



Course Specification of Physiology I

رئيس الجامعة د. صادق
ا.د. القاسم محمد عباس

عميدة مركز التطوير وضمان الجودة
ا.م.د. هدى العماد

عميد الكلية
د. خالد الشوية

رئيس القسم

نائب العميد لشؤون الجودة
ا.د. محمود البريهي

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I. General information about the course :

1.	Course Title:	Physiology I				
2.	Course Code and Number :	Ph433				
3.	Credit Hours :	Lecture	Seminar/Tutorial	Practical	Training	Total
		2	----	-	----	2
4.	Study Level and Semester:	2 nd level, 1 st semester				
5.	Pre-requisites (if any):	NA				
6.	Co-requisites (if any) :	NA				
7.	Program in which the course is offered	Bachelor of Pharmacy				
8.	Teaching Language:	English				
9.	Location of teaching the course:	Faculty of Pharmacy				
0.	Prepared by :	Dr. Sadeq Abdulmogny				
1.	Approval date :					

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II. Course Description:

This introductory physiology course introduces basics concepts in physiology of human body. The course familiarizes students with basic definitions and principles related to physiology. This course helps students to understand body fluid and cellular physiology including the functions of cell components. The course gives an overview on the physiology of autonomic nervous system, structure of nerve, and compositions of blood.

III. Course Aims

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- 1- To introduce and familiarize students with basic definitions and principles related to physiology as a study of the living body at molecular, cellular as well as the level of intact organism.
- 2- To provide student with a basic knowledge and understanding concerning the fundamental mechanisms of human life as a continuous process.
- 3- To develop the basic skills and ethical behavior required for scientific research, as well as effective communication and team work attitude.
- 4- To provide the student with the knowledge about the theoretical principles outlined in the syllabus in relation to ongoing basic sciences.

IV. Intended learning outcomes (ILOs) of the course:

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

1. Understand the basic concepts of the physiology.
2. Define the physiology and their types, the structure and function of the studied systems.
3. Know more information about units and medical analysis.
4. Apply the new techniques in solving problems.
5. Reform hematological analysis related to units.
6. Choose and classify data obtained from physiological experiments.
7. Communicate effectively with students by discussing results obtained from experimental physiological lab.

VI. Course Intended Learning Outcomes (CILOs) :

Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
A1. Recognize the principles of physical, chemical, clinical, social, behavioral, health and Pharmaceutical sciences.	a1- Understand the basic concepts of the physiology

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<p>A3. Describe the general cellular, biochemical and physiological aspects of human body and recognize the pharmacokinetics, pharmacodynamics, disease pathophysiology and pharmacogenetic of therapeutic agents to provide pharmaceutical care and facilitate management of patient's medication, rationalize drug use and overall health needs.</p>	<p>a2- Define the physiology and their types, the structure and function of the studied systems.</p>
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Intellectual Skills :	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<p>B1. Consolidate the chemical, biochemical and physiological principles to construct the pharmacophores of the structure and their effect on the stability, pharmacokinetic and pharmacodynamic profiles of the drug.</p>	<p>b1- Know more informations about units and medical analysis</p>
<p>B2. Design different types of safe and effective pharmaceutical dosage forms and develop novel methods of qualitative and quantitative analytical and biological analysis for pharmaceutical and biopharmaceutical products that support pharmaceutical research.</p>	<p>b2- Apply the new techniques in solving problems.</p>

Professional and Practical Skills	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:

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C1. Handle and dispose chemicals and pharmaceutical preparations including radiopharmaceuticals safely and effectively.	c1- Reform hematological analysis related to units.
C2. Extract, isolate, purify, identify and formulate the natural products and assure their rational use.	c2- Choose and classify data obtained from physiological experiments.

Transferable (General) Skills :	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
D1. Practice independent learning needed for continuous professional development	d1- Present data in graphical using IT methods.
D2. Employ proper documentation and filing systems in different pharmaceutical fields	d2- Communicate effectively with students by discussing results obtained from experimental physiological lab.

VII. Alignment of CILOs to Teaching and Assessment Strategies		
First: Alignment of Knowledge and Understanding CILOs		
Knowledge and Understanding CILOs	Teaching Strategies	Assessment Strategies
a1- Understand the basic concepts of some physiological concepts.	Lectures Presentation	Quizzes
a2- Define the general principles of physiological analysis	Lectures	Quizzes

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Second: Alignment of Intellectual Skills CILOs		
Intellectual Skills CILOs	Teaching Strategies	Assessment Strategies
b1- Know more informations about units and medical analysis	Lectures Assignments	Oral examinations Quizzes
b2- Apply the new laboratory techniques in solving problems.	Lectures Brainstorming session	Quizzes Written examinations

Third: Alignment of Professional and Practical Skills CILOs		
Professional and Practical Skills CILOs	Teaching Strategies	Assessment Strategies
c1- Reform hematological analysis related to units.	Brainstorming session	Micro-reports
c2 - Choose and classify data obtained from physiological experiments	Lectures Activation	Problem solving

Fourth: Alignment of Transferable (General) Skills CILOs		
Transferable (General) Skills CILOs	Teaching Strategies	Assessment Strategies
d1- Present data in graphical using IT methods.	Lectures Activation	Micro-reports
d2- Communicate effectively with students by discussing results obtained from experimental physiological lab.	Presentation Activation	Micro-reports

V. Course topics and sub-topics (theoretical and practical) with contact hours and alignment to CILOs

Topics/Units of Course Contents

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First: Theoretical Aspects					
No.	Course Topics/Units	Sub-topics	No. of Weeks	Contact Hours	CILOs
1	1-Physiology of the cell. 2- Transport across the cell membrane.	Cell compositions Cell membrane Cytoplasmic organelles Nucleus Movements of molecules across membranes Mechanism of particles and water diffusion across cell membrane	2	4	a1, a2
2	1-Body fluids, composition, distribution, general functions. 2- Osmosis, tonicity and water balance	Body fluid importance Body fluid compartments Intracellular fluid (ICF) Extracellular fluid (ECF)	2	4	a1, b1,b2
3	1-Composition and functions of the blood. 2- RBCs, Formation and general functions.	Blood Composition of blood: Plasma Blood elements Red blood corpuscles Most common types of normal and abnormal hemoglobin Anemia: Types of anemia RBCs functions	2	4	a1, a2 b1,b2
4	Midterm	—————	1	2	All
5	1- WBCs: structures, classifications and functions 2- Hemostasis and its disorders	White blood cells Types of leucocytes White blood cells functions Platelets Hemostasis and WBCs disorders	2	4	a1, a2, b1,b2, c1, c2

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6	1- Nerve fibers, structures, classifications, functions and properties of nerves. 2- Resting membrane potentials, action potentials and factors affecting them. 3- Conduction of nerve impulse, neuromuscular transmission.	The neuron (Nerve cell) neuron classification, structure and function Resting and action potential Myelin sheath Neuroglia or glial cells General functions of neuroglia Types of neuroglia cells	2	4	a1, a2, b1,b2, c1, c2, d2
7	1-Autonomic nervous system, origin, organization, distribution. 1- Autonomic ganglia, chemical transmitters & functions of ANS.	Autonomic (involuntary or visceral) nervous system (ANS) Types of autonomic nervous system	2	4	a1, a2, b1,b2, c1, d2
8	Review		2	4	All
9	Final exam		1	2	All
Total number of weeks and hours			16	32	

VI. Learning Assessment:					
No.	Assessment Tasks	Week due	Mark	Proportion of Final Assessment	Aligned CILOs
1	Homework/Tasks/Assignments	3, 6, 8, 11	5	5%	a1, a2, b1, b2, d1, d2
2	Quiz	4	5	5%	a1, a2

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3	Midterm Exam	7	20	20%	a1, a2, b1, b2,
5	Final Exam	16	70	70%	a1, a2, b1, b2
Total			100	100%	

V. Teaching Strategies

- 1- Lectures and presentation
- 2- Activation
- 3- micro-report
- 4- micro- assignments

I. Learning Resources :

(Author, (Year), Book Title, Edition, Publisher, Country of publishing)

Textbooks-not more than 2

1. Guyton and Hall, (2006), Text book of medical physiology, 11th Ed Mississippi Medical Center, Jackson, Mississippi, USA
2. Laurie Kelly, (2005), Essentials of Human Physiology for Pharmacy, 1st Ed. CRC Press, Pharmacy Education series

Essential References-not less than 4

- 1- Stuart Ira Fox, (2011), Textbook: Human Physiology, 13th Ed.
- 2- Thibodeah & patton (1999), Anatomy & Physiology, 5th Ed, Thieme Stuttgart, New York.
- 3- Barbara J. Bain and Rajeev Gupta, (2003), A-Z of Haematology 1st Ed. Blackwell Publishing Ltd. London.
- 4- Fox, (2010), Human Physiology, 10th Ed, McGraw-Hill companies
- 5- Human Physiology, the basis of medicine, (2006), 3rd Ed, Oxford university press.

Electronic Materials and Web Sites



1. www.csun.edu/science/biology/anatomy/anatomy.html
2. www.cliffsnotes.com
3. www.innerbody.com
4. www.anatomyandphysiology.com/
5. www.mhhe.com/biosci2/anatomyrevealed
6. www.le.ac.uk/pa/teach/va/anatomy

I. Facilities Required:

1 - Accommodation:	- Well-equipped lecture halls with data show facilities, whiteboards, net connection, etc. - Well-equipped laboratories with all required equipment and reagents.
2 - Computing resources:	- Computer laboratory with internet facilities.

II. Course Improvement Processes:

1- Strategies for obtaining student feedback on effectiveness of teaching

- Student-based assessment of the effectiveness of teaching using a questionnaire designed by the Quality Assurance Unit at the end of the semester.
- Meeting with students and faculty (once per semester).

2- Other strategies for evaluation of teaching by the instructor or by the department.

- Assessment of the course syllabus and contents by the teachers using a questionnaire designed by the Quality Assurance Unit of the university at the end of the semester.
- Regular meeting and discussion of the course content between the Head of Department and the teaching staff of the course (for theory and practice).

3- Processes for improvement of teaching.

- Revision of the course specification and its teaching strategies every three academic years after consideration of all issues raised by the teachers and/or students during regular meetings and discussions.
- Exploring any possible defects in the course that might be encountered by the teaching staff and their mitigation in subsequent improved versions of course specification.

4- Processes for verifying standards of students' achievement

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	<ul style="list-style-type: none"> ▪ Checking of a sample of students' work by an independent faculty member. ▪ Periodic exchange and check marking of a sample of students' assignments with a faculty member from another institution. ▪ Adoption of scoring rubrics to assess the students' achievement (both for ongoing or summative assessments). ▪ Regular follow-up of laboratory logbooks to assess the practical achievement of students.
5- Procedures for periodically reviewing of course effectiveness and planning for improvement	
	<ul style="list-style-type: none"> ▪ Student rating and feedback ▪ Peer rating and feedback ▪ Regular meeting of the Curriculum Committee of the faculty.
6- Course development plans	
	<ul style="list-style-type: none"> ▪ Conducting regular workshops for the staff for improving their course specification skills. ▪ Regular revision of course specification and syllabus items.

VIII. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to -----	
1	Class Attendance: <ul style="list-style-type: none"> ▪ Attendance of all lectures and practical sessions is required. Unexcused absence exceeding 25% of the lectures or practical sessions will disqualify the student from entering the final exam.
2	Tardy: <ul style="list-style-type: none"> - Roll will be called in the very beginning of each lecture and practical class. Retardation for more than three weeks without a reasonable excursion, the student involved shall not be allowed to attend the class any longer and consequently shall be considered to be absent.



3	Exam Attendance/Punctuality: <ul style="list-style-type: none">▪ Exam attendance is obligatory unless being excused by the department and faculty.▪ Absence from assignments or exams will be dealt with according to the general policy of the university.
4	Assignments & Projects: <ul style="list-style-type: none">▪ Assignments: Written and oral; Laboratory logbook signed by the responsible demonstrator. ▪Projects: Not applicable.
5	Cheating: <ul style="list-style-type: none">▪ Punishment of cheating will be according to the general policy of the university in this respect.
6	Plagiarism: <ul style="list-style-type: none">▪ Plagiarism in written essays, reports, etc. is not accepted, and students who plagiarize the works of others will be punished according to the general policy of the university.
7	Other policies: <ul style="list-style-type: none">▪ General policies of the Students' Affairs of the University and the Quality Assurance Unit.

Course Plan of Physiology II

II. General information about the course instructor :

Name	Dr Sadeq Saad Abdulomgny	Office Hours (2 Hours Weekly)
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Location & phone number	773609090	Sat	Sun	Mon	Tue	Wed	Thu
Email	asdhod@yahoo.com						

III. General information about the course :					
Course Title:	Physiology I				
Course Code and Number :	Ph433				
Credit Hours :	Lecture	Seminar/Tutorial	Practical	Training	Total
	2	-----	-	----	2
Study Level and Semester:	2 nd level, 1 st semester				
Pre-requisites (if any):	NA				
Co-requisites (if any) :	NA				
Program in which the course is offered	Bachelor of Pharmacy				
Teaching Language:	English				
Study System :	Semester- based				
Mode of delivery:	Regular				
Location of teaching the course:	Faculty of Pharmacy- Sana`a university				

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IV. Course Description:

This introductory physiology course introduces basics concepts in physiology of human body. The course familiarizes students with basic definitions and principles related to physiology. This course helps students to understand body fluid and cellular physiology including the functions of cell components. The course gives an overview on the physiology of autonomic nervous system, structure of nerve, and compositions of blood.

V. Course Aims

- 1- To introduce and familiarize students with basic definitions and principles related to physiology as a study of the living body at molecular, cellular as well as the level of intact organism.
- 5- To provide student with a basic knowledge and understanding concerning the fundamental mechanisms of human life as a continuous process.
- 6- To develop the basic skills and ethical behavior required for scientific research, as well as effective communication and team work attitude.
- 7- To provide the student with the knowledge about the theoretical principles outlined in the syllabus in relation to ongoing basic sciences.

VI. Intended learning outcomes (ILOs) of the course:

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

8. Understand the basic concepts of the physiology
9. Define the physiology and their types, the structure and function of the studied systems.
10. Know more informations about units and medical analysis
11. Apply the new techniques in solving problems.
12. Reform hematological analysis related to units.
13. Choose and classify data obtained from physiological experiments.
14. Communicate effectively with students by discussing results obtained from experimental physiological lab.

VII. Course topics and sub-topics (theoretical and practical) with contact hours and alignment to CILOs

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Topics/Units of Course Contents					
First: Theoretical Aspects					
No.	Course Topics/Units	Sub-topics	Week Due	Contact Hours	CILOs
1	1-Physiology of the cell. 2-Transport across the cell membrane.	Cell compositions Cell membrane Cytoplasmic organelles Nucleus Movements of molecules across membranes Mechanism of particles and water diffusion across cell membrane	1,2	4	a1, a2
2	1-Body fluids, composition, distribution, general functions. 2- Osmosis, tonicity and water balance	Body fluid importance Body fluid compartments Intracellular fluid (ICF) Extracellular fluid (ECF)	3,4	4	a1, b1,b2
3	1-Composition and functions of the blood. 2- RBCs, Formation and general functions.	Blood Composition of blood: Plasma Blood elements Red blood corpuscles Most common types of normal and abnormal hemoglobin Anemia: Types of anemia RBCs functions	5,6	4	a1, a2 b1,b2
4	Midterm	—————	7	2	All

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5	3- WBCs: structures, classifications and functions 4- Hemostasis and its disorders	White blood cells Types of leucocytes White blood cells functions Platelets Hemostasis and WBCs disorders	8,9	4	a1, a2, b1,b2, c1, c2
6	3- Nerve fibers, structures, classifications, functions and properties of nerves. 4- Resting membrane potentials, action potentials and factors affecting them. 3- Conduction of nerve impulse, neuromuscular transmission.	The neuron (Nerve cell) neuron classification, structure and function Resting and action potential Myelin sheath Neuroglia or glial cells General functions of neuroglia Types of neuroglia cells	10,11	4	a1, a2, b1,b2, c1, c2, d2
7	1-Autonomic nervous system, origin, organization, distribution. 1- Autonomic ganglia, chemical transmitters & functions of ANS.	Autonomic (involuntary or visceral) nervous system (ANS) Types of autonomic nervous system	12,13	4	a1, a2, b1,b2, c1, d2
8	Review		14,15	4	All
9	Final exam		16	2	All
Total number of weeks and hours			16	32	

VIII. Learning Assessment:

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No.	Assessment Tasks	Week due	Mark	Proportion of Final Assessment	Aligned CILOs
1	Homework/Tasks/Assignments	3, 6, 8, 11	5	5%	a1, a2, b1, b2, d1, d2
2	Quiz	4	5	5%	a1, a2
3	Midterm Exam	7	20	20%	a1, a2, b1, b2,
5	Final Exam	16	70	70%	a1, a2, b1, b2
Total			100	100%	

VI. Teaching Strategies

5- Lectures and presentation

6- Activation

7- micro-report

VII. Learning Resources :

(Author, (Year), Book Title, Edition, Publisher, Country of publishing) **Textbooks-not**

more than 2

- Guyton and Hall, (2006), Text book of medical physiology, 11th Ed Mississippi Medical Center, Jackson, Mississippi, USA
- Laurie Kelly, (2005), Essentials of Human Physiology for Pharmacy, 1st Ed. CRC Press, Pharmacy Education series

Essential References-not less than 4

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- Barbara J. Bain and Rajeev Gupta, (2003), A-Z of Haematology 1st Ed. Blackwell Publishing Ltd. London.
- Fox, (2010), Human Physiology, 10th Ed, McGraw-Hill companies
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Electronic Materials and Web Sites

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رئيس الجامعة د.صادق: ا.د. القاسم محمد عباس



7. www.csun.edu/science/biology/anatomy/anatomy.html 8. www.cliffsnotes.com 9. www.innerbody.com 10. www.anatomyandphysiology.com/ 11. www.mhhe.com/biosci2/anatomyrevealed 12. www.le.ac.uk/pa/teach/va/anatomy
8- micro- assignments

III. Facilities Required:	
1 - Accommodation:	<ul style="list-style-type: none"> - Well-equipped lecture halls with data show facilities, whiteboards, net connection, etc. - Well-equipped laboratories with all required equipment and reagents.
3 - Computing resources:	<ul style="list-style-type: none"> - Computer laboratory with internet facilities.
IV. Course Improvement Processes:	
6- Strategies for obtaining student feedback on effectiveness of teaching	
	<ul style="list-style-type: none"> ▪ Student-based assessment of the effectiveness of teaching using a questionnaire designed by the Quality Assurance Unit at the end of the semester. ▪ Meeting with students and faculty (once per semester).
7- Other strategies for evaluation of teaching by the instructor or by the department.	
	<ul style="list-style-type: none"> ▪ Assessment of the course syllabus and contents by the teachers using a questionnaire designed by the Quality Assurance Unit of the university at the end of the semester. ▪ Regular meeting and discussion of the course content between the Head of Department and the teaching staff of the course (for theory and practice).
8- Processes for improvement of teaching.	
	<ul style="list-style-type: none"> ▪ Revision of the course specification and its teaching strategies every three academic years after consideration of all issues raised by the teachers and/or students during regular meetings and discussions. ▪ Exploring any possible defects in the course that might be encountered by the teaching staff and their mitigation in subsequent improved versions of course specification.
9- Processes for verifying standards of students' achievement	



	<ul style="list-style-type: none"> Checking of a sample of students' work by an independent faculty member. Periodic exchange and check marking of a sample of students' assignments with a faculty member from another institution. Adoption of scoring rubrics to assess the students' achievement (both for ongoing or summative assessments). Regular follow-up of laboratory logbooks to assess the practical achievement of students.
10- Procedures for periodically reviewing of course effectiveness and planning for improvement	
	<ul style="list-style-type: none"> Student rating and feedback Peer rating and feedback Regular meeting of the Curriculum Committee of the faculty.
6- Course development plans	
	<ul style="list-style-type: none"> Conducting regular workshops for the staff for improving their course specification skills. Regular revision of course specification and syllabus items.

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to -----	
1	Class Attendance: <ul style="list-style-type: none"> Attendance of all lectures and practical sessions is required. Unexcused absence exceeding 25% of the lectures or practical sessions will disqualify the student from entering the final exam.
2	Tardy: <p>- Roll will be called in the very beginning of each lecture and practical class. Retardation for more than three weeks without a reasonable excursion, the student involved shall not be allowed to attend the class any longer and consequently shall be considered to be absent.</p>
3	Exam Attendance/Punctuality: <ul style="list-style-type: none"> Exam attendance is obligatory unless being excused by the department and faculty. Absence from assignments or exams will be dealt with according to the general policy of the university.



4	Assignments & Projects: <ul style="list-style-type: none">Assignments: Written and oral; Laboratory logbook signed by the responsible demonstrator. ■Projects: Not applicable.
5	Cheating: <ul style="list-style-type: none">Punishment of cheating will be according to the general policy of the university in this respect.
6	Plagiarism: <ul style="list-style-type: none">Plagiarism in written essays, reports, etc. is not accepted, and students who plagiarize the works of others will be punished according to the general policy of the university.
7	Other policies: <ul style="list-style-type: none">General policies of the Students' Affairs of the University and the Quality Assurance Unit.

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ا.د. القاسم محمد عباس

عميدة مركز التطوير وضمان الجودة
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عميد الكلية
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