

Global Learning Semesters

Course Syllabus

Course: BIOL-225 Elements of Medical Genetics

Department: Health and Life Sciences

Host Institution: University of Nicosia, Nicosia, Cyprus



Course Summary		
Course Code	Course Title	Recommended Credit Hours
BIOL-225	Elements of Medical Genetics	3
Semester Offered	Contact Hours	Prerequisites
Please contact us	42-45	BIOL -105, BIOL -106, BIOL -110
Department	Level of Course	Language of Instruction
Health and Life Sciences	Lower Division	English

Course Description

The course will provide the basis of the mechanisms of inheritance and the relationship between chromosomes and genes. The course teaches how comparative analyses of present day genome and biotechnology have helped us understand aspects of genetic diseases and in the application of prenatal and preclinical diagnosis. The course stresses the clinical relevance of genetics with emphasis on principles rather than acquisition of detailed facts. The format of the course will be 2h lectures and one hour/week tutorials/discussions with case studies presentation and relevant literature.

Prerequisites

BIOL -105, BIOL -106, BIOL -110

Topic Areas

1. The history and impact of genetics in medicine
2. The basis and patterns of inheritance
3. polygenic and multifactorial inheritance
4. Genetics in medicine, cytogenetics and molecular genetics
5. Biochemical genetics
6. Pharmacogenetics
7. Immunogenetics
8. Genetic factors in common diseases
9. Chromosomal disorders
10. single gene disorders, acquired somatic genetic diseases
11. Bioethics

Tutorials

1. Carrier detection and presymptomatic diagnosis
2. Risk calculations in inheritance
3. Prenatal diagnosis of genetic diseases
4. Indications for prenatal diagnosis
5. Termination of pregnancy; prenatal treatment
6. Community genetics and population screening
7. The human genome project

8. Treatment of genetic diseases
9. Gene therapy
10. Ethical dilemmas in clinical genetics
11. Genetic counselling
12. Outcomes and special problems in genetic counselling

Readings and Resources

Required Textbooks

1. Elements Of Medical Genetics by Mueller RF and Young ID Publishers: Churchill Livingstone, 1998 ISBN: 044305902
2. Kingston, H.M. (1997) ABC of Clinical Genetics. 2nd ed. London: British Medical Association

Recommended Textbooks

1. Human Molecular Genetics by Tom Strachan (Author), Andrew P. Read (Author) Publisher: Wiley-Liss; 2nd edition (December 15, 1999) ISBN: 0471330612
2. PRINCIPLES OF GENETICS W/GENETICS: From Genes to Genomes CD-ROM and Website Password Card, Seventh Edition Author: Robert H. Tamarin, Publishers: McGraw Hill, 2001, ISBN: 0-07-248523-X
3. Thompson & Thompson Genetics in Medicine by Robert L., Md. Nussbaum, Roderick R., Md., Ph.D. McInnes, Huntington F., Ph.D. Willard, Margaret W. Thompson Thompson, Thompson Genetics in Medicine Thompson, W. B. Saunders Publisher: W B Saunders; 6th edition (August 2001) ISBN: 0721669026
4. Mendelian Inheritance in Man by McKusick V.A. (1997) 12th edn. John Hopkins University Press, Baltimore
5. Principles of Medical Genetics by Thomas D., Md. Gelehrter, Francis S., Md. Ph.D. Collins, David, Md. Ginsburg, Thomas F. Gelehrter Publisher: Lippincott, Williams & Wilkins; 2nd edition (January 15, 1998) ISBN: 0683034456
6. British Medical Association (1998) Human Genetics: Choice and Responsibility. Oxford: Open University Press
7. Connor, J. M. and Ferguson-Smith, M.A. (1997) Essential Medical Genetics. 5th ed. Oxford: Blackwell Science.
8. Day, I.N.M. and Humphries, S.E. (1997) Genetics of Common Diseases: Future Therapeutic and Diagnostic Possibilities. Oxford: BIOS Scientific.
9. Dawkins, R. (1989) The Selfish Gene. Oxford: Oxford University Press
10. Mange, A. P. and Mange, E.J. (1998) Genetics: Human Aspects. 2nd ed. Sunderland, Maryland: Sinauer Associates.
11. Emery, A. E. H. et al (1998) Elements of Medical Genetics. 10th ed. Edinburgh: Churchill Livingstone.
12. Plomin, R. and Defries, J. C. (1997) Behavioural Genetics. 3rd Ed. New York: W.H. Freeman.