Republic of Yemen

Ministry of Higher Education & Scientific Research

21 SEPTEMBER UNIVERSITY of MEDICALS & APPLIEED

SCIENCES

Faculty of Laboratory medicine..

Department of Hematology
Course Specification of Advanced Hematology I Stem Cells and Hemopoiesis

Course No. (03.13.311)

2022/2023

Prepared by:	Reviewed by:	Heamatolgy Department Charge D'affairs	Vice Dean for Quality affairs	Dean of College:
- Dr. Abdulrahman Amer	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	- Associate Prof. Dr. Ebtesam Al-Zabedi

I. Course Identification and General Information:					
1	**Course Title:**	Advanced Hematology I Stem Cells and Hemopoiesis			
2	**Course Code & Number:**	03,13,311			
3	**Credit Hours:**	Theory Hours			
		Lecture	Exercise	Practical	Credit Hours
		2	0	2	3
4	**Study Level/ Semester at which this Course is offered:**	1st Level / 1st Semester			
5	**Pre –Requisite (if any):**	None			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Master Degree Medical Diagnostic Hematology			
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester			
10	**Mode of Delivery:**	Regular			
11	**Location of Teaching the Course:**	University Campus			
12	**Prepared by:**				
13	**Date of Approval:**	2022-2023			

Prepared by:	Reviewed by:	Heamatolgy Department Charge D'affairs	Vice Dean for Quality affairs	Dean of College:
- Dr. Abdulrahman Amer	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	- Associate Prof. Dr. Ebtesam Al-Zabedi

II. Course Description:
This course will provide an in-depth look at the biology of stem cells and hematopoiesis. Topics will include the biology of stem cells, the differentiation of stem cells into blood cells, the regulation of hematopoiesis, and the role of stem cells in disease.

III. Alignment Course Intended Learning Outcomes with program outcomes		
III. Course Intended Learning Outcomes (CILOs)		**Referenced PILOs**
A. Knowledge and Understanding: **Upon successful completion of the course, students will be able to:**		
a1	Understand the basic biology of stem cells	A1
B. Intellectual Skills: **Upon successful completion of the course, students will be able to:**		
b1	Explain the regulation of hematopoiesis	B1
C. Professional and Practical Skills: **Upon successful completion of the course, students will be able to:**		
c1	• Evaluate the ethical issues surrounding stem cell research	C1
c2		
D. Transferable Skills: **Upon successful completion of the course, students will be able to:**		
d1		D1

Prepared by:	Reviewed by:	Heamatolgy Department Charge D'affairs	Vice Dean for Quality affairs	Dean of College:
- Dr. Abdulrahman Amer	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	- Associate Prof. Dr. Ebtesam Al-Zabedi

• Explain the role of stem cells in diseases such as leukemia and lymphoma

• Apply the principles of stem cell research to their own research or clinical practice

IV. Alignment Course Intended Learning Outcomes with Teaching Strategies and Assessment methods :			
(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1	Understand the basic biology of stem cells	Lecture	Exam
(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1	Explain the regulation of hematopoiesis	Lecture	Exam
C Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1	• Evaluate the ethical issues surrounding stem cell research	Lecture Discussion Presentation	Exam Discussion Presentation
(D Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1	Communicate effectively about stem cells	Lecture Discussion Presentation	Exam Discussion Presentation

Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes
1	Introduction to Stem Cells	What are stem cells? Types of stem cells The properties of stem cells	2	4	a1,b1,c1,d1
2	Hematopoiesis	The development of blood cells Hematopoiesis The different types of blood cells The development of blood cells from stem cells	2	4	a1,b1,c1,d1
3	Regulation of Hematopoiesis	The regulation of hematopoiesis The factors that regulate hematopoiesis The role of cytokines in hematopoiesis	2	4	a1,b1,c1,d1
4	Stem Cells in Disease	Diseases of stem cells and hematopoiesis Aplastic anemia Leukemia Myelodysplastic syndromes	2	4	a1,b1,c1,d1
5	Midterm Exam		1	2	a1,b1,c1,d1
6	Laboratory Exercise:	Isolation and Culture of Hematopoietic Stem Cells	1	2	a1,b1,c1,d1
7	Student Presentations		1	2	a1,b1,c1,d1
8	Graft-Versus-Host Disease (GVHD)		1	2	a1,b1,c1,d1
9	Gene Therapy and Stem Cells		2	4	a1,b1,c1,d1
10	Clinical Applications of HSCs in Hematology		1	2	a1,b1,c1,d1
11	Ethical and Regulatory Issues in Stem Cell Research and Clinical Applications		1	2	a1,b1,c1,d1
12	Final Exam				a1,b1,c1,d1

Prepared by:	Reviewed by:	Heamatolgy Department Charge D'affairs	Vice Dean for Quality affairs	Dean of College:
- Dr. Abdulrahman Amer	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	- Associate Prof. Dr. Ebtesam Al-Zabedi

Number of Weeks /and Units Per Semester	12	**32**	

B - Practical Aspect: (if any)				
Order	**Tasks/ Experiments**	**Number of Weeks**	**contact hours**	**Learning Outcomes**
1	Introduction to diagnostic techniques of tumors	3	6	a1,a2,b1,c3,d1
2	Diagnostic test for heart and liver diseases	3	6	a1,a2,b1,c3,d1
3	ELISA techniques	2	4	a1,a2,b1,c3,d1
Number of Weeks /and Units Per Semester				

V. Teaching Strategies of the Course:	
1-	Lectures
2-	Practical session
3-	Self leaning
4-	Group discussion
	Case study analysis

VI. Assessment Methods of the Course:	
No	**Assignment**
1	Written Exams (Essays) and Quizzes
2	Structured Oral Exams
4	Objective Structured Practical Exams (OSPE)
5	Student presentation
6	Case study analysis

Prepared by:	Reviewed by:	Heamatolgy Department Charge D'affairs	Vice Dean for Quality affairs	Dean of College:
- Dr. Abdulrahman Amer	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	- Associate Prof. Dr. Ebtesam Al-Zabedi

VII. Assignments:					
No.	**Assignments**	**Week Due**	**Mark**	**Proportion of Final Assessment**	**Aligned CILOs (symbols)**
1	Activity	Throughout the semester	10	10%	a1,a2,b1,c3,d1
2	Practical Report	Throughout the semester	10	10 %	a1,a2,b1,c3,d1
3	Practical exam	12	20	20%	a1,a2,b1,c3,d1
5	Final Exam	14	60	60%	a1,a2,b1,c3,d1
Total					

Learning Resources:

- Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

- 1-Hematopoiesis: A Cellular and Molecular Approach by John E. Dick
- 2-Stem Cell Biology by Alexander R.P. de Sousa

2- Essential References.

Stem Cells and Regenerative Medicine by Anthony Atala and James J. Yoo

Wep

Prepared by:	Reviewed by:	Heamatolgy Department Charge D'affairs	Vice Dean for Quality affairs	Dean of College:
- Dr. Abdulrahman Amer	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	- Associate Prof. Dr. Ebtesam Al-Zabedi

XI. Course Policies:	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** -If the student dose not attend for more than 6 times, the student will be obligated to withdrew from the course
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	**Other policies:** The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration