

Department of Biology Course Outline

SC/Biol 3110, MOLECULAR BIOLOGY I: NUCLEIC ACID METABOLISM, 2017-8 F

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

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.

WARNING: Students without pre-requisites will be de-enrolled. Prerequisites are NOT co-requisites. You must to complete them BEFORE you start BIOL3110. For BIOL3110, the student must to have a final grade on their transcript for their prerequisite courses, (e.g. after writing the final exams for these courses. Signed deferred exam agreement with approved deferred exam, will NOT be considered as a final grade on your transcript).

Course Instructor/ TAs and Contact Information

Course Director:

Dr. Motti Anafi

e-mail: moanafi@yorku.ca

Office Hrs for a TA and Course Director: Thurs, 1:00 PM – 3:00 PM, Kinsman building room 278 (first come first servrd)

TAs: TBA

Schedule

Course Schedule and Location

Tuesdays and Thursdays 8:30-10:00am at SLH D

Evaluation

- Exam 1 25%
Date: Oct 17th, 2017
Time: 8:30am
Location:
Duration: 50 minutes
- Exam 2 25%
Date: Oct 31st, 2017
Time: 8:30am
Location:
Duration: 50 minutes
- Exam 3 30%
Date: Nov 16th, 2017
Time: 8:30am
Location:
Duration: 60 minutes
- Exam 4 20%
Date: Nov 30th, 2017
Time: 8:30am
Location:
Duration: 60 minutes

Contribution to the Wiki up to 2 points (bonus)

All exams are cumulative but weight more towards the newest material

Important Dates

Important Sessional Dates

	FALL (F)
Classes start	Sept. 7
Last date to announce components of final grades	Sept. 22
Fall Reading Days ¹ (no classes, University open)	Oct. 26-29
Last date to submit Fall term work	Dec. 5
Fall classes end	Dec. 4
Fall Study Day ² (no classes; University open)	Dec. 5
Fall examinations ⁴	Dec. 6-21

See the Office of the Registrar website at <http://www.registrar.yorku.ca/enrol/dates/>

Resources

No specific text required

Link to resources used for each lecture will be posted on Moodle before delivery of the lecture.

Tips how you should use the resources:

- 1) Before class, go over these resources
- 2) Attend the class. Take notes (very important): Student attendance in classes is EXPECTED and ALL in-class material (including verbal and extra information written on the blackboard) are considered testable material in the exams.
- 3) After class, go over the resources again. Concentrate on topics covered in class.

Learning Outcomes

Upon successful completion of this course, students should be:

- Knowledgeable in nucleic acids-related properties and concepts
- Knowledgeable in DNA and RNA based genomes replications and how genomes are organized
- Knowledgeable in how genome organization impacts on various biological processes and functions
- Knowledgeable in experimental techniques, and interpretation of results
- Appreciative of the experimental nature of scientific discoveries
- Able to apply knowledge and critical thinking in exams

Course Content

TOPICS COVERED INCLUDES:

1. DNA basics: history, chemical composition and physical properties of nucleic acids
2. DNA synthesis and replication
3. DNA topology and topoisomerases
4. Alternative genome replication (or how viruses are banding rules)
5. Genomics and transcriptomics: today's methods for studying DNA and RNA
6. Genomics: Genome organization of eukaryotes
7. Transcriptomics, RNA structures and functional RNAs, Chromatin and histone modifications
8. Epigenetics and regulation of gene expression
9. Recombinant DNA technology: past, present and future.

Experiential Education and E-Learning

The Course MOODLE web site

To access Moodle, please follow the instructions below.

1. Go to: <http://moodle.yorku.ca>
2. Log in with your Passport York account.

Here you will find

- An updated course outline
- The course wiki
- List of resources used during the lecture
- Forum
- Announcements
- Grades

Please note that in-class updates and/or my announcements on the Moodle take precedent over any

other information posted on the course MOODLE web site.

If you have technical Moodle-related questions, please direct them to UIT Client Services at 416-736-2100 x55800 or email helpdesk@yorku.ca.

The Course Wiki

The wiki enables documents to be written collaboratively. Students are invited to add/ combine their lecture notes and related material. Lecture notes is not just about the words I put as a summery on my slides. The most important part is the discussion of concepts and ideas expressed in class including questions/ answers we have in class. You can make the wiki into a multimedia document by linking/embedding relevant videos, figures, relevant articles or anything else you think can help your peers. You can also act as an “editor”, and arrange the material posted by others to reduce redundancies and to put the material in an appropriate order. You can also try to make the material to look better (appropriate font, color, titles etc.).

In general, in all my courses, the wiki serves as a great tool for the class to function as a community. As I would like to encourage students to use it, I decided to add a bonus participation mark, up to 2 points of the final grade of the course, for contributors on the wiki. We will evaluate the level of the contribution by checking the “compare selected” on the “History”. Only contributions made within two weeks after the lecture will be counted for the bonus, and the grade will be according to the significance of the contribution. As for the lectures during the last week of the course, the last time to contribute to the wiki for the bonus is two days after the last class. In general students who are active at least once a week with strong contributions will get the full 2 extra points. From here we will use 1.5, 1, 0.5 bonus according the contribution and the frequency of your contributions.

The course director is not responsible for the accuracy of the notes posted by students in the Wiki. The exam is not restricted to the material posted on Wiki. However, from my previous experiences it is very likely that when 200 motivated students are working on one document, the results are quite amazing.

Other Information

Tips on studying for this course:

- For the exams, you must know and understand the material presented in the lectures.
- The resources to be posted before lectures can help students consolidate and expand their understanding of the material. However, much of the resources will not be covered in class. On the exams I will concentrate on topics covered IN CLASS and their applications. But using the resources is likely to be very helpful.
- Students need **to attend all lectures** in order to do well in the course. The discussions in class are critical for the understanding of the material. The center of the course is the lectures. ALL in-class material (including verbal and extra information written on the blackboard) is testable material in the exams. It is your responsibility to attend lectures as my multimedia presentations will not be provided outside the classrooms. Do not rely on the Wiki: take your own notes.
- In general, it is best that a student who was unable to attend a lecture borrow the relevant notes from a classmate. You may also wish to check the course Moodle website for additional relevant material. Here, you can find an updated course outline. In addition, you can use the course wiki. Furthermore, you have my permission to use an audio tape-recorder in class (or to arrange with a classmate to do it for you).
- I will usually be available before each lecture to address individual questions. I will not be available after class, as I will be teaching another course immediately after (starts 10:00am). If you need to speak with me out of class, please come to my office hour (see above)
- Students are allowed to AUDIO record lectures using their own recording devices.

Course Policies

Tests and Exams

Attendance for all exams is mandatory. Exams missed on the ground of medical circumstances must be supported by a formal Attending Physician's Statement, which can be downloaded from the registrar's office web site, or a statement by a psychologist or counsellor. The documentation must be dated on the same day as the exam or earlier, or it will not be accepted. The Course Director must be notified by email within 24 hours in the case of a missed test or exam. Appropriate documentation must be delivered to the Course Director within one week after the test or exam in the following class (not by attachment). **No opportunities to make up missed exams will be offered. However, after acceptable justification for a missed exam has been received, the percentage value of the missed exam will be added to the last exam.** If the last exam is missed, its weight (20%) will be transferred to the third exam. In the event that a student misses more than one exam, the student will be required to petition in order to take the deferred exam to cover for the missed exams. In such unique cases, where deferred exam will be required, the format of the deferred exam will be different from the format of the original exam used in class. Note: deferred exams are similar to the original exam in terms of material covered and level of difficulty. However, their format may be different. Accordingly, all approved deferred exams will be consisting of short-answer questions (no multiple-choice).

Rules for viewing term tests:

The exams of BIOL3130 are evaluation tools, not a teaching tool.

If you are interested to view your exam and to compare it against the key, you must to send an e-mail to the course TA (TBA) **by two week after the day the grades were posted** on the Moodle. Every session will be up to 20 minutes for viewing the test and to compare it against the key. During test viewing sessions the regular examination rules will apply. If after you viewed your exam against the key, you feel that you deserve more marks you can send an e. mail to the course director (Attn: Dr. Motti Anafi, e-mail: moanafi@yorku.ca) with a formal remark request. In this case the entire test will be remarked by the course director. The new mark (The same, higher or lower) will be used for final grade calculation. In general, as a built-in correction, I add 1-2 buffer points to your grade in order to reduce the effect of any possible problems related to the exam. If buffer point/s were added they are included on your original grade posted on the Moodle. If buffer points were added, in the case of remarking by the course director, the buffer points will not be included, as this built-in correction is no longer relevant.

Emailing the Course Director

Your email will be read and answered as soon as possible. However, we will open only e-mails that fulfill the following requirements:

- Your email must be sent from your regular yorku.ca email account (**not from the moodle server**). Do not use non-yorku.ca accounts (such as hotmail or personal gmail). Emails from non-yorku.ca accounts or from the Moodle will likely languish in a spam folder that is checked only intermittently.
- Be sure to include your full name and student number in your email text.
- Your email must include "BIOL3110" in the subject line
- Your email must NOT include an attachment.

Copyright and Intellectual Property

The material presented in my lectures and other components of the course have been developed from large variety of resources, including web sites, textbook supplements and the material mentioned above. All of them are copyright protected.

The Copyright Policy for BIOL3110 is based on Copyright Act (s. 29.4) which states: "It is not an infringement of copyright for an educational institution or a person acting under its authority (a) to make a manual reproduction of a work onto a dry-erase board, flip chart or other similar surface intended for displaying handwritten material, or (b) to make a copy of a work to be used to project an image of that copy using an overhead projector or similar device for the purposes of education or training on the premises of an educational institution.

The interpretation of York University to s. 29.4 is expressed in the following FAQ from York University Web site <http://copyright.info.yorku.ca/> . Here the questions/answers are directed to instructors:

“1.Q Can I include copyrighted content in a class presentation without permission of the rights holder?

Answer:

Yes, if you stay within the limits of the Copyright Act. The educational exceptions allow you to

- “make a manual reproduction of a work onto a dry-erase board, flip chart or other similar surface intended for displaying handwritten material, or”
- “make a copy of a work to be used to project an image of that copy using an overhead projector or similar device”

The display must be on campus, there can be no commercial version available that is appropriate for that use and **you are not able to distribute copies in either paper or electronic form.**

2.Q Can I post that same presentation on my Course website?

Answer:

No, the educational exceptions do not allow you to distribute copies in either paper or electronic form.”

According to the above policy and the Copyright Act (s. 29.4), my multimedia presentations will not be provided out of the class. No exceptions.

Photographing slides during lecture is not allowed. I will give you enough time to pick up all the important information by taking notes and checking the resources.

You have my permission to use an audio tape-recorder in class (or to arrange with a classmate to do it for you). Please, do not put your recording device on my desk. Keep it with you all the time.

Before publishing any material from online resources as digital (e.g. moodle) or hard copy, make yourself aware to the applicability of the copyright law.

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://cgs.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 (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/>

Other Resources

Learning Commons

The Learning Commons brings together key supports for your learning: writing, research, learning skills and career services. <http://www.library.yorku.ca/cms/learning-commons/>

goSAFE

goSAFE is a complimentary service provided to the York Community. At the Keele campus, goSAFE has two routes: North Route & South Route which will safely transport community members by vehicle from one specified hub to another on campus. goSAFE operates seven days a week, all year round, including University closures (with the exception at Glendon during the Christmas holiday closure).

Call the goSAFE office at 416-736-5454 or extension 55454 during hours of operation. Please give your name, location and destination. <http://www.yorku.ca/goSAFE/>

Mental Health and Wellness at York University

Outlines a variety of resources available to support mental health and wellness
<http://mhw.info.yorku.ca/resources/resources-at-york/students/>

Good2Talk

Post-Secondary Student 24 hour Helpline
<http://www.good2talk.ca/> 1-866-925-5454