

## **BIOL 436 HUMAN MOLECULAR GENETICS WINTER SEMESTER, 2017**

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 1<sup>st</sup> 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, 11th edition, 2015, 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.5, 9	Organization and expression of the human mitochondrial genome; biochemical & molecular genetics of mitochondria enzymopathies
Jan 12	Current Prevention of Mitochondria DNA Diseases; Mt genomics & anthropology
Jan 16	Organization and expression of the human nuclear genome
Jan 19, 23	Human multigene families: evolution and implications in genetic diseases
Jan 26, 30	Molecular genetics of the HLA (human leukocyte antigen) and Immunogenetics I
<b>Feb 2</b>	<b>1<sup>st</sup> mid-term exam</b>
Feb 6, 9	Immunogenetics II
<b>Feb 13-17</b>	<b>Reading break</b>
Feb 20, 23	Molecular genetics of hemoglobinopathies
Feb 27, March 2	Biochemical and molecular genetics of diabetes
March 6, 9	Genetic screening and population genetics I & II
<b>March 13</b>	<b>2<sup>nd</sup> mid-term exam</b>
March 16	Treatment for genetic diseases I: Molecular basis of gene therapy
March 20	Treatment for genetic disease II & III: Gene therapy in cancer & new approaches in enzyme-replacement therapy
March 23	Guest lecture by Chloe Christensen, M.Sc. candidate in Biology: CRISPR-Cas9 technology for genome editing and DNA repair
March 27	Treatment of brain disease: Overcoming the blood brain barrier
March 30	Guest lecture by Dr. Graham Sinclair: Integrating genomics into the investigation of inborn errors of metabolism
April 3	Pharmacogenetics

**Final Examination, date and place TBA**