SAMPLE COURSE OUTLINE

Course Code, Number, and Title:

BIOL 3430: Molecular Genetics

Course Format:
[Course format may vary by instructor. The typical course format would be:]

Lecture 4 h + Seminar 0 h + Lab 3 h

Credits: 4 **Transfer credit:** For information, visit bctransferguide.ca

Course Description, Prerequisites, Corequisites:

Building on fundamental knowledge of biology and genetics, students further explore life at the molecular level, specifically, the structure and function of nucleic acids, DNA replication and expression, gene structure and regulation. Topics include fundamental concepts in recombinant DNA technology, cloning and sequencing techniques and their application to the analysis of genes and genomes. The use of computer based manipulation and analysis of DNA sequence information as an essential tool in modern molecular genetics is also emphasized.

Prerequisites: A minimum of C grade in BIOL 2330

Corequisites: None

Priority registration for students admitted to BSc Bioinformatics

Learning Outcomes:
Upon successful completion of this course, students will be able to:

- Describe the molecular structure of DNA and RNA and how differences in their structure are related to differences in their cellular function
- Describe the major differences in genome structure between major phylogenetic groups and its relevance in cloning genes and genomics
- Describe at the molecular level the events that occur during DNA replication, transcription and translation
- Identify different type of RNA, their properties, how they are processed to yield a functional form, and their function in biological information flow
- Identify the basic methods involved in gene cloning and describe the basic differences between genes in bacteria and eukaryotes
- Explain the importance of regulating gene expression and describe the basic mechanisms of gene regulation in prokaryotes and eukaryotes
- Describe the basic strategies involved in sequencing and decoding genomes

snəẃeyəɬ leləm̓ Langara College acknowledges that we are located on the unceded territory of the Musqueam people.

- Access and use genetic information from public databases to learn more about structure and function of genes and their gene products

Instructor(s): TBA
Office: TBA **Phone: 604 323 XXXX** **Email: TBA**

Office Hours: TBA

Textbook and Course Materials:
[Textbook selection may vary by instructor. An example of texts and course materials for this course might be:}

Peter Russell. iGenetics: a molecular approach, 3rd edition. Langara College. 2018.

Note: *This course may use an electronic (online) instructional resource that is located outside of Canada for mandatory graded class work. You may be required to enter personal information, such as your name and email address, to log in to this resource. This means that your personal information could be stored on servers located outside of Canada and may be accessed by U.S. authorities, subject to federal laws. Where possible, you may log in with an email pseudonym as long as you provide the pseudonym to me so I can identify you when reviewing your class work.*

Assessments and Weighting:
Final Exam 20%
Other Assessments %
(An example of other assessments might be:) %

2 Midterm Exams: 30%
Quizzes/Tests: 10%
Assignments: 5%
Lab work: 30%
Project: 5%

Proportion of individual and group work:
Individual: 90%
Group: 10%

Grading System: Letter grade
Specific grading schemes will be detailed in each course section outline.

Passing grade: D

Topics Covered:
[Topics covered may vary by instructor. An example of topics covered might be:]

The genetic material
DNA replication
Transcription
Translation
Recombinant DNA technology
Applications of recombinant DNA technology
Genomics; mapping and sequencing genomes
Mutation and transposable elements
Regulation of gene transcription in prokaryotes
Regulation of gene transcription in Eukaryotes
The genetics of cancer

As a student at Langara, you are responsible for familiarizing yourself and complying with the following policies:

College Policies:

E1003 - Student Code of Conduct
F1004 - Code of Academic Conduct
E2008 - Academic Standing - Academic Probation and Academic Suspension
E2006 - Appeal of Final Grade
F1002 - Concerns about Instruction
E2011 - Withdrawal from Courses

Departmental/Course Policies:

This generic outline is for planning purposes only.