

T6. Course Specification (CS) توصيف المقرر

Institution:- <i>Najran University.</i>	Date of Report:- <i>22/8/1438 H</i>
College/Department :- <i>College of applied medical sciences/Department of clinical laboratory sciences.</i>	

A. Course Identification and General Information

1. Course title and code: <i>Clinical Chemistry2</i> كل-4-323.		
2. Credit hours:- <i>4(2+2).</i>		
3. Program(s) in which the course is offered:- <i>Bachelor of clinical laboratory sciences.</i>		
4. Name of faculty member responsible for the course:- <i>Omer Mohamed Shoaib</i>		
5. Level/year at which this course is offered :- <i>5th level/ 3rd year</i>		
6. Pre-requisites for this course :- <i>Introduction to Biochemistry & Clinical chemistry I.</i>		
7. Co-requisites for this course :- <i>None.</i>		
8. Location :- <i>Main university campus in Najran.</i>		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom	<input type="text" value="/"/> What percentage?	<input type="text" value="100"/>
b. Blended (traditional and online)	<input type="text"/> What percentage?	<input type="text"/>
c. e-learning	<input type="text"/> What percentage?	<input type="text"/>
d. Correspondence	<input type="text"/> What percentage?	<input type="text"/>
f. Other	<input type="text"/> What percentage?	<input type="text"/>
Comments: <i>No comment.</i>		

B Objectives

1. What is the main purpose for this course? To provide students of Applied Medical Sciences college with a comprehensive and up-to-date guide to clinical chemistry including basic scientific knowledge as well as cognitive, psychomotor and interpersonal and numerical skills in the most reliable, easy, attractive and illustrated manner.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) <ul style="list-style-type: none"> 1. <i>Students are encouraged to use relevant web sites for writing assignments.</i> 2. <i>Students are engaged in active discussion about some medical syndromes related to specific topics in the course.</i> 3. <i>Verifying the information resources.</i> 4. <i>Continuous improvements in teaching methods to encourage the students to participate effectively in the lectures.</i> 5. <i>Continuous evaluation of the course content, student level and establish plans accordingly</i>

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached):-

The course covers the general body organ of the functions of systems, and the key field m, the role of major liver and renal in and their functions DM, body fluids and electrolytes balance health and disease state and how to make use of them in the diagnosis .

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Introduction of glucose metabolism	1	1
structure and function of insulin	1	1
Complication of Diabetes Mellitus	1	1

Diagnosis and monitoring of Diabetes Mellitus	1	1
Diabetic Ketoacidosis & Hypoglycemia	1	1
Introduction to the Liver	1	1
Heme degradation and Jaundice	1	1
Liver disease due to poisoning and liver infection.	2	2
Acute and chronic hepatic failure.	1	1
Body fluid compartments	1	1
Water and sodium balance	1	1
Sodium, Hyponatraemia and Hypernatraemia	1	1
Potassium disorders	1	1
Intravenous fluid therapy	1	1
Analysis of CSF and ascitic fluid	1	1
Investigation of renal function-1 - Tests of glomerular function - Creatinine clearance - Serum creatinine and urea - Proteinuria - Urine collection & analysis	2	2
Investigation of renal function-2 - Renal tubular function - Tubular dysfunction - investigation of tubular function - specific tubular defect	2	2
Renal failure(Acute renal failure -- Chronic renal failure	1	1
Biochemical aspect of cancer	1	1
Tumour marks	1	1
Nutritional assessment& support Malabsorption	3	3

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	26hours	4	14	14 hours	20	78 hours
Credit	26hours	4	14	14hours	10	78 hours

3. Additional private study/learning hours expected for students per week.	4
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	<p>By the end of the course students should able to:-</p> <ol style="list-style-type: none"> 1- know the physiological function of the liver and discuss bile secretion, synthesis activity, and detoxification. 2- discuss the inherited and metabolic disorders of the liver and perform their diagnostic tests 3- know the physiological function of the Renal & discuss the concept of renal clearance and clearance measurement. 4- outline of classification and function of carbohydrate & Diabetes Mellitus. state the major clinical value of tumor markers 	<ol style="list-style-type: none"> 1. Class lectures. 2. Class quizzes. 3. Assignments. 4. Open discussion. 	<ul style="list-style-type: none"> • 10 minutes Multiple choice questions after completion of each topic with results carrying 5% of final assessment • Mid-term Exam (M.C.Qs and short accounts) carrying 30% of final assessment <p>Final term Exam (M.C.Qs and short accounts) carrying 50% of final assessment</p>
2.0	Cognitive Skills		
2.1	<p>By the end of this course students should be able to:-</p> <p>By the end of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1- Choose suitable diagnostic procedures for Renal function, Liver function, DM, Tumour Markers 2- Demonstrate the ability to think critically and make reasonable judgments by analyzing, combining and evaluating quantitative and non-quantitative information 	<ol style="list-style-type: none"> 1. Open discussion. 2. Assignments. 3. Class lectures. 	<ul style="list-style-type: none"> • Practical notebook with laboratory problem solving-based questions carrying 5% of final assessment • Group assignments carrying 5% of final assessment • Mid-term Exam (M.C.Qs and short accounts) carrying 30% of final assessment <p>Final term Exam (M.C.Qs and short accounts) carrying 50%</p>

			of final assessment
2.2	1. Evaluate some laboratory results & their clinical significance.	AS above	AS above
3.0	Interpersonal Skills & Responsibility		
3.1	<p>By the end of this course students should be able to:-</p> <ol style="list-style-type: none"> 1- Acquire basic skills of Clinical chemistry for analysis . 2- Understand the role of Clinical chemistry for control committee of the hospital. 	<ol style="list-style-type: none"> 1. Practical sessions in the department laboratories 2. Small group discussion in the lab. 	<ul style="list-style-type: none"> • Students attendance carrying 5% of final assessment • Practical notebook with laboratory problem solving-based questions carrying 5% of final assessment • Group assignments carrying 5% of final assessment • Mid-term Exam (M.C.Qs and short accounts) carrying 30% of final assessment <p>Final term Exam (M.C.Qs and short accounts) carrying 50% of final assessment</p>
3.2			
4.0	Communication, Information Technology, Numerical		
4.1	<p>By the end of this course, students should be able to:-</p> <ol style="list-style-type: none"> 1- Utilize efficiently the different knowledge resources including the library resources and the web sites. 2- Access and manipulate laboratory results through various mathematical and statistical methods as well as 	Group assignments and practical laboratory work	<ul style="list-style-type: none"> • Students attendance carrying 5% of final assessment • Practical notebook with laboratory problem solving-based questions

	clinical evaluation of nosocomial infected patients and hospital environment ((air, water, food, soil).)		carrying 5% of final assessment Group assignments carrying 5% of final assessment.
4.2			
5.0	Psychomotor		
5.1	<p><i>By the end of this course, students should be able to:-</i></p> <p>1- Perform accurately different clinical chemistry techniques for examination of the RFT, LFT, CSF, DM and Tumour markers.</p>	Practical laboratory work, practical notebook and attendance	<ul style="list-style-type: none"> Students attendance carrying 5% of final assessment Practical notebook with laboratory problem solving-based questions carrying 5% of final assessment Mid-term Exam (M.C.Qs and short accounts) carrying 30% of final assessment <p>Final term Exam (M.C.Qs and short accounts) carrying 50% of final assessment</p>
5.2			

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write

Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

5. Schedule of Assessment Tasks for Students During the Semester

Assessment	Assessment task	Week due	Proportion of final assessment
2	1 st Quiz	5 th week	2%
3	1 st Mid-term Exam	6 th week	20%
4	Practical Mid-term Exam	8 th week	10%
5	2 nd Quiz	10 th week	2%
6	3 rd Quiz	12 th week	2%
7	Assignments	13 th week	2%
10	Attendance	The whole semester	2%
11	Final term Exam	15 th week	60%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Each of The member staffs responsible for theoretical and practical parts will be available for 2 hours (10 am – 12 am) in a day per a week for individual student counseling and advice. This should include the time allocation and schedule for teaching staff to meet with students

E. Learning Resources

1. List Required Textbooks

1. Lectures notes
- 2- Practical notebook

2. List Essential References Materials (Journals, Reports, etc.)

1. **Clinical Chemistry**
Made Easy

By:- Jeremy hughes & Ashley Jefferson

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

1. **Clinical chemistry**
Technique, Principles, Correlations
Sixth Edition
By M.Bishop
2. **Clinical Chemistry**
By William J. Marshall, Stephen Bangert,
3. **Clinical biochemistry**
An illustrated colour text
By:- Allan Gaw
4. **Clinical Chemistry**
Made Easy

By:- Jeremy hughes & Ashley Jefferson

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

1. *Saudi digital library.*
2. *Science direct.*
3. *Elsevier.*

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

1. 30-25seats lecture room with computer & power point projector.
2. 30-25seats lab – room with computer & power point projector.

2. Computing resources (AV, data show, Smart Board, software, etc.)
1. <i>Data show projector in class room and lab</i>
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)
1. <i>Availability of internet access in the class room & lab is requested.</i>
2. <i>Automated Elisa reader.</i>

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
1. <i>Direct feedback.</i>
2. <i>Questionnaire.</i>
3. <i>Using .e-mail address.</i>
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
1. <i>Students feedback.</i>
2. <i>Colleagues feedback.</i>
3. <i>Seniors opinions.</i>
3 Processes for Improvement of Teaching
1. <i>Attending specific educational courses and workshops.</i>
2. <i>Student's feedback.</i>
3. <i>Colleagues' feedback.</i>
4. <i>Seniors opinions.</i>

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

1-Chek of periodic & final exams by seniors & other colleagues in the department.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

1. *Feedback from students.*
2. *Senior opinions.*
3. *Open discussion.*
4. *Updating scientific information's.*

Faculty or Teaching Staff:- *Omer Mohamed Shoaib.*

Signature:

Date Report Completed:- 24/4/1438 H

Received by: Dr.banar Alsheri



Dean/Department Head

Signature:

_____ 22/8/1438 H _____

Date:

