المـــــــركز الوطـــــــني لضمـــــان جـــــودة واعتمـــــاد
المـــــؤسسات التعليميـــــة و التـــــدريبية

The name of university: University of Benghazi
Program name 1ST YEAR
The course name: Physiology and Anatomy
Course code: ANAT-101
Academic year / level: 2023-2024. First year

1- Basic information:

the course name:	Physiology and Anatomy
Course coordinator	
Program (s) on which the course is given:	1ST YEAR
Teaching hours	4 hours/week
Language	English
Academic year / level:	2023-2024. First year
Course approval date	

1.1 hours per week

Lecture: (2 hours/ week) Training: (-) Total: (hours 96)
Practical: (2 hours/ week)

1- Aims of Course:

a- The course focuses on the structure and function of the human body. This course aims to provide students with a comprehensive understanding of the human body's systems and functions, including their interrelationships and regulation.

b- Students will learn about the major anatomical structures of the human body, including the skeletal, muscular, nervous, respiratory, digestive, cardiovascular, and endocrine systems. In addition, they will also study the physiological processes and mechanisms that control and maintain the body's functions.

2- Intended Learning Outcomes of Course (ILOs):

a- Knowledge and Understanding:

After completing this course, students should be able to demonstrate:

1. Understand the fundamental concepts of anatomy and physiology.
2. Identify the different anatomical structures and their functions.
3. Describe the physiology and regulation of different systems and organs in the human body.
4. Identify the importance of homeostasis in the human body.

b- Intellectual Skills:

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

1. Apply analytical and critical thinking skills.
2. Analyse and interpret scientific data and research findings.
3. Apply scientific principles to real-world scenarios.
4. Construct problem-solving skills.

c- Professional and Practical Skills:

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

1. Demonstrate effective communication skills in scientific and professional contexts.
2. Develop teamwork and collaboration skills.
3. Practice laboratory skills and techniques.
4. Recognize ethical and legal considerations in the biomedical field.

d- General Skills:

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

1. Develop research and study skills.
2. Improve time management and organizational skills.
3. Develop independent learning skills.
4. Enhance lifelong learning skills.

3- Course Contents:

Topic	Hours	Lectures	Lab.	Practical/ small groups
Introduction to Anatomy and Physiology.				
Levels of Organization.				
.Homeostasis				
Cell Biology.				
Tissues.				
Integumentary System.				
Skeletal System.				
Muscular System.				
Nervous System.				
Endocrine System.				
Cardiovascular System.				
Lymphatic System.				
Respiratory System.				
Digestive System.				
Urinary System.				
Reproductive System.				
Development and Inheritance.				
Immune System.				
Sensory Systems.				
Musculoskeletal System.				
Body Fluids and Electrolytes.				
Acid-Base Balance.				
Exercise and Human Performance.				
Aging and the Human Body.				
Clinical Applications of Anatomy and Physiology.				

Topic	Hours	Lectures	Lab.	Practical/ small groups
Total.				

4- Learning Methods:

a. Lectures
b. Tutorial
c. Lab.

5- Assessment methods:

written exams, laboratory reports, and class participation.

	Assessment Type	Date	%
	First assessment	19th week of first term.	30
	Lab. Exam	Before the final examination	20
	Final examination (Written,)	At the end of term	50

7. List of References:

Title	Publisher	copy	authors	Available place

8. Facilities Required for Teaching and Learning:

	Facilities Required	Notes
1-		
2-		
3-		

Course Coordinators **Head of Department**

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Date:……/……../……

Skills																				الاسبوع الدراسي
d. General& transferable skills					c. Professional & practical skills					b. Intellectual skills					a. Knowledge and Understanding					
d.5	d.4	d.3	d.2	d.1	c.5	c.4	c.3	c.2	c.1	b.5	b.4	b.3	b.2	b.1	a.5	a.4	a.3	a.2	a.1	
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المـــــؤسسات التعليميـــــة و التـــــدريبية

The name of university: University of Benghazi
Programme name: Applied Mathematics
The course name: Biomedical Ethics and Scientific Integrity
Course code: BMSC-101
Academic year / level: 2023-2024. First year

1. Basic information:

The course name:	Applied Mathematics
Course coordinator	
Program (s) on which the course is given:	1ST YEAR
Teaching hours	2 hours/week
Language	English
Academic year / level:	2023-2024. First year
Course approval date	

1.1 hours per week

Lecture: (2 hours/week) Training: (-) Total: (hours 96)

2. Aims of Course:

a) This applied math course in biomedical sciences aims to equip students with the knowledge and skills required for performing mathematical calculations commonly used in clinical laboratories.

b) Students will learn basic arithmetic, rounding numbers, and significant figures; scientific notation and logarithms; systems of measurement; dilutions and titers; molarity and normality; calculations associated with solutions; and basic statistical concepts.

c) The course will also cover quality assurance and quality control in the clinical laboratory instrument.

3. Intended Learning Outcomes of Course (ILOs):

a- Knowledge and Understanding:

After completing this course, students should be able to demonstrate:

1. Understand and apply basic mathematical principles and concepts in clinical laboratory calculations.
2. Describe and solve mathematical problems related to dilutions, molarity, and normality.
3. Define proficiency in performing mathematical calculations associated with clinical laboratory procedures.
4. Identify and apply quality assurance and quality control concepts in the clinical laboratory instrument.
5. Understand statistical concepts to evaluate laboratory data and results.

b- Intellectual Skills:

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

1. Analyze and solve mathematical problems related to clinical laboratory procedures.
2. Evaluate laboratory data and results using statistical concepts.

3. Apply critical thinking skills to identify potential errors and solutions in clinical laboratory calculations.

c- Professional and Practical Skills:

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

1. Practice mathematical calculations accurately and efficiently.
2. Demonstrate proficiency in using laboratory instruments and equipment.
3. Implement quality assurance and quality control protocols in the clinical laboratory instrument.
4. Illustrate mathematical concepts and calculations clearly and concisely.

d- General Skills:

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

1. Develop time management and organization skills.
2. Improve attention to detail.
3. Develop Problem-solving skills.
4. Enhance communication and presentation skills.
5. Develop data analysis and interpretation skills.

4- Course Contents:

Topic	**Hours**	**Lectures**	**Lab.**	**Practical/ small groups**
Basic Arithmetic, Rounding Numbers, and Significant Figures.				
Scientific Notation and Logarithms.				
.Dilutions and Titers				
Molarity and Normality.				
Calculations Associated with Solutions.				
Clinical Chemistry Laboratory.				
Urinalysis Laboratory.				
Hematology Laboratory.				
Immunohematology Laboratory.				
Microbiology Laboratory.				
Molecular Diagnostics Laboratory.				

Topic	Hours	Lectures	Lab.	Practical/ small groups
Quality Assurance in the Clinical Laboratory.				
Basic Statistical Concepts.				
Quality Assurance and Quality Control in the Clinical Laboratory.				
Instrument Calibration and Maintenance.				
Total				

5. Learning Methods:

a. Lectures
b. Tutorial

6. Assessment methods:

	Assessment Type	Date	%
1.	**First assessment**	16th week of first term.	40
2.	Final examination (Written,)	At the end of term	60
Total			100

7. List of References:

Title	Publisher	copy	authors	Available place

8. Facilities Required for Teaching and Learning:

	Facilities Required	Notes
1.		
2.		
3.		

Course Coordinators **Head of Department**

…….. **…….**

Date:……/……../……

Skills															a. Knowledge and Understanding					الاسبوع الدراسي
d. General& transferable skills					c. Professional & practical skills					b. Intellectual skills										
d.5	d.4	d.3	d.2	d.1	c.5	c.4	c.3	c.2	c.1	b.5	b.4	b.3	b.2	b.1	a.5	a.4	a.3	a.2	a.1	
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The name of university: University of Benghazi
Program name 1ST YEAR
The course name: Computer Skills
Course code: CYTO-103
Academic year / level: 2023-2024. First year

1- Basic information:

The course name:	Computer Skills
Course coordinator	
Program (s) on which the course is given:	1ST YEAR
Teaching hours	2 hours/week
Language	English
Academic year / level:	2023-2024. First year
Course approval date	

1.1 hours per week

Lecture: (2 hours/ week) Training: (-) Total: (hours 96)

2- Aims of Course:

a) The Computer Skills course is designed to equip students with the fundamental computer skills necessary to support their future studies and careers in biomedical science.

b) The course is designed to be hands-on and practical, with a focus on developing the essential computer skills and knowledge required to perform basic data analysis, scientific communication, and information management tasks in biomedical research.

c) The primary aim of the course is to provide students with a foundation in computer skills, tools and concepts necessary for their future academic and professional development.

d) Through a combination of lectures, lab exercises and assignments, students will develop the ability to effectively use a range of software applications for data analysis, visualization, communication and project management.

3- Intended Learning Outcomes of Course (ILOs):

a- Knowledge and Understanding:

After completing this course, students should be able to demonstrate:

1. Describe basic concepts of computer hardware and software
2. Identify principles of data management and analysis in biomedical science
3. Understand the use of databases and data management tools
4. State the principles and techniques of scientific communication and scientific writing
5. Outline the basics of programming languages, algorithms, and software development

b- Intellectual Skills:

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

1. Analyze and interpret data using computer software.
2. Evaluate scientific literature and experimental results.

3. Design, develop, and implement basic software applications.
4. Develop the ability to work independently and solve problems using computer-based tools.

c- Professional and Practical Skills:

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

1. Illustrate effective use of computer software for data analysis and visualization.
2. Practice management of scientific literature and data using databases and other software tools.
3. Produce clear and concise scientific presentations, posters and reports.
4. Apply ethical principles in the use of computer software and data management.

d- General Skills:

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

1. Develop effective communication skills, both written and oral.
2. Improve critical thinking and problem-solving skills.
3. Enhance time management and project management skills.
4. Develop teamwork and collaboration skills.

4- Course Contents:

Topic	Hours	Lectures	Lab.	Practical/ small groups
Knowing computer.				
Operating computer using GUI-based operating system.				
.Understanding word processing				
Using spreadsheet.				
Using internet.				
Communications and collaboration.				
Making presentations.				
Image editing.				
Graphics and multimedia.				
Data organization and management.				
Statistical analysis software.				

Topic	Hours	Lectures	Lab.	Practical/ small groups
Cybersecurity basics.				
Programming basics.				
Total.				

5. Learning Methods:

a. Lectures
b. Tutorial

6. Assessment methods:

	Assessment Type	Date	%
1.	**First assessment**	16th week of first term.	40
2.	Final examination (Written,)	At the end of term	60
Total			100

7. List of References:

Title	Publisher	copy	authors	Available place

8. Facilities Required for Teaching and Learning:

	Facilities Required	Notes
1.		
2.		
3.		

Course Coordinators **Head of Department**

…….. **…….**

Date:……/……../……

Skills	a.	الاسبوع

d. General& transferable skills					c. Professional & practical skills					b. Intellectual skills					Knowledge and Understanding					الدراسي
d.5	d.4	d.3	d.2	d.1	c.5	c.4	c.3	c.2	c.1	b.5	b.4	b.3	b.2	b.1	a.5	a.4	a.3	a.2	a.1	
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المـــــؤسسات التعليميـــــة و التـــــدريبية

The name of university: University of Benghazi
Program name 1ST YEAR
The course name: Scientific Skills and Communication
Course code: BMSC-103
Academic year / level: 2023-2024. First year

1. **Basic information:**

the course name:	Scientific Skills and Communication
Course coordinator	
Program (s) on which the course is given:	1ST YEAR
Teaching hours	3 hours/week
Language	English
Academic year / level:	2023-2024. First year
Course approval date	

1.1 hours per week

Lecture: (2 hours/ week) Training: (-) Total: (hours 96)
Practical: (2 hours/ week)

2. **Aims of Course:**

a. The Scientific and Communication Skill undergraduate course is designed for first-year students and aims to develop the fundamental knowledge, skills and competencies required for successful communication in the scientific domain.
b. This course emphasizes the importance of effective communication in scientific research, writing and presenting research findings to diverse audiences, and developing a range of professional and practical skills for a successful career in science.

3. **Intended Learning Outcomes of Course (ILOs):**

a- Knowledge and Understanding:

After completing this course, students should be able to demonstrate:

1. Define scientific communication principles and practices.
2. Label Key concepts in scientific research, analysis, and writing.
3. Recognize the role of communication in research, education and public outreach.

b- Intellectual Skills:

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

1. Apply critical thinking and analytical skills.
2. Compose effective scientific writing and reporting.
3. Develop presentation skills for diverse audiences.
4. Data analysis and interpretation

c- Professional and Practical Skills:

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

1. Practice project management and teamwork skills.
2. Recognize Ethical considerations in scientific research and communication.
3. Apply technical skills for scientific research and communication.

d- General Skills:

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

1. Improve time management and organizational skills.
2. Develop Creative thinking and problem-solving.
3. Enhance Adaptability and flexibility.

4. Course Contents:

Topic	Hours	Lectures	Lab.	Practical/ small groups
Introduction to scientific communication.				
Key concepts in scientific research				
Research ethics and integrity				
Literature review and referencing				
Writing scientific reports				
Writing for diverse audiences				
Writing abstracts and introductions				
Writing methods and results				
Writing discussion and conclusions				
Preparing scientific posters				
Oral presentations				
Data analysis and visualization				
Research design and planning				
Teamwork and project management				
Time management and organization				
Effective use of technology				
Introduction to statistics				
Introduction to data analysis software				
Introduction to data visualization software				
Data interpretation and reporting				
Interpreting and presenting results				
Communicating uncertainty				
Communicating with non-scientific audiences				
Communicating with the media				
Outreach and public engagement				
Total				

5. Learning Methods:

a. Lectures
b. Tutorial
c. Lab.

6. **Assessment methods:**
written exams, laboratory reports, and class participation.

	Assessment Type	Date	%
	First assessment	19th week of first term.	30
	Lab. Exam	Before the final examination	20
	Final examination (Written,)	At the end of term	50

7. List of References:

Title	Publisher	copy	authors	Available place

8. **Facilities Required for Teaching and Learning:**

	Facilities Required	Notes
1-		
2-		
3-		

Course Coordinators **Head of Department**

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Date:……/……../……

Skills															a. Knowledge and Understanding					الاسبوع الدراسي
d. General& transferable skills					c. Professional & practical skills					b. Intellectual skills										
d.5	d.4	d.3	d.2	d.1	c.5	c.4	c.3	c.2	c.1	b.5	b.4	b.3	b.2	b.1	a.5	a.4	a.3	a.2	a.1	
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المـــــؤسسات التعليميـــــة و التـــــدريبية

The name of university: University of Benghazi
Program name 1ST YEAR
The course name: Fundamentals of Biochemistry
Course code: MLSC-101
Academic year / level: 2023-2024. First year

1- Basic information:

the course name:	Fundamentals of Biochemistry
Course coordinator	
Program (s) on which the course is given:	1ST YEAR
Teaching hours	4 hours/week
Language	English
Academic year / level:	2023-2024. First year
Course approval date	

1.1 hours per week

Lecture: (2 hours/ week) Practical: (2 hours/ week) Total: (hours 96)
Training: (-)

1- Aims of Course:

a) The course is designed to provide students with a comprehensive understanding of the basic principles of biochemistry.
b) The course aims to introduce students to the structure and function of biomolecules, metabolic pathways, and the principles of gene expression.

2- Intended Learning Outcomes of Course (ILOs):

a. Knowledge and Understanding:

After completing this course, students should be able to demonstrate:

1. Describe the structure, function, and metabolism of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids.
2. Explain the basic principles of enzyme kinetics and catalysis.
3. Describe the major metabolic pathways in the cell, including glycolysis, the citric acid cycle, and oxidative phosphorylation.
4. Understand the principles of gene expression, including DNA replication, transcription, and translation.

b. Intellectual Skills:

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

1. Analyze and interpret biochemical data and experimental results.
2. Apply critical thinking to evaluate and solve complex biochemical problems.
3. Develop hypotheses and design experiments to test them.

c. Professional and Practical Skills:

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

1. Communicate scientific concepts effectively in written and oral form.
2. Use laboratory techniques and equipment to perform biochemical experiments.

3. Operate effectively as a member of a team to complete laboratory experiments.

d. General Skills:

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

1. Develop time-management and organizational skills to balance coursework and extracurricular activities.
2. Develop computer skills to analyze and visualize biochemical data.
3. Develop problem-solving and decision-making skills that are transferable to a wide range of careers in biomedical sciences.

4- Course Contents:

Topic	Hours	Lectures	Lab.	Practical/ small groups
Introduction to Biochemistry.				
Chemical Foundations of Biochemistry.				
.Proteins				
Enzymes.				
Carbohydrates.				
Lipids.				
Nucleic Acids.				
DNA Replication.				
Transcription.				
Translation.				
Energy Metabolism.				
Carbohydrate Metabolism.				
Lipid Metabolism.				
Amino Acid Metabolism.				
Metabolic Regulation.				
.Structural Biology				
.Biophysical Chemistry				
.Bioenergetics				
Total.				

5. Learning Methods:

a. Lectures
b. Tutorial

6. Assessment methods:

	Assessment Type	Date	%
a.	**First assessment**	16th week of first term.	40
b.	Final examination (Written,)	At the end of term	60
Total			100

7. List of References:

Title	Publisher	copy	authors	Available place

8. Facilities Required for Teaching and Learning:

	Facilities Required	Notes
1.		
2.		
3.		

Course Coordinators **Head of Department**

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Date:……/……../……

Skills															a. Knowledge and Understanding					الاسبوع الدراسي
d. General& transferable skills					c. Professional & practical skills					b. Intellectual skills										
d.5	d.4	d.3	d.2	d.1	c.5	c.4	c.3	c.2	c.1	b.5	b.4	b.3	b.2	b.1	a.5	a.4	a.3	a.2	a.1	
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المـــــؤسسات التعليميـــــة و التـــــدريبية

The name of university: University of Benghazi
Program name 1ST YEAR
The course name: General Microbiology
Course code: MLSC-102
Academic year / level: 2023-2024. First year

1- Basic information:

the course name:	General Microbiology
Course coordinator	
Program (s) on which the course is given:	1ST YEAR
Teaching hours	4 hours/week
Language	English
Academic year / level:	2023-2024. First year
Course approval date	

1.1 hours per week

Lecture: (2 hours/ week) Practical: (2 hours/ week) Total: (hours 96)
Training: (-)

1- Aims of Course:

a- The course is designed to introduce students to the fundamentals of microbiology.
b- The course covers the structure, physiology, genetics, and diversity of microorganisms, as well as their roles in health, disease, and the environment.

2- Intended Learning Outcomes of Course (ILOs):

a- Knowledge and Understanding:

After completing this course, students should be able to demonstrate:

1. Outline the characteristics and classification of microorganisms.
2. Identify the principles of microbial growth and metabolism.
3. Understand the basic genetics and molecular biology of microorganisms.
4. Describe the roles of microorganisms in health, disease, and the environment.
5. Define the principles of microbiological techniques and their applications.

b- Intellectual Skills:

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

1. Analyze and interpret data from microbiological experiments.
2. Evaluate scientific evidence and arguments related to microbiology.
3. Synthesize and communicate complex microbiological concepts and ideas.
4. Apply critical thinking and problem-solving skills to microbiological challenges.

c- Professional and Practical Skills:

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

1. Conduct aseptic techniques and handle microorganisms safely.
2. Prepare and sterilize microbiological media and reagents.
3. Operate Isolation, cultivating, and identification microorganisms from different sources.
4. Apply basic biochemical and physiological tests on microorganisms.

5. Practice molecular biology techniques to manipulate and analyze microbial DNA and RNA.

d- General Skills:

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

1. Develop effective teamwork and communication with peers and supervisors.
2. Improve time and prioritize tasks in a laboratory setting.
3. Enhance accurate records and document laboratory procedures and findings.
4. Develop the Usage of digital and online resources for scientific research and communication.
5. Improve the application of ethical principles and standards in microbiological research and practice.

4- Course Contents:

Topic	Hours	Lectures	Lab	Practical/ small groups
Introduction to Microbiology				
Microbial Cell Structure and Function				
Microbial Nutrition and Growth				
Microbial Metabolism and Energy Production				
Microbial Genetics and DNA Replication				
Microbial Transcription and Translation				
Microbial Recombination and Gene Transfer				
Microbial Diversity and Classification				
Bacteria: Morphology, Physiology, and Pathogenesis				
Bacteria: Ecology, Evolution, and Biotechnology				
Viruses: Structure, Replication, and Pathogenesis				
Viruses: Epidemiology, Control, and Biotechnology				
Fungi: Morphology, Physiology, and Ecology				
Fungi: Pathogenesis, Epidemiology, and Biotechnology				
Protozoa: Morphology, Physiology, and Ecology				
Protozoa: Pathogenesis, Epidemiology, and Biotechnology				
Microbial Interactions and Communities				
Microbial Biotechnology and Applications				
Microbial Control and Antimicrobial Agents				
Immunology: Innate and Adaptive Immunity				
Immunology: Antibodies and Antigens				
Immunology: Cell-Mediated Immunity and				

Topic	Hours	Lectures	Lab	Practical/ small groups
Vaccines				
Microbial Diseases of Humans and Animals				
Microbiology of Food and Water Safety				
Total.				

5. Learning Methods:

a. Lectures
b. Tutorial
c. Lab.

6. Assessment methods:

	Assessment Type	Date	%
	First assessment	16th week of first term.	30
	Lab. Exam	Before the final examination	20
	Final examination (Written,)	At the end of term	50
Total			100

7. List of References:

Title	Publisher	copy	authors	Available place

8. Facilities Required for Teaching and Learning:

	Facilities Required	Notes
1-		
2-		
3-		

Course Coordinators **Head of Department**

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Date:……/……../……

Skills															a. Knowledge and Understanding					الاسبوع الدراسي
d. General& transferable skills					c. Professional & practical skills					b. Intellectual skills										
d.5	d.4	d.3	d.2	d.1	c.5	c.4	c.3	c.2	c.1	b.5	b.4	b.3	b.2	b.1	a.5	a.4	a.3	a.2	a.1	
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المـــــــركز الوطـــــــني لضمـــــان جـــــودة واعتمـــــاد
المـــــؤسسات التعليميـــــة و التـــــدريبية

The name of university: University of Benghazi
Program name 1ST YEAR
The course name: Hematology and Immunology
Course code: MLSC-103
Academic year / level: 2023-2024. First year

1- Basic information:

the course name:	Hematology and Immunology
Course coordinator	
Program (s) on which the course is given:	1ST YEAR
Teaching hours	4 hours/week
Language	English
Academic year / level:	2023-2024. First year
Course approval date	

1.1 hours per week

Lecture: (2 hours/ week) Practical: (2 hours/ week) Total: (hours 96)
Training: (-)

1- Aims of Course:

a- The course aims to develop the students' knowledge and understanding of the fundamental processes involved in blood cell formation, function, and pathology, as well as the key concepts and principles of immune system function and dysfunction.

b- Overall the course will provide a comprehensive understanding of the structure and function of blood cells, blood cell morphology, hematopoiesis, hemostasis, immune system function, and immunopathology as well as the pathogenesis, diagnosis, and treatment of various hematological disorders.

c- Upon completion of the course, students will have a strong foundation in hematology, which will be beneficial for those who wish to pursue careers in fields such as laboratory science, and research.

2- Intended Learning Outcomes of Course (ILOs):

a- Knowledge and Understanding:

After completing this course, students should be able to demonstrate:

1. Define the fundamental principles and concepts of hematology and immunology.
2. Recognize laboratory results related to hematology and immunology.
3. Describe diagnosis and treatment of hematologic and immunologic disorders.

b- Intellectual Skills:

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

1. Analytical and critical thinking.
2. Problem-solving skills.
3. Ability to evaluate evidence and make sound judgments.
4. Independent learning and research skills.

c- Professional and Practical Skills:

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

1. Analyze and interpret laboratory results of hematological and immunological tests.
2. Evaluate the clinical significance of laboratory results.
3. Effective communication and presentation skills.
4. Teamwork and collaboration skills.
5. Practical skills in laboratory diagnosis of hematological and immunological. disorders.
6. Communicate effectively and professionally with colleagues and patients regarding hematology and immunology issues

d- General Skills:

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

1. Time management and organization skills.
2. Adaptability and flexibility.
3. Manage time and prioritize tasks.

4- Course Contents:

Topic	Hours	Lectures	Lab.	Practical/ small groups
Introduction to Hematology and Immunology.				
Blood Cells and Blood Count.				
Hematopoietic System.				
.Hemoglobin and Hemostasis				
Blood Transfusion.				
Immunology Basics.				
Innate Immune System.				
Adaptive Immune System.				
Antigen Presentation and Processing.				
T-Cell Mediated Immunity.				
B-Cell Mediated Immunity.				
Antibodies.				
Immune System Disorders.				
Immunodeficiency Diseases and Cancer Immunology.				
Immunotherapy.				
Immune Responses and Vaccines.				
Laboratory Diagnosis of Hematological and Immunological Diseases.				
Immunological Techniques.				
Hematological Techniques.				
Total.				

5. Learning Methods:

a. Lectures
b. Tutorial
c. Lab.

6. Assessment methods:

	Assessment Type	Date	%
	First assessment	16th week of first term.	30
	Lab. Exam	Before the final examination	20
	Final examination (Written,)	At the end of term	50
Total			100

7. List of References:

Title	Publisher	copy	authors	Available place

8. Facilities Required for Teaching and Learning:

	Facilities Required	Notes
1-		
2-		
3-		

Course Coordinators **Head of Department**

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Date:……/……../……

Skills																				الاسبوع الدراسي
d. General& transferable skills					c. Professional & practical skills					b. Intellectual skills					a. Knowledge and Understanding					
d.5	d.4	d.3	d.2	d.1	c.5	c.4	c.3	c.2	c.1	b.5	b.4	b.3	b.2	b.1	a.5	a.4	a.3	a.2	a.1	
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المـــــــركز الوطـــــــني لضمـــــان جـــــودة واعتمـــــاد
المـــــؤسسات التعليميـــــة و التـــــدريبية

The name of university: University of Benghazi
Program name 1ST YEAR
The course name: General Forensic Sciences
Course code: FRSC-101
Academic year / level: 2023-2024. First year

1- Basic information:

The course name:	General Forensic Sciences
Course coordinator	
Program (s) on which the course is given:	1ST YEAR
Teaching hours	4 hours/week
Language	English
Academic year / level:	2023-2024. First year
Course approval date	

1.1 hours per week

Lecture: (2 hours/week) Practical: (2 hours/week) Total: (hours 96)

Training: (-)

1- Aims of Course:

a- The course is designed to provide students with a comprehensive understanding of the principles and practices of forensic science.

b- The course covers a broad range of topics, including crime scene investigation, forensic toxicology, DNA analysis, and forensic anthropology.

c- The aim of the course is to prepare students for a career in forensic science by providing them with the necessary knowledge, skills, and practical experience.

2- Intended Learning Outcomes of Course (ILOs):

a- Knowledge and Understanding:

After completing this course, students should be able to demonstrate:

1. Understand of the principles and practices of forensic science.
2. Define of the various techniques and methods used in forensic analysis.
3. Outline of the legal and ethical issues surrounding forensic science.

b- Intellectual Skills:

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

1. Analyze and interpret forensic evidence.
2. Construct scientific methods and techniques to forensic investigations.
3. Critically evaluate scientific evidence and theories.

c- Professional and Practical Skills:

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

1. Conduct crime scene investigations.
2. Practice laboratory analyses of forensic evidence.
3. Prepare scientific evidence in court.

d- General Skills:

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

1. Develop ability to work effectively in a team.
2. Improve communication and presentation skills.
3. Enhance time management and organization skills.

4- Course Contents:

Topic	Hours	Lectures	Lab.	Practical/ small groups
Introduction to Forensic Science.				
Crime Scene Investigation.				
.Physical Evidence				
Trace Evidence.				
Bloodstain Pattern Analysis.				
DNA Analysis.				
Forensic Toxicology.				
Fire and Explosion Investigation.				
Fingerprint Analysis.				
Forensic Anthropology.				
Forensic Pathology.				
Forensic Toxicology.				
Forensic Serology.				
Forensic DNA Analysis.				
Forensic Odontology.				
Forensic Entomology.				
Bloodstain Pattern Analysis.				
Ballistics.				
Forensic Firearm Examination.				
Questioned Documents.				
Digital Forensics.				
Forensic Accounting.				
Forensic Linguistics.				
Forensic Entomotoxicology.				
Forensic Art.				
Forensic Document Examination.				
Forensic Photography.				
Expert Witness Testimony.				
Crime Scene Reconstruction				
Total.				

5. Learning Methods:

a. Lectures
b. Tutorial

6. Assessment methods:

	Assessment Type	Date	%
a.	**First assessment**	16th week of first term.	40
b.	Final examination (Written,)	At the end of term	60
Total			100

7. List of References:

Title	Publisher	copy	authors	Available place

8. Facilities Required for Teaching and Learning:

	Facilities Required	Notes
1.		
2.		
3.		

Course Coordinators **Head of Department**

…….. **…….**

Date:……/……../……

Skills															a. Knowledge and Understanding					الاسبوع الدراسي
d. General& transferable skills					c. Professional & practical skills					b. Intellectual skills										
d.5	d.4	d.3	d.2	d.1	c.5	c.4	c.3	c.2	c.1	b.5	b.4	b.3	b.2	b.1	a.5	a.4	a.3	a.2	a.1	
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