

Kingdom of Saudi Arabia

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

COURSE SPECIFICATION

Medical Biochemistry (MBC 141)

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 – Department of Medical Biochemistry

A Course Identification and General Information

1. Course title and code:	Medical Biochemistry (MBC-141)
2. Credit hours:	8 hours
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)	Medical Education Program (in College of Medicine)
4. Name of faculty member responsible for the course \	Dr. Amr S. Moustafa (Male Section) Dr. Mona Ahmed El Badawi (Female Section)
5. Level/year at which this course is offered	First year medical students
6. Pre-requisites for this course (if any)	None
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. <ul style="list-style-type: none">• To have a command of biochemistry principles and concepts.• To have insights and to have an appreciation of how understanding of metabolic process occurring in the mammalian body could contribute in understanding the explanation of a pathological phenomena.• To get familiar with the various control and integrating mechanisms of the diverse biochemical events in different metabolic processes.• To be able to experience biochemical methodology• To be able to interpret results for appropriate diagnosis and follow up of patients.
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">• Changes in content to cope with the new updates in the field• Increased use of information technology• Web-based reference material• Student presentations and seminars for certain related topics.

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
Protein Structure and Function	3 weeks	9
Enzymes	2 weeks	6
Bioenergetics and Oxidative Phosphorylation	1 week	3
Carbohydrate Chemistry and Metabolism	4 weeks	12
Lipid Chemistry and Metabolism	4 weeks	12
Nitrogen Metabolism	3 weeks	9
Feed/Fast cycle	1 week	3
Water-soluble Vitamins	1 week	3
Fat-soluble vitamins	1 week	3
Body fluids	2 weeks	6
Molecular Biology	5 weeks	15

2. Course components (total contact hours per semester): Lecture: 40 Tutorial: 6 Practical Fieldwork/Internship: 12 Other: Self-study & clinical cases
--

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)

- **12 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 the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

a. Knowledge

(i) Description of the knowledge to be acquired

- **Protein chemistry and metabolism**
- **Carbohydrate chemistry and metabolism**
- **Lipid chemistry and metabolism**
- **Basic Enzymology and some clinical applications**
- **Feed/Fast cycle**
- **Water-soluble vitamins**
- **Fat-soluble vitamins**
- **Molecular Biology**
- **Understanding and recognizing the clinical biochemistry results and its interpretation.**

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

- **General lectures**
- **Practical classes**
- **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"> • Understanding the different basic biochemical principles • Read briefing any biochemistry topic • Clinical evaluation and interpretation of 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 with 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</p> <ul style="list-style-type: none"> • MCQ tests • Following up the students' progress throughout the course.
c. Interpersonal Skills and Responsibility
<p>(i) Description of the interpersonal skills and capacity to carry responsibility to be developed</p> <ul style="list-style-type: none"> • Teamwork activity • Organization and cooperation between the groups of students during the practical class. • Distribution of work according to personal activities.
<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. • Explaining in detail the jobs to be carried out. • Allow the students to distribute the responsibilities between each other. • Supervision and guidance of the students' work by staff members. • Encourage 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.

d. Communication, Information Technology and Numerical Skills	
(i) Description of the skills to be developed in this domain.	<ul style="list-style-type: none"> • Use of the 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 the computer lab • Arrangement for computer courses with the Computer Department. • Assign specific topics related to the course and encourage students to collect data concerning the topics.
(iii) Methods of assessment of students numerical and communication skills	<ul style="list-style-type: none"> • Evaluation of the 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 the lab machines ○ Dealing with and taking care of the laboratory reagents • Also, the use of the computer is essential.
(ii) Teaching strategies to be used to develop these skills	<ul style="list-style-type: none"> • Explanation and education • Practising under the supervision of the staff.
(iii) Methods of assessment of students psychomotor skills	<ul style="list-style-type: none"> • The accuracy and precision 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	5	2.5 mark
2	1 st Mid-term MCQ Exam	9	10 mark
3	2 nd MCQ Quiz	11	2.5 mark
4	Mid-year MCQ Exam	14	10 mark
5	3 rd MCQ Quiz	17	2.5 mark
6	2 nd Midterm MCQ Exam	21	10 mark
7	4 th MCQ Quiz	24	2.5 mark
8	Final Exam MCQ	28	40 mark
9	Practical Exam every practical class		Total: 20 marks/year

D. Student Support

<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • 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, Devlin TM, Wiley Liss New York 2002.
3- Recommended Books and Reference Material (Journals, Reports, etc).
<p>* The following journals are recommended:</p> <ol style="list-style-type: none"> 1. Clinical Biochemistry 2. Clinical Chemistry
4-.Electronic Materials, Web Sites etc
<ul style="list-style-type: none"> • *PubMed

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

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 at least 150 students with the recent audio-visual aids.• Well-equipped laboratories (for about 80 students)
2. Computing resources <ul style="list-style-type: none">• Computer laboratory 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 (spectrophotometer, centrifuge, water baths, balances etc.)

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 <ul style="list-style-type: none">• The head of the department can meet with the 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 most updated tools for teaching (e.g. LCD projector)• Reducing the proportion of unnecessary or repeated knowledge• Making lectures more interpretative.
4. Processes for Verifying Standards of Student Achievement (e.g. 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 institute to be updated about course improvement.