

## Department of Biology Course Outline

### SC/BIOL 3110 3.00: Molecular Biology I: Nucleic Acid Metabolism Fall 2015

#### Course Description

Discussion of the metabolism of DNA and RNA, including the physical-chemical properties of nucleic acids; DNA-protein interactions; chromosome structure; nucleic acid replication, repair and recombination; recombinant DNA technology. Three lecture hours. One term. Three credits.

#### Prerequisites

Prerequisites: One of the following: (1) SC/BIOL 2020 4.00 or SC/BCHM 2020 4.00; SC/BIOL 2021 4.00 or SC/BCHM 2021 4.00; SC/BIOL 2040 4.00; (2) if the three credit course is taken in either one or more of SC/BIOL 2020, SC/BIOL 2021, SC/BIOL 2040, then SC/BIOL 2070 3.00 is required.

#### Course Instructors and Contact Information

Dr. Peter Cheung  
Life Sciences Building, Rm 331A  
[yorkubiol3110@gmail.com](mailto:yorkubiol3110@gmail.com)  
416-736-2100 x 31322

#### Schedule

Tues and Thurs, 10:00 AM – 11:30 AM, CLH I

#### Evaluation

Two midterm tests: 25% of overall mark each  
Final Exam: 50% of overall mark  
The final exam is cumulative but weighted. Each section will end up having equal representation over the 3 exams.

#### Important Dates

First midterm: Oct 6th, 2015  
Second midterm: Nov 5th, 2015  
Final exam: TBD

#### Resources

No specific text required.

#### Learning Outcomes

N/A

## Course Content

### TOPICS THAT WE WILL COVER:

1. DNA basics: history, chemical composition and physical properties of nucleic acids
2. RNA structures and functional RNAs
3. DNA topology and topoisomerases
4. DNA synthesis and replication
5. Methods for studying DNA and molecular biology techniques
6. Genome organization/packaging of prokaryotes and eukaryotes
7. Organization, dynamics and regulation of interphase genomes
8. Regulation of genome replication
9. Chromatin and histone modifications
10. Epigenetics and regulation of gene expression

## Experiential Education and E-Learning

**Class Forum:** I will set up a class discussion forum on Moodle. It is open to all students in class and is meant for you to post questions or requests to one other. As the course director, I will **NOT** participate in the forum discussions. Any lecture-related questions for me should be asked by email (see above) or in person before, during, or after class.

## Other Information

Student attendance in classes is **EXPECTED** and **ALL** in-class material (including verbal and extra information written on the blackboard) are testable material in the midterm and final exams.

## Course Policies

1. If you miss an exam (midterm or final) with a legitimate documented reason, documentation must be submitted to me (Dr. Cheung) in order to avoid receiving a grade of zero on the exam. Only a "York Attending Physician's Statement Form" (can be downloaded as part of the Petitions Package) OR a similarly detailed doctor's note (i.e. not simply a form stating that the student visited a clinic) will be accepted for medical excuses.
2. In the event of one missed midterm with a valid documented reason, the weight of this midterm will be distributed evenly between the other midterm and the final exam. **No makeup exam will be available for midterms.** In the event of a missed final exam with a valid, documented reason (where both midterms have been written), a deferred final exam will be offered. In the event that a student misses more than one exam with valid documented reasons (two midterms, a midterm and a final, or all three exams), the student will be **required to petition** in order to take the deferred final exam.
3. In order to be fair and consistent to the entire class, individual grades are not negotiable. Contact me about marks **ONLY** if there is a clear error in your mark (calculation, clerical, etc.) as soon as possible at [yorkubiol3110@gmail.com](mailto:yorkubiol3110@gmail.com).
4. Students are allowed to record lectures using their own recording devices. However, taking pictures of lecture slides or exam questions will **NOT** be allowed.

## University Policies

### Academic Honesty and Integrity

York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty (<http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve students' research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website at - <http://www.yorku.ca/academicintegrity/>

### Access/Disability

York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and

evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.

Students in need of these services are asked to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

Additional information is available at the following websites:

Counselling & Disability Services - <http://cds.info.yorku.ca/>

Counselling & Disability Services at Glendon - <http://www.glendon.yorku.ca/counselling/personal.html>

York Accessibility Hub - <http://accessibilityhub.info.yorku.ca/>

### **Ethics Review Process**

York students are subject to the York University *Policy for the Ethics Review Process for Research Involving Human Participants*. In particular, students proposing to undertake research involving human participants (e.g., interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an *Application for Ethical Approval of Research Involving Human Participants* at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately.

### **Religious Observance Accommodation**

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course director immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at

[http://www.registrar.yorku.ca/pdf/exam\\_accommodation.pdf](http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf) (PDF)

### **Student Conduct in Academic Situations**

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at - <http://secretariat-policies.info.yorku.ca/policies/disruptive-and-or-harassing-behaviour-in-academic-situations-senate-policy/>