

SCBM 234 Fundamental Immunology (1-0-2)

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Course coordinator: Asst. Prof. Fabien Loison fabien.loi@mahidol.ac.th

Lecturers: Assistant Professor Dr. Fabien Loison fabien.loi@mahidol.ac.th
Assistant Professor Dr. Vimvara Vacharathit vimvara.vac@mahidol.edu
Dr. Waradon Sungnak waradon.sun@mahidol.edu

Textbook:

Students are encouraged to read chapters corresponding to each lecture before class in:

“Abbas, Abul K, Andrew HH Lichtman, and Shiv Pillai. Basic immunology: functions and disorders of the immune system. Elsevier Health Sciences, Sixth Edition, 2019.”

Schedule: 2nd Semester (Jan 2024), Monday 13h00-14h00 and Friday from 9:00-10:00

Venue: **SC1-151**

Google Classroom: <https://classroom.google.com/c/NjQ1Njg0Mjg2ODQ4?cjc=dtvmfho>

Lecture	Topic		Lecturer
Lectures 1 (1h) Mon 8 Jan 13.00-14.00	<i>Introduction to the Immune System</i>	Role of the immune system, organs of the immune system, Characteristics of Innate response versus adaptive response (no cells or molecules, just concepts)	Aj. Fabien
Lecture 2 (1h) Mon 15 Jan 13.00-14.00	<i>Innate Immunity: Cells and Functions</i>	Phagocytes, non-phagocytes	Aj. Vimvara
Lecture 3 (1h) Mon 22 Jan 13.00-14.00	Adaptive immunity: Cells and Functions	B cells, T cells, cytokines	Aj. Waradon
Exam 1 Mon 29 Jan 13.00-14.00	<i>Cells and molecules of the Innate and Adaptive immune system</i>		

Lecture 4 (1h) Mon 5 Feb 13.00-14.00	<i>The Complement System</i>	Three pathways Important molecules (c3, c5 and MAC)	Aj. Fabien
Lecture 5 (1h) Mon 12 Feb 13.00-14.00	<i>Pattern Recognition Receptors</i>	What is a pattern? Soluble, membrane, vesicles, cytosolic -> sensing of the pathogens everywhere	Aj. Fabien
Lecture 6 (1h) Fri 16 Feb 9.00-10.00	<i>Antigen Processing and Presentation</i>	MHC class I vs MHC class II	Aj. Fabien
Lectures 7 (1h) Mon 19 Feb 13.00-14.00	<i>Dendritic cells</i>	Location, Maturation, migration important molecules	Aj. Waradon
Exam 2 Mar 4, 2023 13.00-14.00	<i>Innate to adaptive response</i>		
Lecture 8(1h) Mon 11 Mar 13.00-14.00	<i>B Cell Development and Maturation</i>	What are b cells, what do they do? The B cell receptor, Development in the bone marrow	Aj. Waradon
Lecture 9(1h) Fri 15 Mar 9.00-10.00	<i>T Cell Development</i>	What are T cells, what do they do? The T Cell receptor, Development in the thymus	Aj. Waradon
Exam 3 Mon 18 Mar 13.00-14.00	<i>Lymphocyte development</i>		
Lecture 10 1h Mon 25 Mar 13.00-14.00	<i>Effector T Cell Differentiation and Response</i>		Aj. Vimvara
Lecture 11 1h Mon 1 Apr 13.00-14.00	<i>B Cell Activation and Humoral Immunity</i>		Aj. Vimvara

Exam 4 Fri 5 Apr 9.00-10.00	<i>Lymphocyte effector functions</i>		
Group work Mon 22 Apr 13.00-15.00	Group work Diagram of ?	Ajs. Vimvara, Waradon, Marisa, Ponpan, Fabien	
Mon 29 April 13:00 - 14:00 Debrief + Final assessment (bonus points only) 1 hour (30' - 30')			
Aj. Fabien			
29 Apr-10 May			

Evaluation criteria:

Students will be evaluated over the entirety of the course. **No big mid-term or final exam, less stress!**

Short, simple quizzes will be organized at the end of lectures 2 to 11 and be used to measure student attendance. **Quizzes = bonus points, no penalty!**

Attendance below 80% will be penalized, with the Total Adjusted Points deducted by 10.

Criteria	Percentage of overall grade
Exams	80 %
Group Diagram	20 %

Criteria Exam:

The **Total Points Earned** are the addition each exam score, for a total of 80 % maximum.

Quiz will count for 2.5% each, for a maximum of 25 extra points.

The exams score will be calculated as follows, with a cap at 80%:

Exams = min (Total Points Earned+Quiz, 80)

Criteria Group Diagram:

Students will be grouped by 4 to 5. They are required to draw a diagram (on paper, tablet...) answering a specific question about the immune system/ immune responses provided at the beginning of the class. The

teaching staff will be answering present to answer questions and guide students. The diagram must be given/sent to the staff at the end of session on the 22nd of April (physical form, or pdf).

Exam format:

- **Quiz:** easy, basic questions (MCQ) on key concepts discussed during the lecture of the day (bonus points). About 5 questions / post quiz
- **Exam:** short answer questions, writing or drawing on key concepts. Most important: read the questions very carefully so that your answer is not off-topic.

Grade conversion:

Percentage grade	Letter grade
84.5 – 100	A
78.5 – 84.4	B+
72.5 – 78.4	B
66.5 – 72.4	C+
60.5 – 66.4	C
54.5 – 60.4	D+
48.5 – 54.4	D
0 – 48.4	F

Reexamination:

If the student's score is below 48.5 (F), she/he will have the opportunity to retake exams 1 to 4 during the summer semester. Students will keep the bonus points obtained from the quizzes. However, the final grade will be capped at 78.4 (B).

A take home assignment will be proposed to the students failing the reexamination. The grade will be capped at C+

An insufficient grade following the reexamination will require the student to retake the course the following year.