

Kingdom of Saudi Arabia

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

COURSE SPECIFICATION

<u>Medical Genetics (105 CMED)</u>

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 Genetics (105 CMED)
2. Credit hours:	One hour
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)	-----
4. Name of faculty member responsible for the course	Dr. Faiyaz Ul Haque
5. Level/year at which this course is offered	First year medical students (2 nd semester)
6. Pre-requisites for this course (if any)	-----
7. Co-requisites for this course (if any)	-----
8. Location if not on main campus	-----

B Objectives

<p>1. Summary of the main learning outcomes for students enrolled in the course.</p> <ul style="list-style-type: none">To highlight the significance of genetic contribution to the understanding of human disease states.To elucidate the molecular pathogenesis of genetic disorders.To elaborate the mode of inheritance of the genetic disorders.To give the concepts of genetic polymorphism, linkage analysis.To explain the techniques of genetic engineering and their application.
<p>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)</p> <ul style="list-style-type: none">The department meets periodically to review and discuss the contents of the course and encourage the continuous updating of the given knowledge.The department encourages the students to increase their information by visiting the libraries and websites.Feedback is continuously taken from the students regarding the course and the delivered lectures.

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
1. Introduction and definitions – The molecular basis of life.	1	1
2. The human chromosomes.	1	1
3. Mitosis and meiosis.	1	1
4. DNA as a carrier of genetic information; replication, transcription and translation.	1	1
5. Genes, gene type – phenotype relationship	1	1
6. Regulation of gene expression.	1	1
7. Nature of mutations and their causes.	1	1
8. Autosomal inheritance – Recessive, dominant.	1	1
9. Sex-linked inheritance – Recessive, dominant.	1	1
10. Genetic linkage – gene polymorphism.	1	1
11. Molecular genetics: The haemoglobinopathies, thalassaemias and the red cell enzymopathies..	1	1
12. Diagnosis of genetic disorders.	1	1
13. Population genetics.	1	1
14. Genetic engineering.	1	1
15. Genetic counselling.	1	1

2. Course components (total contact hours per semester): <div style="display: flex; justify-content: space-between; margin-top: 10px;"> Lecture: 15 Tutorial: 0 Practical: 0 Other: 0 </div>
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) -----
4. Development of Learning Outcomes in Domains of Learning For each of the domains of learning shown below indicate: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Genetic contribution to study disease status. Genetic disorders (types, molecular basis of pathogenesis, inheritance) Techniques of genetic engineering and their application.
(ii) Teaching strategies to be used to develop that knowledge <ul style="list-style-type: none"> Lectures are mainly devoted to discuss and illustrate basic knowledge details of the field. Secondly, student's attention is directed to applications of general basic knowledge in clinical fields including diagnosis, strategies of treatment and future prevention. Encouraging students to be involved in problem solving.
(iii) Methods of assessment of knowledge acquired <ul style="list-style-type: none"> Multiple choice questions examinations.
b. Cognitive Skills
(i) Cognitive skills to be developed <ul style="list-style-type: none"> Critical thinking Problem solving
(ii) Teaching strategies to be used to develop these cognitive skills

<ul style="list-style-type: none"> • General discussion is allowed at certain stages of formal lectures to present problems required to be solved. • In addition, students are asked to search for a solution for these problems beyond lecture times (homework). • Encouraging students to make use of faculty office hours in discussing matters related to main topics of the course.
(iii) Methods of assessment of students cognitive <ul style="list-style-type: none"> • Take home: Efforts of students in solving problems are discussed following the lectures and office hours.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed <ul style="list-style-type: none"> • Ability to communicate with and handle prevalent genetically inherited disorders in the international and local community. • Encourage group discussions and teamwork in conducting scientific researches or reports.
(ii) Teaching strategies to be used to develop these skills and abilities <ul style="list-style-type: none"> • Presenting official reports issued from local authorities regarding inherited disorders and allow students to discuss them. • Encourage students to contact information sources regarding such problems.
(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility <ul style="list-style-type: none"> • Talking with students during office hours regarding their efforts in communicating with their local community and written reports are handed to the faculty.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. <ul style="list-style-type: none"> • Skills of searching the web for the most updated knowledge • Skills of how to read scientific articles. • Skills in communicating with experts and institutions in the field to discuss scientific issues. • Presentation skills (oral, poster)
(ii) Teaching strategies to be used to develop these skills <ul style="list-style-type: none"> • Inform students about excellent websites about the field. • Instruct them how to get as much information from the web in a relatively short time. • Ask them to search for assigned topics. • Encourage them to present their knowledge in the form of oral or poster presentation.
(iii) Methods of assessment of students numerical and communication skills <ul style="list-style-type: none"> • Revision and discussion of student's efforts in getting knowledge from the web or journals.

• Appraisal of their efforts in presenting their knowledge.
e. Psychomotor Skills (if applicable) -----
(i) Description of the psychomotor skills to be developed and the level of performance required -----
(ii) Teaching strategies to be used to develop these skills -----
(iii) Methods of assessment of students psychomotor skills -----

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	Continuous Assessment Test		40%
2	Final Examination		60%

D. Student Support

<p>1. Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week)</p> <ul style="list-style-type: none"> • Each faculty is available in his/her office for at least 6 hours/week for student-guiding. • Group discussions are arranged with group leaders (if required) • If required by the students, revision lectures are conducted by arrangement.
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E. Learning Resources

<p>1. Required Text(s):</p> <ul style="list-style-type: none"> • Emery's Elements of Medical Genetics (12th Ed.) by Peter D. Turnpenny, Sian Ph.D. Ellard, Churchill Livingstone, New York, USA, 2005. • Thompson & Thompson Genetics in Medicine (6th Ed) by Robert L. Nussbaum, Roderick R. McInnes, Huntington F. Willard W.B. Saunders Company, London, UK, 2004.
2. Essential References

<p>3- Recommended Books and Reference Material (Journals, Reports, etc).</p> <ul style="list-style-type: none"> • Public Health Genomics. Journal Abbreviation: Public Health Genomics. www.karger.com/PHG ISSN 1662-4246 (Print) e-ISSN 1662-8063 (Online) • http://www.genetics.org/
<p>4-.Electronic Materials, Web Sites etc</p> <ul style="list-style-type: none"> • http://www.genome.gov • http://www.ornl.gov/sci/techresources/Human_Genome/education/education.shtml • http://www.wiley.com/legacy/products/subject/life/genetics • http://ghr.nlm.nih.gov/ • http://www.cdc.gov/genomics/hugenet/whatsnew/current.htm • http://www.geneclinics.org.
<p>5- Other learning material such as computer-based programs/CD, professional standards/regulations</p> <ul style="list-style-type: none"> • http://www.genome.gov/Pages/Education/DNADay/Animations/MakingSNPsMakeSense.html • http://www.genome.gov/Pages/Education/DNADay/Animations/HowProteinsAreMade.html

Course Coordinator : Dr. Reem Sallam

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 rooms (at least 150 seats)
2. Computing resources <ul style="list-style-type: none"> Assigned room is required for computing resources. %10 sets are required (connected to the web)
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list) -----

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching <ul style="list-style-type: none"> Periodic meeting of faculty members with group leaders and samples of students to get oral feedbacks. Questionnaires are distributed to students to get itemized feedback (Course Evaluation Survey, CES)
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
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 (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 institute to be updated about course improvement.