SC/BIOL 1000 3.0 Biology I – Cells, Molecular Biology and Genetics

Fall 2013 Course Outline

Note: All policies herein are binding and apply to all students registered in the course.

Welcome to BIOL 1000 3.0. Biology I is the first half of introductory biology, introducing major concepts and ideas in the study of life. It is a prerequisite for nearly all other courses in Biology, and is required for all Biology, Environmental Biology and Biochemistry majors. The course is taken by students across the University, in other sciences, Health, Arts, Environmental Studies and Fine Arts, so we have a diverse group of students. Grade 12 Biology (or BIOL 1500 3.0) and Chemistry are prerequisites, and we will assume a basic understanding in the associated material.

In this course, you will be introduced to biological terminology and major concepts that underlie this field. While the scope of material in this course is very broad, **students are encouraged to consider common threads and themes** that extend across the various topics. Biology, Environmental Biology and Biochemistry majors will develop a foundation for further study in biology and related areas; all students will develop familiarity with this field and gain skills that can be applied in other courses and settings. This course is intended to help develop the scientific literacy and critical thinking skills required of citizens in modern society.

Introductory survey courses often seem to be composed of a huge set of known, static facts. In reality, Biology, like all sciences, is dynamic, questioning and continually changing. In science, we are constantly challenging existing hypotheses and models through experimentation as new information is gathered. Thus, you should feel comfortable asking questions in class and in the laboratory. We may not always be able to answer your questions, but we can usually help you find out more. Asking questions is an important skill in science and it's always good to practise! We will also encourage you to seek your own answers – another important life skill.

The laboratory is a key part of this course, as experimentation, observations and communication of biological phenomena are important aspects of "doing" (and understanding) science. The skills gained in the laboratory component will be valuable in future laboratory courses, and often can be applied in other academic or workplace situations.

Lectures Start the week of September 9, 2013.

Course learning objectives:
Upon successful completion of BIOL 1000 3.0, students will be able to:

- Use the process of scientific inquiry to make effective decisions/arguments about real-world biological issues
- Use biological terminology with correct scientific meaning and appropriate context.
- Explain how light impacts life in different ways
- Explain selection and its role in evolution.
- Describe the cell theory in biology, and relate this theory to other biological concepts.
- Describe the importance of membranes, and different mechanisms of membrane transport.
- Relate biological structure and function at the level of the cell, organ, and organism.
- Identify key similarities and differences between prokaryotic and eukaryotic cells.
- Compare and contrast major biochemicals and biochemical pathways (including cellular respiration, photosynthesis, cell signaling).
- Compare and contrast different mechanisms regulating gene expression.
- Describe processes of mitosis and how the cell cycle works in eukaryotic cells.
- Describe how chromosome movement during meiosis reflects Mendel's principles of independent assortment and segregation. Solve Mendelian genetics problems involving one or two genes.
- Describe the relationship between genes, alleles, proteins and phenotype.
- Describe the mechanisms that can lead to genetic diversity, identify patterns of inheritance relating to sex linkage, gene linkage, codominance and incomplete dominance.
- Describe basic techniques used in recombinant DNA technology and their significance.

Topic specific learning objectives will be provided for individual topics – available on the Moodle site.

Laboratories Start the week of

- **September 16, 2013 for Groups 1, 2 and 3**
- **September 23, 2013 for Groups 4, 5 and 6**

***** See lab manual for schedule details and to determine your group *****

Laboratory learning objectives:

Upon successful completion of the laboratory component of BIOL 1000 3.0, students will be able to:

- Carry out basic biological laboratory activities with safety and reliability.
- Develop hypotheses and make predictions for simple biological laboratory experiments
- Make descriptive observations of biological specimens (via microscope and/or eye).
- Prepare clear, appropriately labeled and formatted figures and tables for presentation of biological results.
- Perform basic literature searches and find library resources relating to biological topics.
- Prepare a basic biology laboratory report in the appropriate format, citing and listing references correctly.
- Describe what constitutes plagiarism. Prepare written work that paraphrases (and cites) reference sources appropriately (and otherwise abide by principles of academic integrity).
- Effectively and collegially work with others in the biology laboratory and class setting.

Calendar description:

An introduction to major unifying concepts and fundamental principles of biology, including evolution and cell theory. Topics include cells, biological energetics, metabolism, cell division and genetics. The laboratory and lecture components must be passed independently to pass the course. Six lecture and three laboratory hours per week. One term. Three credits.
Prerequisite: OAC Biology or 12U Biology or SC/BIOL 1500 3.00; OAC Chemistry or 12U Chemistry or SC/CHEM 1500 4.00. Course credit exclusions: SC/BIOL 1010 6.00; SC/BIOL 1410 6.00.

REQUIRED Reading Material

- **Russell *et al* (2013). "Volume 1 - Biology: Exploring the Diversity of Life" 2nd Canadian ed. Nelson Publishing.**
    - **Note:** The 1st edition of this textbook may also be used, but the 2nd edition will be followed during the course. The 1st edition covers much the same material, but it is not identical and some parts are organized differently by chapter. If you prefer to use the first edition that is fine, but it will be up to you to find the relevant sections of the text to do readings and reading quizzes by making use of the index. The instructors will not be able to guarantee that answers for each reading quiz question will be covered in the 1st edition, though certainly most will be.
- Associated Student Study Guide is NOT required but will be available in the bookstore for those who are interested.
- **McMillan (2012) "Writing Papers in the Biological Sciences" 5th ed W.H. Freeman Publishing is required and must be purchased separately. It is NOT part of the textbook package.** This is a valuable writing resource for your entire scientific academic career.
- **Biol1000 Fall 2013 Laboratory Manual – ONLY available in the bookstore.**
- See short-term reserves (2h) in the Steacie Library for literature relevant to this course. Students are expected to read relevant sections of the text prior to class or lab. (There will be short quizzes, completed on Moodle, based on these readings).
- Other readings may be assigned during the course.
- **Note**: Other introductory Biology textbooks and writing guides may be used, but **students are responsible for using the index/table of contents to determine relevant portions**.

REQUIRED Clickers (personal response system)

- Turning Point Clickers will be used in this course. Bring your clicker to every lecture. We will NOT use clickers during the first week of class.
- Each student must purchase his or her own clicker. Using a clicker not registered to you (or answering clicker questions for a friend) is considered a breach of Academic Honesty.
- **Turning Point Clickers are purchased through York University Computing Services.**
  - New clickers are $42 (charged to your student account) and ordered online with pickup at the William Small Centre
  - Course Instructors and TAs are NOT involved with the sale or registration of clickers
  - To purchase
    - Go to www.yorku.ca/prs/students/
    - Click on "Purchasing Your Clicker"
- **Register your clicker by September 18, 2013.**
  - Go to www.yorku.ca/prs/students/
  - Click on "Registering Your Clicker"
  - Follow the instructions.
- See "General Clicker Information" document on course Moodle Site for additional information.

Course Moodle Sites

Lecture Moodle Site (each course section has its own site)

- The BIOL 1000 Moodle site will include announcements, course materials, online quizzes, resources and a discussion forum. http://moodle.yorku.ca
- This site will be used for posting course information including lecture slides, exam results and supplementary information. Online quizzes will also be completed on Moodle.

Moodle discussion boards:

- Be sure to read the other threads before you post a question to see if yor question has already been answered.
- When posting, be clear specific and professional.
- Discussions are monitored. Messages containing personal attacks, inappropriate language, or other disrespectful content will be removed. Irrelevant material will also be removed. Follow the York University Student Code of Conduct http://www.yorku.ca/oscr/codeofrr.html
- If you notice any inappropriate threads please email b1000lec@yorku.ca

Disclaimer: While Moodle moderators / instructors will attempt to remove (or edit) objectionable/inappropriate material as quickly as possible, it is not always possible to review every post. All posts made on the forums express the views and opinions of the author and not the moderators / instructors (except for posts by these people) and they cannot be held liable.

Laboratory Moodle Site (listed as "SC/BIOL1000 A, B, C & D – Biology I – Cells, Molecular Biology and Genetics (Fall 2013-2014)" on your home Moodle page

- This site contains information related to the laboratory component including additional laboratory material and laboratory quizzes.

Visit both Moodle sites regularly.

Recording Lectures

Photographs or video recordings of any portion of the lectures (including slides) are PROHIBITED. Images and material presented are subject to Canadian copyright law.

Audio recordings are permitted provided they are used ONLY as a personal study aid, and are NOT sold, passed on to others or posted online. Remember the lectures are the intellectual property of the professor and cannot be distributed without permission. Lectures can ONLY be recorded from your seat. No recording devices are permitted at the front of the room, including front table(s), the lectern and computer area.

Course Contact Information – where to go and who to see:

Lecture-related email (all sections): b1000lec@yorku.ca
Laboratory-related email (all sections): b1000lab@yorku.ca

First Year Biology Office: 102 Life Sciences Building
First Year Biology Program Assistant: Dharti

Course Director: Dr. Julie Clark
Course Instructors: Dr. Paula Wilson (Section A)
Dr. Julie Clark (Section B)
Dr. Nicole Nivillac (Section C, D)

Laboratory Director: Dr. Julie Clark
Laboratory Coordinator: Dr. Sheila Colla

E-mail Policies and etiquette

We will try to respond to email within two working days, but this is not always possible. We may also answer your question in the next class meeting if appropriate. Questions and answers that we deem of interest to the entire class will be posted on the appropriate discussion board or sent via course announcements if urgent.

Emails that do not meet the requirements below will not be answered:

- Use your @yorku.ca email address when emailing instructors and others within the university. Email from other sources may be filtered out and not reach the intended recipient.
- SUBJECT LINE - Include the course code, **course section** and brief indication of topic.
  - Lecture email example: BIOL1000**B** – question regarding plasma membrane
  - Lab email example: BIOL1000**D** – missed lab 2 because of illness.

The course section is critical to ensure the appropriate instructor receives your message.

- **Include your NAME and STUDENT NUMBER at the end of each email**. We work with hundreds of students and the only way we can access your course information is via your student number.

- Remember, you are in a professional environment and thus all your written correspondence, including emails, should be professional. This means full sentences, proper grammar, NO text message lingo.
- Before emailing the instructor, consider the nature of your question and whether another resource should be consulted first. For example, lab-related queries should be directed to the lab coordinator.

Course components: The lecture and labs must be passed independently to pass the course

Lectures: There are four course sections (A, B, C, D) running in Fall 2013. For lecture times/location, consult the University schedule. **Note that you must attend the lectures for your own course section – while basic concepts are the same across all sections, details, order and emphasis may vary.**

Laboratory: You must attend your registered section. Students NOT on the laboratory class list are NOT permitted in the lab.

- Permanent lab switches can only be made through the registrar enrollment system (you must register in the desired section if space is available). This must be done prior to September 16, 2013.

- SCHEDULE - Laboratories are on a two week-cycle and begin the week of September 16, 2013 for Group 1, 2, 3 and the week of September 23, 2013 for Group 4, 5, 6. Consult your BIOL 1000 Laboratory Manual or the Laboratory Moodle site for schedule details and to determine your group.

- LAB POLICIES and LAB SAFETY REGULATIONS – See the BIOL 1000 Lab Manual page i to vii. Students are expected to read these policies, and sign the "Laboratory Safety Rules and Student Conduct Agreement" (available on the Lab Moodle site) BEFORE the first laboratory session.

- Note: Any student NOT following lab safety regulations will be asked to leave the laboratory or will NOT be permitted to enter in the first place. Makeup labs will NOT be granted.
- Students with open-toed shoes and/or with food/drink are NOT permitted in the lab. See the laboratory manual for all laboratory safety regulations.
- **Additional policies/rules specific to the laboratory are available in the lab manual**

- Pre-Lab quizzes are associated with ALL labs and are completed on the course Moodle site.

- If you are repeating BIOL 1000, you must also repeat the laboratory component. There are no lab exemptions. If repeating, refer to lab manual page vii for policies regarding assignment submissions.

Evaluation:

Test 1: 18%
Test 2: 22%
Final exam: 33%
Laboratory: 22% (mandatory, even if repeating the course)
Clicker Questions/ Quizzes/ other assignments: 5%*

Tests 1 and 2 will be during class time, and are ~45 minutes. The final exam will cover the entire lecture component of the course and will be ~150-180 minutes. Dates/times/rooms for exams are scheduled and published by the Registrar's Office (RO).

* Many of the items used in this category will include points for participation/completion. This can include clicker questions, Moodle quizzes/assignments or in-class exercises. The lowest 20% of clicker questions/ quizzes (including zeroes) will be dropped from your grade. This is to account for an occasional missed class (*e.g.,* due to illness or other reasons) or for forgotten/ malfunctioning clickers, etc.

Reminder: Both lecture and lab components must be passed independently to pass the course. The final drop date is November 8, 2013.

Test/exam schedule (to be confirmed in class)

Lecture Section	Test	Date
Section A	Test 1	Wednesday October 2, 2013
	Test 2	Friday November 8, 2013
Section B	Test 1	Friday October 4, 2013
	Test 2	Wednesday November 6, 2013
Section C	Test 1	Thursday October 3, 2013
	Test 2	Thursday November 7, 2013
Section D	Test 1	Wednesday October 2, 2013
	Test 2	Friday November 8, 2013
FINAL EXAM – Is scheduled by the Registrar's Office during the December exam period (Dec 10 - Dec 23)		

Please note: in BIOL 1000, to best prepare for the assessments, students must attend the lectures.

Course Policies:

1. **Test Format:**
   - The format of tests and exams will be primarily multiple choice questions. Questions with written answers may also be included. For written answers, if you believe that a written answer on a test was marked incorrectly, you must submit a written rationale that is based on academic grounds* with your test to the First Year Biology Office (LSB 102) within ONE week of the test being made available to you.

Only those answers written in ink will be eligible for regrading. *Note: Regrading can result in the grade being raised, confirmed or lowered.*

- See BIOL 1000 Lab Manual for reappraisal information pertaining to laboratory assignments.

**Academic grounds means you make an academic argument for why your answer is correct – statements such as "this grade does not reflect my knowledge" or "I really studied hard and I deserve a better grade" are not academic grounds.*

2. In order to be fair and consistent with regards to the entire class, individual grades are not negotiable. **We cannot provide "extra credit" assignments. Marks for assignments and tests will not be "rounded" or "bell-curved". Contact the Course Director about marks ONLY if there is a clear error in your grade (calculation, clerical, etc.) within ONE week of the test score being made available to you at b1000lec@yorku.ca.**

3. **Missed Midterm Tests or Final Exam**

Midterm tests:

- You MUST **email your instructor at** b1000lec@yorku.ca within TWO days (48 hours) of missing the test (the sooner the better).
- Valid and appropriately detailed **documentation** supporting the events (typically medical or emergency related) preventing your attendance **must be submitted to the First Year Biology Office (LSB 102) within SEVEN (7) days** of the missed test. Documentation should cover the date of the missed test.
    - **Medical (illness) related: You MUST see a Physician within 24 hours of the missed test – ideally on the same day - so that the Physician can confirm you are too ill to attend the test based on medical examination. Valid documentation for medical situations** consists of an "Attending Physician's Statement" from the registrar petitions package http://www.registrar.yorku.ca/pdf/petitions/petition_package.pdf or letter/document of similar detail. **A note that simply says you were seen in the clinic will not be accepted**.
    - Death of an immediate family member: death certificate or letter from the funeral director
    - Contact your instructor (b1000lec@yorku.ca) to determine the appropriate documentation required for other circumstances.
- If appropriate documentation is NOT provided within seven (7) days, a zero will be earned on the missed midterm.
- NOT all situations will be accommodated, meaning that a zero will be earned on the missed test.
    - Circumstances not accommodated include, but are not limited to, schedule confusion, sleeping in, missing the bus, personal endeavours (including a job), and busy lives.
- Where appropriate and possible, makeup tests will be scheduled. These may differ in format from the original test (*i.e.,* include more short/long answer questions).

Final exams:

- ***All students*** who miss the final examination must petition if they are seeking deferred standing. No student will be granted deferred standing by the instructor via a Deferred Standing Agreement Form (DSA). Students will have to seek deferred standing by submitting a petition to their home faculty. It will be the Petition Committee's decision whether deferred standing is granted and, if deferred standing is granted, this committee will also set the deadline for writing the deferred examination.

- See "Deferred Standing Guidelines for Final Exam Only" on the course Moodle site for further details.

- The format of the make-up final exam for this course may be essay, short answer, and/or multiple choice.

5. **FORUM CODE OF CONDUCT.** Students are encouraged to participate in the online Moodle forums to discuss course concepts, organize study groups, and ask questions relating to Biology. The discussion on the forums has typically been polite and respectful, and we hope this will continue. Students are expected to follow the code of conduct when using the Moodle forums:

i. Check to see if your question has already been posted. (You can search the forums – you don't have to read each post!) If your question hasn't already been asked, please post in the most appropriate area. (E.g., if your question is about a lab submission, your post should be in the "Laboratory" forum.)
ii. Use a clear, informative subject line. Try to be as specific as possible.
iii. Post comments appropriate to the particular discussion. Off-topic posts may be moved or deleted.
iv. Be respectful. Posts containing personal insults/ attacks/ intimidation/ profanity will be deleted. (It is also worth remembering that your instructors read forum posts!)
v. Post only material relevant to BIOL 1000. Other posts will be deleted.
vi. While it is appropriate to engage in debate/ discourse on biological topics, such discussions should be respectful and evidence-based. Evidence should be from trusted sources – consult with the library if you are not sure! (See: http://www.yorku.ca/webclass/module4a.html)
vii. Any posts which appear to violate our code of conduct may be edited, moved or deleted at the discretion of instructors/moderators. If posts give indications of violations of academic honesty or the York University student code of conduct, further action will be taken.

Accommodation Statement:

Students who feel that there are extenuating circumstances that may interfere with their ability to successfully complete the course requirements are encouraged to discuss the matter with the Course Instructor as soon as possible. Please note: "*Senate policy states that students are expected to monitor their progress in courses, taking into account their personal and academic circumstances, and to make the necessary adjustments to their workload to meet the requirements and deadlines.*" (From Senate Policy of Students' Responsibilities in the Petition/Appeal Processes: http://www.yorku.ca/univsec/senate/committees/sac/sturesp.htm)

- Please submit CDS Accommodation letters to Instructor or First Year Biology Office by September 20, 2013. Please email b1000lec@yorku.ca to make us aware of submissions.
- Please also inform instructor of any religious observance conflicts occurring at any point during the semester, for which accommodation will be required (*i.e.* for a test or lab), by September 20, 2013. Please email these dates to b1000lec@yorku.ca and submit supporting documentation to the First Year Biology Office (102 LSB). Note: if you are to miss a lecture please make arrangements for a classmate to take notes. Lecture slides will be available on Moodle.
- Students who feel that there are extenuating circumstances that may interfere with their ability to successfully complete the course requirements are encouraged to discuss the matter with the course instructor as soon as possible (*i.e.* the first week of class). Students with physical, learning or psychiatric disabilities who require reasonable accommodations in teaching style or evaluation methods are encouraged to consult with the Office for Persons with Disabilities (OPD) and ensure that requests for appropriate accommodations are arranged with the course instructor **early** in the term.

Academic integrity:

Students are expected to be familiar with and follow York University's policies regarding academic integrity. Please consult the lab manual and website below for more details: http://www.yorku.ca/academicintegrity/students/index.htm

Student information sheet – please see:

http://www.yorku.ca/secretariat/senate/committees/ccas/documents/Course%20Outline%20-%20Student%20%20Info%20Sheet%20-%20March%2027-06.htm

Resources at York University:

There are many offices and services that provide valuable services/information to our students. Please see Appendix 6 of the BIOL 1000 Laboratory Manual.