Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

COURSE SPECIFICATION

Immunology **(Zoo. 455)**

Course Specification

Institution: ***King Khalid University***
College/Department: ***College of Science/ Department of Biological Sciences***

A Course Identification and General Information

1. Course title and code: Immunology (***Zoo 455)***
2. Credit hours: ***2 hours***
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) ***Biology programme- Science College- Department of Biological Sciences***
4. Name of faculty member responsible for the course: Dr. Essam Hassan Ibrahim
5. Level/year at which this course is offered: ***8th level/ 4th year***
6. Pre-requisites for this course (if any): ***The course does not require any previous knowledge of immunology, but Animal physiology(Zoo 353) , Bacteria, Virus background(Bot.363) is preferred***.
7. Co-requisites for this course (if any): ***N/A***
8. Location if not on main campus: ***N/A***

B Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The expected learning outcomes are to attain a working knowledge of current immunological principles as they relate to the cells and molecules of the immune system, how they interact in defending the body against invading microorganisms, how they develop and acquire the ability to recognize antigens.

2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)

1. ***The course will be posted in the site of King Khalid University in the corner of "E. Learning. Website that could be accessed by the students enrolled in the course.***
2. ***Assignments, Quizzes, and any other material will be posted on an E. learning home page of the course.***

C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

1.1 Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to immunology – Components of Immunology – Anatomy of Immune system	**2**	**4**
Cells of the immune system (Myeloid cells, Lymphoid cells) – Types of myeloid cells – Types of lymphoid cells	**2**	**4**
Lymphocytes development and heterogeneity – T cell development – B cell development	**1**	**2**
Molecules of immune system : introduction	**1**	**2**
Antibody: Natural distribution – Basic structure – Types and subtypes	**1**	**2**
Complement: Introduction to different pathways	**1**	**2**
Complement: Classical pathway – Alternative pathway – Lectin pathway	**2**	**4**
Cytokines: General properties – Functional categories of cytokines	**2**	**4**
Cytokine receptors and signalling	**1**	**2**
Cytokines and innate immunity – Cytokines and adaptive immunity.	**1**	**2**
Immunoglobulin superfamily	**1**	**2**
Major histocompatibility complex (MHC): Class I MHC – Class II MHC	**1**	**2**
T Cell Receptors: Structure – Function	**1**	**2**
Accessory Molecules	**1**	**2**
Immune response to virus	**1**	**2**
Immune response to bacteria	**1**	**2**

Immunity and hormones	**1**	**2**
Immunity and nervous system	**1**	**2**
Vaccines	**1**	**2**

Lecture: ٤٦	Tutorial: --	Practical/Field work/Internship: ***N/A***	Other: ***N/A***

3. Additional private study/learning hours expected for students per week. (This should be an average :for the semester not a specific requirement in each week)

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

4. Development of Learning Outcomes in Domains of Learning
For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

a. Knowledge

(i) Description of the knowledge to be acquired

1. ***Components of the immune system***
2. ***Principles of innate and adaptive immunity***
3. ***Antigen recognition by B and T cells***
4. ***Development, maturation and survival of lymphocytes***
5. ***Adaptive Immunity to Infection***
6. ***Failures of Host Defense Mechanisms***

(ii) Teaching strategies to be used to develop that knowledge

- ***Lectures***
- ***Multi-media, videos , animations .....etc***.

(iii) Methods of assessment of knowledge acquire

Two annual and tow quiz theoretical exams per semester accounts for 50% of final assessment. End of the semester examination with combination of deferent types of questions such as matching, multiple choice, short essay accounts for other 50%.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

The instructor intends utilize his skills to present the material in the textbook in an interactive way that stimulates the thinking side of students. brains. Analyzing schematics and mechanisms in immunological responses in different settings will be an

integral part of this course.

Learn about immunology and immune system
Distinguish between different components of the immune system
Get the ability to know how immune system work

(ii) Teaching strategies to be used to develop these cognitive skills

- ***Lectures***
- ***Vedios, animations, etc.***

(iii) Methods of assessment of students cognitive skills

1. ***Quizzes***
2. ***Theoretical exams***
3. ***Oral discussion***

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. ***Work independently and as a team work***
2. ***Manage recourses, time and other members of the group***
3. ***Communicate results of work with others***

(ii) Teaching strategies to be used to develop these skills and abilities

1. ***Oral communications and internet access with the students***

(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility

Writing short assays in certain topic related to the course

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

Use of computer programs
Use of available blackboard facilities.

(ii) Teaching strategies to be used to develop these skills

1. **Using computer programs in the course requirements**
2. **Use of multimedia**

(iii) Methods of assessment of students numerical and communication skills

The course will be taught in the English language. Students will be encouraged to communicate their ideas with the instructor at all times during and after the class. To facilitate discussions and asking questions, the instructor usually starts every lecture either by asking questions or giving a quiz about the previous lecture.

e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required

N/A

(ii) Teaching strategies to be used to develop these skills

N/A

(iii) Methods of assessment of students psychomotor skills

N/A

5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	***Quiz 1***	**6**	**5%**
	Assessment1	**7**	**5%**
	First Annual exam	**9**	**15%**
3	***Quiz 2***	**11**	**5%**
	Assessment 2	**13**	**5%**
3	***Second Annual exam***	**16**	**15%**
4	***Theoretical Final Exam***	**20**	**50%**
	Total		**100%**

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
10 Office hours / week

E. Learning Resources

1. Required Text(s)
Cellular and Molecular Immunology. 2006. Abul K. Abbas and Andrew H. Lichtman. Fifth Edition. An Imprint of Elsevier Science
2. Essential References
HUMAN IMMUNOLOGY. 2008. Maurice R. G. O'Gorman, Ph.D. and Albert D. Donnenberg, Ph.D. Taylor & Francis Group, LLC CRC Press is an imprint of Taylor & Francis Group, an Informa business. **Roitt's Essential Immunology.2001. Ivan M. Roitt and Peter J. Delves.** Blackwell Science, Inc., 350 Main Street, Malden, Massachusetts 02148-5018, USA. **Understanding Immunology**.2006. Peter Wood. **Second Edition.** Pearson Education Limited 2001, 2006
3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)
4-.Electronic Materials, Web Sites etc **Websites on the internet that are relevant to the topics of the course**

5- Other learning material such as computer-based programs/CD, professional standards/regulations **Multimedia associated with the text book and the relevant websites**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Lecture rooms, laboratories, etc.) ***50 seats/ class room*** ***Computer access with data show and internet***
2. Computing resources ***Computer room containing about 15 computers***
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list) ***Data show*** ***Models***

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching ***Course evaluation by student*** ***Student-faculty meeting***
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **Peer consultation on teaching** **Discussion with the group of faculty teaching the same course** **Departmental council discussions**
3 Processes for Improvement of Teaching ***Conducting Departmental workshops given by experts*** ***Periodical departmental revisions of each method of teaching*** ***Monitoring of teaching activities by senior faculty members*** ***Development of the parent relation between the teacher and the students.***
4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) ***Assigning group of faculty members teaching the same course to grade some question for various students***
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

1. ***The course material and learning outcomes are periodically reviewed and the changes to taken are approved by the departmental and the higher councils***
2. ***The head of the department take the responsibility of implementing the proposed change.***
3. ***Periodical meetings with outstanding students in the course to discuss the problems that face them in the course***
4. ***Comparison between similar courses in relevant faculties from different universities.***