



Immunology Course Specification

Basic Information		
Course Code	٢AAIM	
Course Title	Immunology	
Academic Year	Third	
Academic Program	Bachelor of Veterinary Sciences	
Hours/week	Lectures: 1	Practical: 2
Term	First	

١. Course Aim

This course provides the ground knowledge and ability to give the student a broad understanding of the immune system and its functions. Topics include: activation and regulation of innate and adaptive immunity and the principles governing vaccination; the molecular basis of antigen specificity; antibody structure and interaction with antigens; disorders of the immune system; tumor and transplantation immunology; the application of immunological reactions for the diagnosis and monitoring of disease; and the use of immunological techniques as analytical tools in the clinical laboratory.

٢. Intended Learning Outcomes

٢.١. Knowledge and Understanding

On successful completion of this course, the student should be able to

- 2.1.1. Outline the key components of the innate and adaptive immune responses.
- ٢,١,٢. Describe which cell types and organs are involved in an immune response.
- ٢,١,٣. Describe the basis structure of the cellular receptors and discuss their interactions during an immune response.
- ٢,١,٤. Differentiate between different Hypersensitivity states.
- ٢,١,٥. Identify the main mechanisms of immune tolerance and autoimmunity.
- 2.1.6. Understand the principles governing vaccination and the mechanisms of protection against disease

٢.٢. Intellectual Skills

By the end of this course, the student should be able to

- 2.2.1. Critically assess laboratory results.
- ٢,٢,٢. Understand the principle and operation of relevant laboratory equipment.
- ٢,٢,٣. Explain how the immune system recognizes foreign antigen and the significance of self/non-self discrimination.

٢.٣. Practical and Professional Skills

By the end of this course, the student should be able to

- ٢,٣,١. Work safely in a medical laboratory.



- 2.3.2. Be able to access relevant literature and review information.
2.3.3. Ability to understand different methods of laboratory diagnosis.
2.3.4. Perform some serological tests used for detection of microbes in clinical samples and analyze the results.
2.3.5. Writing of a report.

٢,٤. General and Transferable Skills

By the end of this course, the student should be able to

- ٢,٤,١. The ability to use simple word and IT skills (i.e., data processing, software, internet, and multimedia) and the library to find information.
2.4.2. The ability to be self-motivated learners and responsive to feedback.
2.4.3. Working in team (i.e., sharing presentations and discussions and solving problem).
2.4.4. Enhancement of research capability through working in independent projects.
2.4.5. Reporting of the facts using printable sheets in the field of animal Immunology.
2.4.6. Ability to write full scientific reports in the field of Immunology.

٣. Course Contents

First Semester

Topic	Total (hr)	Lectures (hr)	Practical (hr)
▪ Innate Immune Response	4	1	3
▪ Organs and tissues of the immune system, physical and chemical barriers	5	2	3
▪ Components of the innate defense	5	2	3
▪ Specific immunity, Antigens, Antibodies	8	2	6
▪ T-Cell Biology, MHC molecules, B-cell biology	5.5	2.5	3
▪ Antigen presentation, complement, immune tolerance	8.5	2.5	6
▪ Immunity to viral, bacterial and parasitic infections	5	2	3
▪ Vaccines and immunization	4	1	3
▪ Total Teaching Hours	45	15	30
▪ Student activities			
○ Mini reviews from the web and the library (individual activity)	—	—	—
○ Presentations and seminars (individual activity)			
○ Illustrative posters (group activity)			



Total (1 semester)	45	30	30
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* Contents sharing in the achievement of the intended learning outcomes; KU (knowledge and understanding), IS (intellectual skills), PPS (practical and professional skills) and GT (general and transferable skills).



Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding								Intellectual Skills						Practical & Professional Skills									General & Transferable Skills												
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	1	2	3	4									
1	Innate Immunity	5	X	x	X	X								x	x			x	x	X	X	X																
2	Specific Immunity	10			x	x	x		x	x	x	x	x							X	X	X	X	X	X													
3	Student activities																																		X	X	X	X



4. Teaching and Learning Methods

- 4.1. Lectures to gain knowledge and understanding skills.
- 4.2. Practical sessions for the students to gain practical skills.
- 4.3. self directed learning skills.
- 4.4. Analyze the results and reach specific conclusion.
- 4.5. Writing a review paper to gain the skills of self-learning and presentation
- 4.6. Sample collection, preservation, examination and identification.

4. Teaching and Learning Methods for Students of Limited Capabilities

- Activating office hours.
- Additional revisions for previously taught and difficult topics.
- Providing a summary for previous chapter at the end of each one.
- Following up student feedbacks.

٦,١. Methods	٦. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	2.1.1/2.1.2/2.1.3/2.1.4/2.1.5/2.1.6	2.2.1/2.2.2/2.2.3/		
Practical exams			2.3.1/2.3.2/2.3.3/2.3.4/2.3.5/	
Oral exams		2.2.1/2.2.2/2.2.3/		2.4.1/2.4.2/2.4.6
Student activities				2.4.1/2.4.2/2.4.3/2.4.4/2.4.5/2.4.6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

٦,٢. Exam Description

Written exams	<ul style="list-style-type: none"> • Short essays. • Drawings. • Multiple choice questions. • True or false. • Comparisons. • Giving the scientific term/information.
Practical exams	<ul style="list-style-type: none"> • Slideshow exams.



	<ul style="list-style-type: none"> • Multiple choice questions. • Record designs and evaluation. • Practical case studies.
Oral exams	<ul style="list-style-type: none"> • The exam committee involves 3 examiners. Each evaluates the student by giving a separate score. The scores are then averaged. • Examiners are provided with the course specification. • The student randomly selects question cards.
Student activities	<ul style="list-style-type: none"> • Self-learning activities are evaluated throughout the semester. For details, refer to the section: “Σ Teaching and Learning Methods”.

Exams and activities	٦,٣. Assessment Schedule	٦,٤. Weighing of Assessments	
	Week (in each semester)	Per semester	Total (%)
Semester work exam	4 th , 8 th and ١٢ th	8	16
Student activities	Throughout the semester	2	4
Final written exam	16 th	25	50
Final Practical exam	16 th	10	20
Final oral exam	16 th	5	10
Total		50	100

٧. List of References

٧,١. Course Notes

Departmental notes

٧,٢. Essential Books

- Immunology for Medical Students. Nairn, R. and Helbert, M. Mosby, ٢٠٠٢.
- Basic and Clinical Immunology. Peakman M and Vergani D, Churchill Livingstone, 1997.
- Immunology: A Short Course. ٥th Edn. Benjamani, E. Coico, R. & Sunshine G. Wiley Liss, ٢٠٠٢.
- Immunology. ٣rd ed. Kuby, J. Freeman, ١٩٩٧.
- Immunology. ٣rd ed. Roitt, I., Brostoff, J. & Male, D. Mosby, ١٩93.

٧,٣. Recommended Books

- Immunology: Theoretical & Practical Concepts in Laboratory Medicine. Zane, H. Saunders, ٢٠٠١.
- Immunobiology: The Immune System in Health and Disease. Janeway, C. & Travers, P. Churchill Livingstone, ١٩٩٧.
- Cellular and Molecular Immunology. Abbas, A., Lichtman, A. & Pober, J. Saunders 1991. SAUNDERS Company ١٩٩٨.

٧,٤. Periodicals, websites, etc.

Scientific Journals



Scientific websites

- <http://www.cdc.org>
 - <http://www.pubmed.org/>
 - <http://www.sciencedirect.com/>
-

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