
<td>Q&amp;A session</td>
<td>L15 Staff</td>
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<tr>
<td>24 May</td>
<td>1.00-3.00</td>
<td><strong>Final Examination (L8-L14)</strong></td>
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### Teaching Method

In-class lectures and group discussion

### Teaching Media

Powerpoint presentation, Handout

### Measurement and Evaluation of Students Achievement

1. Class attendance: 10%
2. Examination (Short answer/ MCQ): 90%
Course Evaluation

1. Students gain knowledge according to the course objectives.
2. Students participate in class ≥ 80% of total hours.
3. Grading will be A, B+, B, C+, C, D+, D or F

References


Instructors

1. ANJ = Assistant Professor Amornrat Naranuntarat Jensen, Ph.D
2. NK = Niwat Kangwanrangsan, Ph.D
3. PS = Assistant Professor Prasit Suwannalert, Ph.D
4. SN = Somphong Narkpinit, M.D.
5. WJ = Associate Professor Wannee Jiraungkoorskul, Ph.D
6. WP = Witchuda Payuhakrit, Ph.D
7. YN = Yaowarin Nakornpakdee, Ph.D

Course Coordinator

Assistant Professor Amornrat N. Jensen, Ph.D
Department of Pathobiology, Faculty of Science, Mahidol University
Tel. 02-201-5579, E-mail: amornrat.nar@mahidol.ac.th

Requesting an appeal

1. Assistant Professor Amornrat N. Jensen, Ph.D (Course Coordinator)
   Department of Pathobiology, Faculty of Science, Mahidol University
   Tel. 02-201-5579, E-mail: amornrat.nar@mahidol.ac.th
2. Niwat Kangwanrangsan, Ph.D (Program Director)
   Department of Pathobiology, Faculty of Science, Mahidol University
   Tel. 02-201-5550, E-mail: niwat.kan@mahidol.ac.th