

BIOL 436 HUMAN MOLECULAR GENETICS WINTER SEMESTER, 2016

Lectures are given at **ECS Building 124**, Mon & Thur 10:00-11:20a.m.

Course coordinator and lecturer: Dr. Francis Choy, Cunningham Building Room 062.

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Textbook: There will be no single assigned textbook since the lecture materials are from current journals and a number of reference textbooks. All of the lectures note (PDF) can be downloaded from UVic CourseSpaces for BIOL 436. Reference textbooks are: Genetics and Genomics in Medicine 1st edition, 2014 and Human Molecular Genetics by Strachan & Read, 4th edition, 2011; Garland Sci Publishers; Medical Genetics by Jorde et al, 2010, Mosby-Elsevier. Human Genetics by Lewis, 10th edition, 2012, McGraw-Hill Publisher.

Method of grade assignment: Midterm exams, 50%; final exam, 50%. The format of both exams will be essays, short answers, and multiple choice.

Grades: $\geq 90\%$ = A+, $\geq 85\%$ = A, $\geq 80\%$ = A-; $\geq 77\%$ = B+; $\geq 73\%$ = B; $\geq 70\%$ = B-; $\geq 65\%$ = C+, $\geq 60\%$ = C, $\geq 50\%$ = D; below 50% = F. **There will be no E grade nor supplementary examination.**

Tentative Schedule

Jan.4, 7	Organization and expression of the human mitochondrial genome; biochemical & molecular genetics of mitochondria enzymopathies
Jan 11	Current Prevention of Mitochondria DNA Diseases; Mt genomics & anthropology
Jan 14	Organization and expression of the human nuclear genome
Jan 18, 21	Human multigene families: evolution and implications in genetic diseases
Jan 25, 28	Molecular genetics of the HLA (human leukocyte antigen) and Immunogenetics I
Feb 1	1st mid-term exam
Feb 4	Immunogenetics II
Feb 8-12	Reading break
Feb 15, 18	Molecular genetics of hemoglobinopathies
Feb 22, 25	Biochemical and molecular genetics of diabetes
Feb 29, March 29	Genetic screening and population genetics I & II
March 7	2nd mid-term exam
March 10	Treatment for genetic diseases I: Molecular basis of gene therapy
March 14	Treatment for genetic disease II & III: Gene therapy in cancer & new approaches in enzyme-replacement therapy
March 17	Guest lecture by Chloe Christensen, M.Sc. candidate in Biology: CRISPR-Cas9 technology for genome editing and DNA repair
March 21	Treatment of brain disease: Overcoming the blood brain barrier
March 26	Guest lecture by Dr. Graham Sinclair: Integrating genomics into the investigation of inborn errors of metabolism
March 28	Easter Monday
March 31	Pharmacogenetics

Final Examination, date and place TBA