



Molecular Biology	
Title: Molecular Biology	
Course number: 434 PHL	
Semester: Eighth Semester (Fourth year).	
Duration: 2 + 1 Units (4 contact hours) per week.	
Aims: To enable the student to comprehend the basic principles, techniques and applications of molecular biology and genetics.	
Objectives: Upon successful completion of this course the student should be able to understand principles, techniques, concepts and applications of molecular biology and genetics.	
Contents: Lectures: DNA and RNA structure, replication, repair, transcription, translation, cloning, gene coding, genetic engineering, labeling, protein synthesis, gene mutation, recombinant DNA technology, tumor markers, gene therapy, stem cells, pharmacogenomics, human genome. Techniques, applications of molecular biology, concepts of bioengineering, bioreactor types and biotechnology products.	
Practical: Techniques of molecular biology, restriction enzyme digestions, subcloning, southern blotting, DNA sequencing, sequence analysis, receptor gene assays, protein-protein interactions and yeast molecular biology.	
Minimum course requirements: 30 (2 x 15) Unit lectures and 30 practical hours (2 x 15) per level.	
Evaluation methods:	



Quizzes	10%
- Mid term examination	25%
- Practical examinations	25%
- Final examination (written)	40%
Text Books (latest editions):	
1- Molecular Biology, Weaver, McGraw-Hill.	
2- Pharmaceutical Biotechnology, Crommelin.	
Recommended books (latest editions):	
1- Advanced Molecular Biology, Twyman, Wiley, Anglo-Egyptian book shop.	
2- Human Molecular Biology Laboratory Manual, Surzycki.	
3- An Introduction to Genetic Analysis with CD, Griffiths, Freeman Publications.	
4- An Introduction to Human Molecular Genetics, Pasterna, Freeman Publication.	
5- Basic Human Genetics, Mange, Publ Rastogipu.	
6- Genetic, Daniel L. Hartl, Jones and Bartlett.	
7- Gene Therapy: The Use of DNA As a Drug, Gravin books, Principal Pharmacist, Kent and Canterbury.	
8- Biotechnology: Theory and Practice, M.A. Vijayakshmi, London, Taylor and Francais.	