

Kingdom of Saudi Arabia

**The National Commission for Academic Accreditation &
Assessment**

COURSE SPECIFICATION

Medical Biochemistry (MBC 142)

Course Specification

*For Guidance on the completion of this template, please refer to of Handbook 2
Internal Quality Assurance Arrangements*

Institution	King Saud University
College/Department	College of Medicine/Medical Biochemistry Department

A Course Identification and General Information

1. Course title and code:	Medical Biochemistry 2 (MBC 142)
2. Credit hours:	4 hours
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)	Undergraduate course for the 2 nd year medical students
4. Name of faculty member responsible for the course	Dr. Waheed M. Al-Harizi (for male section) Dr. Rana Hasanato (for female section)
5. Level/year at which this course is offered	Second year Medical Course
6. Pre-requisites for this course (if any)	Finished Medical Biochemistry 1
7. Co-requisites for this course (if any)	-----
8. Location if not on main campus	-----

B Objectives

1. Summary of the main learning outcomes for students enrolled in the course. <ol style="list-style-type: none">To provide an explanation of the relationship between the nature and biological activities of nucleic acids with emphasis on the immense impact of that information on the medical field.To enable understanding of the principles of human nutrition and to be able to know the types and amounts of macronutrients that are needed to maintain optimal health.\The relation between obesity & metabolic syndrome, DM, cardiovascular syndrome is emphasizedTo give students information about Diabetes Mellitus (T1 & T2) regarding etiology, diagnosis, complications and treatment.To provide students with knowledge about the chemical constituents of biological fluids with special emphasis on blood, their function and alteration in different diseases.
2. Briefly describe any plans for developing and improving the course that are being implemented. (eg 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">Introduce more clinical casesIntroduce the new information concerning the field of medical biochemistry through web-based reference material.More active sharing of students in the education process through tutorial classes

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

1 Topics to be Covered		
Topic	No. of Weeks	Contact hours
Nucleotide Metabolism	3	3
DNA Structure and Replication	4	4
RNA Structure and Synthesis	3	3
Protein Synthesis	3	3
Nutrition and Fat soluble Vitamins	5	5
Obesity	2	2
Blood	5	5
Body Fluids	1	1

2. Course components (total contact hours per semester): Lecture: 13 Tutorial: 6 Practical/Field/Internship: 8 Self-Study and Clinical cases: 10
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3. Additional private study/learning hours expected for students per week. (This should be an average: for the semester not a specific requirement in each week)

- **8 hours/semester**
- **office hours for all staff members available for the students to ask**

4. Development of Learning Outcomes in Domains of Learning

For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill what the course intends to develop;
- A description of the teaching strategies to be used in the course in developing knowledge or skill;
- The methods of student assessment to be used in the course in evaluating learning outcomes in the domain concerned.

a. Knowledge

(i) Description of the knowledge to be acquired

- **Nucleotide structure & metabolism**
- **DNA structure and replication**
- **RNA structure and transcription**
- **Protein synthesis**
- **Biotechnology and human disease**
- **Nutrition**
- **Fat soluble vitamin**
- **Obesity**
- **Blood**
- **Body Fluids**
- **Clinical applications of the theoretical course**
- **Correlations and interpretation of clinical biochemistry results**

(ii) Teaching strategies to be used to develop that knowledge

- **General lectures**
- **Practical class evaluation**
- **Tutorials**
- **Discussion on clinical aspects of the course**

(iii) Methods of assessment of knowledge acquired

- **MCQ examinations**
- **Practical class examinations**
- **Oral examination**

b. Cognitive Skills

<p>(i) Cognitive skills to be developed</p> <ul style="list-style-type: none"> • Understand the different biochemical principles. • Read and summarize any biochemistry topic • Evaluate and interpret the biochemistry results
<p>(ii) Teaching strategies to be used to develop these cognitive skills</p> <ul style="list-style-type: none"> • Explain the different biochemical principles at the general lectures • Discuss the clinical aspects related to the theoretical course during the tutorials and practical classes • Feedback from the students
<p>(iii) Methods of assessment of students cognitive skills</p> <ul style="list-style-type: none"> • MCQ tests • Oral examination at the end of the course
<p>c. Interpersonal Skills and Responsibility</p>
<p>(i) Description of the interpersonal skills and capacity to carry responsibility to be developed</p> <ul style="list-style-type: none"> • Teamwork activity during the practical & tutorial classes • Organization and cooperation between the groups of students during the practical class. • Distribution of work according to personal abilities.
<p>(ii) Teaching strategies to be used to develop these skills and abilities</p> <ul style="list-style-type: none"> • Dividing the students into small groups during the practical & tutorial classes • Explaining in detail the job that is to be carried out. • Allow the students to distribute the responsibilities between each other. • Supervise and guide the student work by staff members • Encourage the cooperation between students
<p>(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility</p> <ul style="list-style-type: none"> • Close supervision and evaluation for the carrying out of the different responsibilities required • Assessment of the final laboratory results by comparison with reference results
<p>d. Communication, Information Technology and Numerical Skills</p>
<p>(i) Description of the skills to be developed in this domain.</p> <ul style="list-style-type: none"> • Use of internet for the recent information related to the course • Use of the university website for communication with the staff members • How to make posters for the laboratory procedures to be carried out.

(ii) Teaching strategies to be used to develop these skills
<ul style="list-style-type: none"> • Availability of computer lab • Arrangement for computer courses with the Computer Department. • Assign specific topics related to the course and let the students collect data concerning the topics.
(iii) Methods of assessment of students numerical and communication skills
<ul style="list-style-type: none"> • Evaluation of data collected by students
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required
<ul style="list-style-type: none"> • The psychomotor skills are mainly related to the practical classes such as <ul style="list-style-type: none"> ○ Accurate pipetting ○ Mastering the operation of lab machines ○ Dealing with and taking care of the laboratory reagents. • Also, the use of computer is essential.
(ii) Teaching strategies to be used to develop these skills
<ul style="list-style-type: none"> • Explanation and education • Practice under the supervision of the staff members.
(iii) Methods of assessment of students psychomotor skills
<ul style="list-style-type: none"> • The accuracy of the laboratory results.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	1 st MCQ Quiz	6	5 mark
2	1 st Mid-term MCQ Exam	10	10 mark
3	Mid-year MCQ Exam	14	10 mark
4	3 rd MCQ Quiz	17	5 mark
5	2 nd Midterm MCQ Exam	21	10 mark
6	Oral exam	25	10 mark
7	Final Exam MCQ	28	30 mark
8	Practical Exam every practical class	Total	20 marks/year

D. Student Support

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

E Learning Resources

1. Required Text(s): Lippincott Reviews of Biochemistry 4th Edition by Champe PC, Harvey RA, Ferrier DR, Lippincott William and Wilkins London, 2007
2. Essential References Harper's Illustrated Biochemistry: 27th Edition by Murray RK, Granner, DK, Mayes PA, Rodwell VW, McGraw-Hill companies New York, 2005 Textbook of Biochemistry with Clinical Correlation 5th Edition, Devilin TM, Wiley Liss New York 2002.
3- Recommended Books and Reference Material (Journals, Reports, etc) The following journals are recommended: 1. Clinical Biochemistry 2. The American Journal of Clinical Nutrition 3. Clinical Endocrinology and Metabolism 4. The American Journal of Human Genetics
4- Electronic Materials, Web Sites etc 1. http://genomics.energy.gov/ 2. http://www.geneclinics.org
5- Other learning material such as computer-based programs/CD, professional standards/regulations The instructor may provide some relevant materials and learning aids.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Lecture rooms, laboratories, etc.) <ul style="list-style-type: none"> Lecture theatre for 150 students with recent audio-visual aids Well-equipped laboratories (80 students)
2. Computing resources <ul style="list-style-type: none"> Computer lab is required Web access for students is required
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list) <ul style="list-style-type: none"> Updated instruments in clinical chemistry and molecular biology are required, e.g. machine for protein, DNA electrophoresis is urgently required

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching <ul style="list-style-type: none"> Evaluation form for the course at the end of the academic year. Evaluation form for every staff member at the end of every topic.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department The head of the department can meet with students without the staff members to get their feedback about the teaching abilities of the staff members
3 Processes for Improvement of Teaching <ul style="list-style-type: none"> Applications of the most updated tools for teaching (e.g. LCD projector) Reducing the proportion of unnecessary or repeated knowledge Making lectures more clinical & interpretative.
4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. <ul style="list-style-type: none"> The department meets periodically to discuss issues related to the course and its progress. Keeping in touch with respectable international institutes to be updated about course improvement.