

## **IMM435 Practical Immunology**

### **2020 Course Syllabus**

Course Coordinator: Dr. G. Ehrhardt  
Tutor: Dr. Y. Dimitriou

#### Contact information:

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Office hours: Monday 1-5 pm (MSB-7316) – *please email in advance for appointment*

Class time: Wednesday, 10 am - 4:00 pm

Location: Introduction Lectures: MSB, room number TBD, students will be notified  
Laboratories: MSB-2284 and MSB-2383

In this course, students will be introduced to molecular and cellular biology experimental techniques used to address immunological questions and will apply these techniques in a series of experiments. IMM435 aims to instruct students in the design of controlled experiments as well as in performing the experiments and in the analysis of experimental results. Each experiment will be preceded by a lecture giving the relevant background information. During each laboratory session, the tutor and 2 TAs will be present at all times.

#### Method of evaluation:

Each experiment will require the generation of a written lab report. The final grade for IMM435 will be calculated based on the sum of scores of all lab reports.

**Course schedule:**

<b><u>Date</u></b>	<b><u>Lab</u></b>	<b><u>Title</u></b>	<b><u>Topic/Methods</u></b>	<b><u>Lab report due</u></b>
Sep. 16	1	Introduction/ Organization	Introduction to "Practical Immunology" Use of animals in research Visit of animal facility (DCM)	
Sep. 23	2	Cells of the immune system	Preparation of murine tissues, cell counting, flow cytometry	1
Sep. 30	3a	B cell activation	RNA preparation, proliferation assay	2
Oct. 7	3b	B cell activation (cont'd)	Complete Lab 3a, RT-PCR qRT-PCR	
Oct. 14	4	Analysis of Ig Protein structure	SDS-PAGE, analysis of protein gel patterns	3
Oct. 21	5a	Protein interactions	Stimulation of B cells, Immunoprecipitations	4
Oct. 28	5b	Term Test	Complete Lab 5a	4
Nov. 4	6	Immune cells in blood	Detection of plasma cells	5
Nov. 18	7	Detection of IgM mutants	ELISA, use of mutants for structure/function analysis	6
Nov. 25	8a	T cell activation	Western blotting, phospho- specific antibodies	7
Dec. 2	8b	T cell activation (cont'd)	Complete Lab 8a final exam preview	
Dec. 9	9	NKT cell activation <i>in vivo</i>	Intracellular cytokine analysis flow cytometry	8
Dec. 16			no class	9