MLSCI 481 – Techniques in Molecular Biology

Overview / General Information

A laboratory course emphasizing introductory and advanced techniques in molecular biology. Isolation of RNA, Northern blotting, construction of cDNA, amplification of DNA by the polymerase chain reaction, analysis of DNA by restriction digestion, transfection of eukaryotic cells for protein expression and Western blot analysis.

Welcome to MLSCI 481/ LABMP 581. This semester will be very busy but exciting and I look forward to working with each of you. The following pages contain all of the good stuff we like to read at the beginning of courses.

Please contact us if anything arises about the course. We want your feedback and ideas on how to make the course better! So please let us know if you have suggestions.

Policy about course outlines can be found in §23.4(2) of the University Calendar.

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at www.governance.ualberta.ca) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

Course Coordinator / Instructor(s)

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Course / Learning Objectives

A. To perform molecular biology laboratory techniques.
B. To trouble shoot and understand how to problem solve in the molecular biology laboratory.

Methods of Instruction

Please understand that the nature of 481 is to give you as much exposure to laboratory techniques as possible. Sometimes this will be supplemented with lectures. The lecture schedule must be kept flexible in order for us to complete our experiments as close to the scheduled lab time as possible! For example we will often have a lecture in the middle of the lab during an extended incubation time. Some weeks
we won’t have lectures at all. 481/581 is intended to give you an introduction to molecular biology and you are expected to complete any background reading required in order to make the concepts clearer. Please see the instructor whenever you do not understand something but also try to do extra reading, as 481/581 is intended for students to learn independently where possible.

The manual is set up so the first time you complete a procedure the detail is extensive, further on you are expected to remember how something was done and refer back as necessary. It is written in a ‘text’ format and not the standard operating procedure format that many of you are used to. If you ever need to read a method from a scientific journal and extract the necessary information from it – you will need to become familiar with this format.

You are expected to work in an organized manner, set your own pace and manage your own time.

Distribution of Marks

MLSCI 481

- 4 problem solving assignments 40%
- Evaluation of laboratory technique/technical aptitude 15%
- Final interview 10%
- Final Written Examination 35%

LABMP 581

- 4 problem solving assignments 40%
- Evaluation of laboratory technique/technical aptitude 10%
- Final interview 10%
- Final Written Examination 30%
- Assignment #5 10%

Attendance

Attendance in the laboratory is mandatory. If you have extenuating circumstances that will keep you from class please contact your instructor before the session begins.