



**KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI**  
**UNIVERSITAS BRAWIJAYA**  
**FAKULTAS KEDOKTERAN**  
**PROGRAM MAGISTER ILMU BIOMEDIK**

Jalan Veteran, Malang 65145, Jawa Timur – Indonesia  
 Telp. (62)(341) 569117; 567192 Pes. 134, 135 – Fax. (62)(341) 564755  
 E-mail: [sekr.fk@ub.ac.id](mailto:sekr.fk@ub.ac.id) Website: <http://biomedical.fk.ub.ac.id>

## Teaching Plan

**Course Title** : **Advanced Immunology**  
**Course Code** : **DKF6205**  
**Credits** : **2**  
**Course Coordinator** : **Prof. DR. Dr. Handono Kalim, Sp.PD-KR**  
 (Phone: 0816552455, email: [hkalim333@gmail.com](mailto:hkalim333@gmail.com))

### Course Description

The overall goal of this course is to provide knowledge about pathological mechanisms of the immune system related to the infectious diseases, hypersensitivity, autoimmune, tumors, and other abnormalities. The key objective is to understand and apply the concepts, apply literature review and scientific writing, as well as critically appraise journal article. Subject areas covered include the interaction of environmental factors and the immune system, the mechanism of immune system failure to cause pathological state, diseases that can be caused, and the general effort to resolve those issues. The failure of the immune system that will be discussed is the loss of self-tolerance leading to the hypersensitivity reactions (allergy and autoimmunity), immune deficiency, the graft rejection, the reaction of the immune system against the tumor, the changes in the immune system in aging, and also related laboratory examination and vaccination.

### Course Learning Outcomes (CLOs)

On successful completion of this course, students will (be):		Bloom's Taxonomy
<b>CLO1</b>	Demonstrate a comprehensive understanding of the principles of the interaction of immune system and environment, psychoneuroimmunology, hypersensitivity, autoimmunity, blood bank and autoimmune hematology, immunodeficiency, tumor immunology, immunology of transplantation, immune aging, mucosal immunity, vaccination and desensitization, and also methods for immune function detection	Level 2. Understanding
<b>CLO2</b>	Able to apply literature review and scientific writing	Level 3. Applying
<b>CLO3</b>	Able to critically appraise the advanced clinical immunology journal article relevant to student's interest and communicate it through oral presentation	Level 5. Evaluating
<b>CLO4</b>	Demonstrate self-directed learning and ethical standards for the intellectual activities	Level 3. Applying

### Links between CLOs and PLOs

	PLO1.1	PLO1.2	PLO2.1	PLO2.2	PLO2.3	PLO3.1	PLO3.2	PLO3.3	PLO3.4	PLO4.1
<b>CLO1</b>	√	√								
<b>CLO2</b>	√	√	√			√	√			
<b>CLO3</b>	√	√	√			√	√			√
<b>CLO4</b>							√			√

### Topics and Schedule

Week	Topic	Competencies	Lecturer
1	Interaction of immune system and environment	Able to explain: how the failure of the immune system can trigger diseases, external environment factors that can influence the immune system, and hormonal factors that can influence the immune system.	Team
2	Psychoneuroimmunology	Able to explain: the effect of stress on the hormonal activity, and how the interaction of stress, hormones, neuropeptides and immune response.	Team
3	Hypersensitivity	Able to explain: the pathomechanism of hypersensitivity reactions mediated by both humoral and cellular immunity and diseases associated with hypersensitivity.	Team
4	Autoimmunity	Able to explain: the mechanism of failure of control over self-tolerance, genetic and environmental factors that contribute to the loss of self-tolerance and autoimmunity reactions, also the	Team



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		mechanism of tissue damage in autoimmune diseases.	
5	Blood bank and autoimmune hematology	Able to explain: the principles of the ABO system, mechanism of transfusion reaction, also pathomechanism of AIHA (autoimmune hemolytic anemia) and ITP (idiopathic thrombocytopenia purpura).	Team
6	Immunodeficiency	Able to explain: the pathomechanism of congenital (primary) and acquired (secondary) immunodeficiencies, also the mechanism of diseases associated with immunodeficiency.	Team
7	Tumor immunology	Able to explain: the mechanisms of the immune system in tumor rejection, how tumor neglects the immune response, and immunological approaches for tumor therapy.	Team
8	<b>Mid-exam</b>		<b>Team</b>
9	Immunology of transplantation	Able to explain: the complications of the transplant, the influence of genetic diversity and the importance of HLA matching, also the immune reaction of graft rejection.	Team
10	Immune aging	Able to explain: the changes in immune system due to aging, also diseases associated with the aging immune.	Team
11	Mucosal immunity	Able to explain: the immune response in the mucosal system of various organs and the mechanisms of oral antigen exposure in the immune tolerance.	Team
12	Vaccination and desensitization	Able to explain: the basic principles of vaccination, preparation of antigen used in the vaccine, vaccine safety, immunotherapy, also the basic principles of desensitization	Team
13	Methods for immune function detection	Able to explain: the detection method of the abnormality in the innate immune system, the measurement of antibodies and immune cells to determine the quality and quantity of adaptive immunity.	Team
14	Journal Reading, Critical Appraisal, and Oral Presentation 1	Able to critically appraise the advanced clinical immunology journal article relevant to student's interest and communicate it through oral presentation	Team
15	Journal Reading, Critical Appraisal, and Oral Presentation 2	Able to critically appraise the advanced clinical immunology journal article relevant to student's interest and communicate it through oral presentation	Team
16	<b>Final Examination</b>		<b>Team</b>

**Team of Lecturers:**

**Prof. DR. Dr. Handono Kalim, Sp.PD-KR\***

Prof. DR. Dr. Kusworini Handono, M.Kes., Sp.PK.

Prof. DR. Dr. Edi Wijayanto, MS., Sp.PK.(K)

Prof. DR. Dr. Sumarno, Sp.MK.(K)

Prof. DR. Dr. HMS Chandra Kusuma, Sp.A.(K)

DR. Dr. Wisnu Barlianto, M.Si.Med., Sp.A.(K)

**Teaching and Learning Strategy**

Core material will be delivered through lectures, structured assignments, completed with an oral presentation of journal critical appraisal.

**Assessment Methods**

Type	Weighting	CLO Assessed	Description
Journal Reading, Critical Appraisal, and Oral Presentation	30%	1, 3, 4	Assessment is based on the technique of presentation, presentation materials, comprehensive knowledge of the material presented, the preparation of the presentation, and critics of the journal presented. The presentation lasts approximately 20 minutes followed by 20 minutes of discussion.
Structured Assignment	30%	1, 2, 4	Assessment is based on the comprehensive understanding of the material that is given/assigned. The assignment will be given one week before class begin and submitted at the time of the lecture.



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Written Exam (mid and final)	40%	1, 4	60 multiple choice questions that must be completed within 60 minutes.
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### Learning Sources

<b>Essential reading/resources</b>	<ol style="list-style-type: none"><li>1. Abbas AK, Lichtman AH. <b>Cellular and Molecular Immunology</b>, 2015</li><li>2. Abbas AK, Lichtman AH and Pillai S. <b>Basic Immunology</b>, Functions and Disorders of the Immune System. 5<sup>th</sup> ed. Philadelphia, Saunders; 2016</li><li>3. Male D, Brostoff J, Roth DB, Roitt I. <b>Immunology</b>, 7<sup>th</sup> ed. Philadelphia, Elsevier Ltd; 2006</li><li>4. Murphy K, Travers P, Walport M. <b>Janeway's Immunobiology</b>, 7<sup>th</sup> ed. New York, Garland, and Science; 2008</li></ol>
<b>Further reading/resources</b>	Journal articles regarding advanced clinical immunology

**Course Coordinator,**

**Prof. DR. Dr. Handono Kalim, Sp.PD-KR**