**SCBM 344**

**Cellular and Molecular Pathology**

**Semester 2/2020**

**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**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Time** | **Topic** |  | **Lecturer** |
| Fri 8 Jan | 13.00-15.00 | Introduction to cellular and molecular pathology | L1 | ANJ |
| \*Wed 13 Jan | 13.00-15.00 | Cellular and molecular pathology from chemical and physical injuries | L2 | WJ |
| Fri 22 Jan | 13.00-15.00 | Mechanisms of cell injury: Oxidative stress | L3 | NC |
| Fri 29 Jan | 13.00-15.00 | Mechanisms of cell injury: Mitochondrial damage | L4 | PC |
| Fri 5 Feb | 13.00-15.00 | Mechanisms of cell injury: ATP depletion and hypoxia | L5 | TS |
| **Fri 12 Feb** | **13.00-16.00** | **Examination (L1-L5)** | | |
| Fri 19 Feb | 13.00-15.00 | Mechanisms of cell injury: Defect in membrane permeability | L6 | NK |
| Fri 5 Mar | 13.00-15.00 | Mechanisms of cell injury: Loss of calcium homeostasis | L7 | ANJ |
| Fri 12 Mar | 13.00-15.00 | Cellular and molecular pathology of viral infection | L8 | PC |
| Fri 19 Mar | 13.00-15.00 | Cellular and molecular pathology of fungal infection | L9 | SN |
| **Fri 2 Apr** | **13.00-16.00** | **Examination (L6-L9)** | | |
| Fri 9 Apr | 13.00-15.00 | Cellular and molecular pathology of bacterial infection | L10 | YN |
| Fri 23 Apr | 13.00-15.00 | Cellular and molecular pathology of parasitic infection | L11 | NK |
| \*Wed 28 Apr | 13.00-15.00 | Cellular and molecular pathology of Immunological disorders | L12 | WP |
| Fri 30 Apr | 13.00-15.00 | Cellular and molecular pathology of cancer | L13 | PS |
| \*Wed 5 May | 13.00-17.00 | Q&A session |  | Staff |
| **Fri 7 May** | **13.00-16.00** | **Examination (L10-L13)** | | |

**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.

1. Students participate in class > 80% of total hours.
2. Grading will be A, B+, B, C+, C, D+, D or F

**References**

1. Kumar V, Abbas A, and Aster J. Robbins Basic Pathology. 10th Edition. Elsevier, 2017
2. Coleman WB and Tsongalis GJ. Molecular pathology: the molecular basis of human disease. Academic Press, 2009.

**Instructors**

1. ANJ: Assistant Professor Amornrat Naranuntarat Jensen, Ph.D
2. NC: Nisamanee Charoenchon, Ph.D
3. NK: Niwat Kangwanrangsan, Ph.D
4. PC: Assistant Professor Pornthip Chaichompoo, Ph.D
5. PS: Associate Professor Prasit Suwannalert, Ph.D
6. SN: Somphong Narkpinit, M.D.
7. TS: Titipatima Sakulterdkiat
8. WJ: Associate Professor Wannee Jiraungkoorskul, Ph.D
9. WP: Witchuda Payuhakrit, Ph.D
10. YN: Yaowarin Nakornpakdee

**Course Coordinator:**    
Assistant Professor Amornrat N. Jensen, Ph.D

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**Requesting an appeal:**    
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