



Course Specifications

Course Title:	Coagulation and Hemostasis
Course Code:	(373411-2)
Program:	Bachelor's in Clinical Laboratory Sciences (Level-7)
Department:	Clinical Laboratory Sciences
College:	Applied Medical Sciences
Institution:	Taif University



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A. Course Identification

1. Credit hours: 3 hours			
2. Course type			
a.	University <input type="checkbox"/>	College <input type="checkbox"/>	Department <input checked="" type="checkbox"/>
b.	Required <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>	Others <input type="checkbox"/>
3. Level/year at which this course is offered:		Level 7 /Fourth Year	
4. Pre-requisites for this course (if any): Hematology-2 (373323-3)			
5. Co-requisites for this course (if any): None			

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 hours /week= 45 hours/semester	100%
2	Blended	None	0%
3	E-learning	None	0%
4	Correspondence	None	0%
5	Other	None	0%

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	15
2	Laboratory/Studio	30
3	Tutorial	None
4	Others (specify)	None
	Total	45
Other Learning Hours*		
1	Study	30
2	Assignments	5
3	Library	None
4	Projects/Research Essays/Theses	None
5	Homework	5
	Total	40

*The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

This course provides introduces hemostasis theory including coagulation cascade, intrinsic and extrinsic pathways, thrombosis and fibrinolysis. It also take into account the platelet physiology, platelet coagulation disorders, other coagulation disease conditions and anticoagulant therapy. The course also presents coagulation laboratory testing principles, including PT, INR, APTT, fibrinogen, D-dimer, FDPs, miscellaneous coagulation testing and associates hemostatic dysfunction with clinical disease.

2. Course Main Objective

The main objective of the course is to provide an overview of theory and practical application of hemostasis (coagulation), as it relates to the clinical laboratory. It also presents coagulation laboratory principles and correlates result with disease states.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge:	
1.1	Describe hemostasis including platelet structure, physiology and function, intrinsic and extrinsic coagulation pathways, terminology and factors involved in the coagulation process, process and substances influencing thrombosis, fibrinolysis and coagulation inhibition and modes of action and therapeutic use of anticoagulants.	K1
1.2	Recognize general clinical findings of coagulation disorders including platelet function disorders, clotting factor disorders and DIC and their laboratory findings.	K1
1.3	Recognize test principle and patient results associated with the following: thrombin time, fibrinogen levels, factor XIII assays, FDPs, D-dimer, mixing studies, heparin assay and platelet function assay.	K2
1.4	State coagulation automation testing.	K2
1.5	Recall principles of methods, selection and use of appropriate analytical equipment; and perform advanced laboratory tests for PT, APTT, INR, Protein C and S and bleeding time tests.	K2
2	Skills:	
2.1	Explain techniques and procedures used for specimen collection and its handling, transportation, storage and suitability evaluations for PT, APTT, INR, Protein C and S and bleeding time tests.	S1

CLOs		Aligned PLOs
2.2	Evaluate quality control procedures and make informed judgement about selection and use of appropriate analytical equipment in hematology laboratory setting.	S1
2.3	Interpret laboratory data and its correlation with disease processes associated with coagulation disorders.	S2
3	Competence:	
3.1	Perform coagulation tests including PTT, APTT, INR and bleeding tests in a proficient manner and record results according to laboratory protocol.	C1
3.2	Effectively manage time and tasks allowing concurrent tasks to be done simultaneously, by individuals and/or within a group.	C3
3.3	Communicate concepts, principles and information effectively by oral and written means with clarity and confidence.	C3

C (a) Course Content (Theory)

No	List of Topics	Contact Hours
1	Overview of Hemostasis and platelet Physiology	1
2	Primary Hemostasis	1
3	Secondary Hemostasis	1
4	Quantitative Disorders of Platelets	1
5	Inherited Qualitative Disorders of Platelets	1
6	Acquired Defects of Platelet Function	1
7	Vascular Disorders Leading to Platelet Dysfunction	1
8	Defects of Plasma Clotting Factors	1
9	Evaluation of a Bleeding Disorder and Types of Bleeding Classic Hemophilias	1
10	Role of Fibrinogen in Hemostasis	1
11	Disorders of Fibrinogen	1
12	Disseminated Intravascular Coagulation	1

13	Thrombotic Disorders	1
14	Laboratory Diagnosis for Thrombotic Disorders	1
15	Anticoagulant Therapy	1
Total		15

(b) Course Content (Practical)

No	List of Topics	Contact Hours
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
Total		30

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
1.1	Describe hemostasis including platelet structure, physiology and function, intrinsic and extrinsic coagulation pathways, terminology and factors involved in the coagulation process, process and substances influencing thrombosis, fibrinolysis and coagulation inhibition and modes of action and therapeutic use of anticoagulants.	- Lectures	- Exams
1.2	Recognize general clinical findings of coagulation disorders including platelet function disorders, clotting factor disorders and DIC and their laboratory findings.	- Lectures	- Exams

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.3	Recognize test principle and patient results associated with the following: thrombin time, fibrinogen levels, factor XIII assays, FDPs, D-dimer, mixing studies, heparin assay and platelet function assay.	<ul style="list-style-type: none"> - Lectures - Practical sessions 	<ul style="list-style-type: none"> - Exams - Lab reports
1.4	State coagulation automation testing.	<ul style="list-style-type: none"> - Lectures - Practical sessions 	<ul style="list-style-type: none"> - Exams - Lab reports
1.5	Recall principles of methods, selection and use of appropriate analytical equipment; and perform advanced laboratory tests for PT, APTT, INR, Protein C and S and bleeding time tests.	<ul style="list-style-type: none"> - Lectures - Practical sessions 	<ul style="list-style-type: none"> - Exams - Lab reports
2.0	Skills		
2.1	Explain techniques and procedures used for specimen collection and its handling, transportation, storage and suitability evaluations for PT, APTT, INR, Protein C and S and bleeding time tests.	<ul style="list-style-type: none"> - Lectures - Practical sessions 	<ul style="list-style-type: none"> - Exams - Assignments
2.2	Evaluate quality control procedures and make informed judgement about selection and use of appropriate analytical equipment in hematology laboratory setting.	<ul style="list-style-type: none"> - Lectures - Practical sessions 	<ul style="list-style-type: none"> - Exams - Assignments
2.3	Interpret laboratory data and its correlation with disease processes associated with coagulation disorders.	<ul style="list-style-type: none"> - Lectures - Practical sessions - Problem based learning 	<ul style="list-style-type: none"> - Exams - OSPE
3.0	Competence		
3.1	Perform coagulation tests including PTT, APTT, INR and bleeding tests in a proficient manner and record results according to laboratory protocol.	<ul style="list-style-type: none"> - Lectures - Practical sessions 	<ul style="list-style-type: none"> - Exams - Lab Reports

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
3.2	Effectively manage time and tasks allowing concurrent tasks to be done simultaneously, by individuals and/or within a group.	<ul style="list-style-type: none"> - Group discussions - Lectures - Practical sessions 	<ul style="list-style-type: none"> - Exams - Assessment of scientific activities
3.3	Communicate concepts, principles and information effectively by oral and written means with clarity and confidence.	<ul style="list-style-type: none"> - Group discussions - Lectures - Practical sessions 	<ul style="list-style-type: none"> - Exams - Assessment of scientific activities

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid-Term Exam	8 th Week	15%
2	Activity	Throughout the semester	5%
3	Practical Report	Throughout the semester	10%
4	Final Practical Exam	16 th Week	20%
5	Final Exam	17 th /18 th Week	50%
6	Total		100%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- Course instructors are available for individual consultation in their free time. They are usually full-time permanent members present on-campus from 8:00 am to 2:30 pm on all working days. Appointments can be made in person with the instructor through email etc. Days and time availability of each instructor are posted on their doors. Course instructors provide a range of academic and course management advice including course planning and its progression.
- Each student at the department of Clinical Laboratory Sciences has an academic adviser who is available for individual consultation and guidance. Appointments can be made in person with the instructor through email etc. Days and time availability of each adviser are posted on their doors. The academic adviser can provide support with time management, exam preparation, clarification of subject requirements, feedback on performance and dealing with personal issues as well.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none"> - Hematology in Clinical Practice, 5th Edition - Clinical laboratory hematology, Pearson McKenzie and Shirlyn B. (2014)
Essential References Materials	None
Electronic Materials	<p>Websites, Search engines (Saudi Digital Library, PubMed, Google Scholar)</p> <p>American Society of Hematology http://www.hematology.org/</p> <p>Leukemia and Lymphoma Society http://www.lls.org/</p>
Other Learning Materials	<p>Journals, Scientific Magazines and Articles.</p> <ul style="list-style-type: none"> - British Journal of Hematology - Journal of hematology and Oncology - Blood

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms and Laboratories
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show, Blackboard and A/V
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	<ul style="list-style-type: none"> - Complete blood count machine - Light Microscopes - Hb Electrophoresis

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student's feedback on effectiveness of teaching and quality of courses.	Students	Indirect: Questionnaire Survey at the end of each semester.
Alignment map of course ILOs with that of program ILOs.	Development and accreditation committee	Direct: Student's Performance
Availability of learning resources, facilities and equipments related to each course.	Students and faculty	Indirect: Questionnaire Survey at the end of each semester.
Evaluation of teaching	Peer evaluators	Direct: Peer evaluation
Standard of student achievement	Examination Committee	Direct: Students grades
Periodical review of course effectiveness and planning for its improvement.	Teaching staff/ Development and accreditation committee	Indirect: Review by Department Committee

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

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

Assessment Methods(Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department Meeting
Reference No.	Meeting No.10
Date	10-9-1440

