Course Specification
(Bachelor)

Course Title:	*Immunology*
Course Code:	*BIO1401*
Program:	*Bachelor of Science in Biology*
Department:	*Department of Biology*
College:	*Faculty of Science*
Institution:	*University of Tabuk*
Version:	***Course Specification Version Number***
Last Revision Date:	*September 2023*

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours:					
3 Credit (2 theoretical + 1 practical) hours.					
2. Course type					
A.	☐University	☐ College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (7th Level / 4th year)					
4. Course general Description:					
The course describes the basic structure of the immune system, development of the immune system, organs of the immune system, cells of the immune system, molecules of the immune system, innate immunity, acquired immunity and immune responses to bacteria and viruses.					
5. Pre-requirements for this course (if any):					
General Microbiology (BIO1206). Animal Physiology (BIO1306).					
6. Co-requirements for this course (if any):					
None					

7. Course Main Objective(s):

By the end of this course, the students will be able to:

- To learn the history of immunology.
- To learn the structure of the immune system.
- To be able to distinguish between innate and acquired immunity (Humoral & Cellular).
- To learn the differences between active, passive and adaptive immune vaccination
- To be familiar with the antigen processing and presentation, Complement system, Antibodies and Antigens.
- To be familiar with hypersensitivity responses, immune deficiencies and autoimmunity.
- Describe the hypersensitivity responses, immune deficiencies, and autoimmunity.
- Follow scientific literature on the topics covered by the course.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2	50%
2	E-learning		

No	Mode of Instruction	Contact Hours	Percentage
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		
5	**Others (Lab work)**	2	50%

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		**60**

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Describe the structure and function of immune system.	K1	- Lecture. - Case studies and articles.	- Class Participation - Homework (Problem-solving) - Midterm Theoretical Examination - Final Theoretical Examination

1.2	Recognize the related diseases and vaccine importance.	K2	- Case studies and articles. - Activities and homework.	- Class Participation - Homework (Problem-solving) - Midterm Theoretical Examination - Final Theoretical Examination
2.0	**Skills**			
2.1	Analyze the immune cells and their interaction with vaccinology.	S1	- Lecture. - Individual and small group tasks. - Short essay. - Individual presentation and working as a part of a group. - Lab work.	- Participation and reports - Final Practical Examination
2.2	Differentiate between innate and adaptive immunity responses.	S2	- Lecture. - Individual and small group tasks. - Short essay. - Individual presentation and working as a part of a group.	- Participation and reports - Final Practical Examination

2.3	Compare between different applications of monoclonal antibodies.	S3	- Lecture. - Individual and small group tasks. - Short essay. - Individual presentation and working as a part of a group. - Lab demonstration and working as a part of a group.	- Participation and reports - Final Practical Examination
3.0	**Values, autonomy, and responsibility**			
3.1	Work independently and as part of a team	V1	- Essay writing. - Lab demonstration. - Individual presentation.	- Class Participation - Participation and reports
3.2	Show ability to manage resources, time and other members of the group and write results of work to others	V2	- Essay writing. - Lab demonstration. - Individual presentation.	- Class Participation - Participation and reports

C. Course Content

No	List of Topics	Contact Hours
1.	Introductory	2
2.	Overview of the course: definition of immunology, Innate and acquired Immunity, Components of the immune system.	2
3.	Origin, development, and differentiation of immune cells.	2
4.	Innate immunity receptors, and cytokines secretion.	2
5.	Phagocytosis and antigens recognition.	2
6.	Complement activity pathways.	2
7.	Immunogens and Antigens.	2
8.	Antibody Classes, Functions, and regulation of their production.	2
9.	The molecular and genetic basis for antibody diversity.	2
10.	MHC Molecules Variability of MHC Genes & Products.	2
11.	Biology of T and B cells Differentiation and their receptor.	2
12.	Immunodeficiency diseases, Allergy, Transplantation and Grafts, Blood Transfusion.	2
13.	T Cell Receptors: Structure – Functions, Accessory Molecules.	2
14.	Immune responses to bacteria and virus.	2
15.	Strategies for Vaccine Development.	2
	Total	30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Class Participation	During whole teaching period	5
2.	Homework (Problem-solving)	3 to 13	5
3.	Short Exams (Quizzes)	During whole teaching period	5
4.	Midterm Theoretical Examination	8-9	20
4.	Reports (For Practical)	During whole teaching period	10
5.	Final Practical Examination	15	15
6.	Final Theoretical Examination	17	40

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	- Abul Abbas, Andrew Lichtman, Shiv Pillai (2021). Cellular and Molecular Immunology. 10 th edition. Elsevier. - Immunology at a Glance. 10 th edition. J.H.L. PLAYFAIR Nb.M. CHAIN. Blackwell Science Ltd. (2012).
Supportive References	- Immunology at a Glance.7th Edition.J.H.L.PLAYFAIR nB.M.CHAIN.Blackwell Science Ltd.
Electronic Materials	- Websites on the internet that are relevant to the topics of the course.
Other Learning Materials	- Multimedia associated with the textbook and the relevant websites.

2. Required Facilities and equipment

Items	Resources
Accommodation .Classrooms, laboratories, demonstration rooms/labs, etc	- A sufficient number of classrooms to accommodate students - Well-equipped practical laboratories to accommodate students
Technology Resources (AV, data show, Smart Board, software, etc.)	- Data show - Wireless connection in the building for students and faculties.
Other Resources Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list	- Well-equipped lab, samples slides, microscope.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	- Students. - Faculty members.	Indirect & direct: - Questionnaires. - Meetings.
Effectiveness of Students assessment	- Quality and development committee. - Department chair.	- Course report. - Program annual report.
Quality of learning resources	- Plan and program committee. - Students. - Staff members.	Indirect & direct: - Questionnaires. - Meetings. - Reports.

Assessment Areas/Issues	Assessor	Assessment Methods
The extent to which CLOs have been achieved	- Quality and development committee. - Peer Reviewer. - Program leaders.	Indirect & direct: - Questionnaires. - Meetings. - Reports.
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	PROGRAMS AND STUDY PLANS COMMITTEE
REFERENCE NO.	
DATE	SEPTEMBER 2023