

# APBI 3135 / BIOL 3135 – Molecular Genetics

## Course Outline Fall 2017

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### Instructor

Dr. Heidi Schraft  
Biology, CB4015  
Phone: 343-8351  
Email: [heidi.schraft@lakeheadu.ca](mailto:heidi.schraft@lakeheadu.ca)

### Office hours

Wednesday: 10 – 11am  
You can also email me to make an appointment.

### Lab-Instructor and TAs

#### **Lab-Instructor:**

Christina Richard, Office CB2028A  
Email: [crichar3@lakeheadu.ca](mailto:crichar3@lakeheadu.ca)

#### **Teaching Assistant:**

Martina Agostino  
Email: [magosti1@lakeheadu.ca](mailto:magosti1@lakeheadu.ca)

### Lectures and Laboratory

#### **Lectures**

Wednesday and Friday  
1:00 – 2:30pm  
ATAC 2005

#### **Laboratory**

Thursday  
2:30 – 5:30pm  
CB 3012

### Evaluation

Description	Value
Class Participation (iClicker)	5%
Laboratory	30%
Mid-Term Tests (3 @ 10%)	30%
Final Exam	35%

## Textbook, Required Materials and Resources

### **Required Textbook:**

*Concepts of Genetics*, 2<sup>nd</sup> edition

Author: Robert J. Brooker, Publisher: McGrawHill.

ISBN: 0073525359

Refer to D2L for eBook options.

**Required iClicker2** In addition to the book, you will need an iClicker2

- iClicker2 is available at the bookstore. You may be able to buy a used iClicker from another student.

**Required Laboratory Manual:** Available in the bookstore.

In addition, relevant journal articles and books will be placed on reserve in the library and/or posted on the Desire2Learn Course site (see below).

## iClicker

I will be using the iClicker student response system in class. iClicker helps me understand what you know and gives everyone a chance to participate in class. Participation with iClicker will account for **5% of your final grade**. I will drop 2 of the lowest scores to account for times you forget to bring your clicker to class.

### **You may use one of the following models:**

iClicker + Remote

iClicker2 Remote

Participation with the mobile application, iClicker Reef will not be allowed.

### **How to register:**

**You will register in class via roll-call registration;** there is no need to register on iclicker.com or elsewhere.

To receive credit for the responses you submit to iClicker sessions, you **must register by Wed Sept. 20, 2017**. Students who register after this date will not receive credit.

### **Troubleshooting:**

You can find the answers to many of your questions on the iClicker [student support](http://iclicker.com/studentsupport) site (iclicker.com/studentsupport). If you continue to experience issues, please contact support via phone (866.209.5698 ) or email ([support@iclicker.com](mailto:support@iclicker.com)). Live support is available Monday - Thursday from 9AM - 11PM, ET and Friday from 9AM - 9PM, ET

### **Cheating:**

I consider bringing a fellow student's iClicker remote to class to be cheating and a violation of the University Honor Code. If you are caught with a remote other than your own or have votes in a class that you did not attend, you will forfeit all clicker points and may face additional disciplinary action.

## Desire2Learn (D2L)

You will have access to a course homepage through Desire2Learn (D2L) where you'll find course updates, slides discussed during class, assignments and links to selected web-sites.

### **To log into your course website:**

1. Go to <http://mycourselink.lakeheadu.ca>
2. Enter your Login/ID (your Lakehead University e-mail username) and your Password/PIN number.
3. Click on the course title to enter the course.

If you encounter any difficulties logging into the course site, please contact the Office of Continuing Education and Distributed Learning at 346-7730 or email [cedl@lakeheadu.ca](mailto:cedl@lakeheadu.ca)

## Accommodation for Disabilities

Lakehead University is committed to achieving full accessibility for persons with disabilities. Disabilities include physical disability, learning disability, mental disorder etc.

Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities.

If you think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please visit: <http://studentaccessibility.lakeheadu.ca>

## Academic Dishonesty and Plagiarism

This course has a zero-tolerance for academic dishonesty and plagiarism. For further information, please refer to the Code of Student Conduct and the Lakehead University Calendar (Section IX).

### **What is Plagiarism?**

Plagiarism is taking the ideas or words of others and passing them off as your own. Plagiarism is a type of intellectual theft.

Plagiarism can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. Plagiarism can have serious consequences, so it is important that students be aware of what it is, and how to avoid it.

It is also plagiarism, to submit an assessment item that has already been submitted for academic credit elsewhere, or to knowingly permit your work to be copied by another student.

There are very serious penalties for plagiarism, ranging from re-submission, reduction of marks (including to zero), failure of the course, and exclusion from the university.

## Schedule for Lectures

Date	Topic	Tests and Materials due
Wed, Sept. 6	Introduction Unit 1: Overview genetics	
Fri, Sept. 8	Unit 1: GAPDH Project	
Wed, Sept. 13	Unit 2: Conjugation, Hfr	
Fri, Sept. 15	Unit 2: Conjugation, Hfr	<b>Mon Sept. 18:</b> last day to add
Wed, Sept. 20	Unit 3: Transduction	From this day on, iClicker work counted
Fri, Sept. 22	Unit 4: Transformation	
Wed, Sept. 27	Mid-Term Test 1	Mid-Term Test 1
Fri, Sept. 29	Unit 4: Transformation	
Wed, Oct. 4	Unit 5: DNA and RNA structure	
Fri, Oct. 6	Unit 6: Replication chromosome	
<b>Oct. 9 -15</b>	<b>Fall Study Break</b>	
Wed, Oct. 18	Unit 7: Replication plasmids	
Fri, Oct. 20	Unit 7: Replication plasmids	
Wed, Oct. 25	Unit 8: Recombination	
Fri, Oct. 27	Mid-Term Test 2	Mid-Term Test 2
Wed, Nov. 1	Unit 8: Recombination	
Fri, Nov. 3	Unit 9: Transposition	<b>Fri Nov. 3:</b> Final date for course withdrawal without academic penalty
Wed, Nov. 8	Unit 10: Mutations	
Fri, Nov. 10	Unit 11: Repair	
Wed, Nov. 15	Unit 11: Repair	
Fri, Nov. 17	Unit 12: Transcription and Gene regulation	
Wed, Nov. 22	Unit 12: Transcription and Gene regulation	
Thu, Nov. 24	Mid-Term Test 3	Mid-Term Test 3
Fri, Nov. 29	Unit 12: Transcription and Gene regulation	
Fri, Dec. 1	Unit 12: Transcription and Gene regulation	

## Schedule for Laboratory

Date	Experiments and Lab Manual Reference	Tests and Materials Due
Sept 7	Lab Overview, Lab Safety and Gel Doc Training	
Sept 14	DNA Extraction and Initial PCR (Ch. 1 & 2)	Pre-Lab Quiz Focus Questions (Ch. 1)
Sept 21	Nested PCR (Ch. 2) Prepare Broth and Plates for Transformation (App. A)	Pre-Lab Quiz
Sept 28	Pour Agarose Gels (App. A) Electrophoresis and Purification of PCR Products (Ch. 3 & 4)	Pre-Lab Quiz Focus Questions (Ch. 2, 3, 4)
Oct 5	Ligation and Transformation (Ch. 5 & 6)	Pre-Lab Quiz Focus Questions (Ch. 5 & 6)
Oct 19	Plasmid Purification (Ch. 7) Pour Agarose Gels (App. A)	Pre-Lab Quiz Focus Questions (Ch. 7)
Oct 26	Gel Electrophoresis of Plasmid Purification (Ch. 7) Prepare Sequencing Reactions (Ch. 8)	Pre-Lab Quiz Focus Questions (Ch. 8)
Nov 2	No Lab: Wait for Sequencing Results	
Nov 9	No Lab: Wait for Sequencing Results	
Nov 16	Bioinformatics of Sequence Data (Ch. 9)	Pre-Lab Quiz Focus Questions (Ch. 9)
Nov 23	Bioinformatics of Sequence Data (Ch. 9)	Pre-Lab Quiz
Nov 30	No Lab	

### Breakdown of Laboratory Grade (worth 30% of course grade)

Description	Value
Pre-Lab Quizzes	6.4%
Focus Questions	7.1%
Lab Assignments	9.5%
Lab Notebook	6%
Laboratory Performance and Preparedness	1%