# Community Ecology and Environmental Biology
# Syllabus: BIOC61H3 Fall 2020


Course Instructors: Dr. Rachel Sturge, rachel.sturge@utoronto.ca, SW 563B
Office hours: Mon 15:00 – 16:00 or by appointment
TA: Garland Xie, garland.xie@mail.utoronto.ca


Recommended Textbook: Gary G. Mittelbach. *Community Ecology*. 2nd ed.

Class meeting time:

| | |
|---|---|
| Lectures | Online (posted on Monday at 15:00) |
| Tutorials* | Wednesdays 14:00 – 17:00 (online) |
| | * Students attend on alternate weeks |

## 1) Course Description

This class is a lecture and tutorial course that gives students an introduction to community ecology and environmental biology. Community ecology is the ecology of interactions, and foundational in biodiversity science. A basic understanding of community ecology is important to understanding, synthesizing, and applying many universal concepts in ecology. In this course, we will examine the principles and main concepts in community ecology and learn about what impacts ecological communities at local and global scales. As a group, we will increase our awareness of the communities in which we live and our influence on them.

## 2) Learning Outcomes

At the end of this course, students should be able to…

1. Correctly use common ecological terms and principles from the fields of community ecology and environmental biology.
2. Describe the processes that affect ecological communities, including species interactions and environmental change.
3. Characterize the structure of ecological communities.
4. Read and interpret scientific literature from the field, and use that literature to synthesize persuasive arguments in both debates and in written form.
5. Describe and make predictions about the impacts of anthropogenic activities on ecological communities.

## 3) Academic Honesty

All work in this course is covered by the University of Toronto's policies on Academic Misconduct, which outlines the behaviours that constitute academic dishonest, as well as the processes for addressing academic offences. For details regarding these policies, please see the University's Code of Behaviour on Academic Matters: *http://www.governingcouncil. utoronto.ca/policies/behaveac.htm*. The University treats cases of cheating and plagiarism very seriously, so please **REVIEW THIS MATERIAL** as you are expected to be familiar with it.

Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment.

On tests and exams:

- Using or possessing unauthorized aids.
- Looking at someone else's answers during an exam or test.
- Discussing the answers with other students during the assessment without permission from the instructor.
- Working together on exams without permission from the instructor.
- Misrepresenting your identity.

In academic work:

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from Dr. Sturge or from other institutional resources (see http://academicintegrity.utoronto.ca/ ).

All students should have confidence in their ability to master this course material and earn an acceptable grade. If you are struggling with the material, please speak with Dr. Sturge or your Teaching Assistant. You should also consider forming study groups as research has shown that students who participate in study groups earn, on average, higher grades in courses than those who do not.

## 4) Course Policies

- At the start of the semester, make note of all important deadlines for the course and identify times when multiple things will be due. Early identification of such time periods will provide you with advanced notice so you can plan accordingly. Do this for all of your courses so you can have advanced notice of times when items will be due in multiple courses at once.
- Stay on top of course content. Students who fall behind typically perform worse on tests, and have less time to learn the content before major assessments. By staying on top of the course content, you are reducing your workload when it is exam time.
- Check the class website(s) and the syllabus regularly to make sure you are aware of all upcoming deadlines. Start working on projects as soon as you become aware of them – this gives you more time to ensure you can complete each component in a timely manner.
- Watch each lecture as soon as possible after it has been made available, and complete all active-learning components as you proceed through the lecture. These activities are placed where they are within the lecture to reinforce concepts and provide additional practice.
- Read all material related to that day's tutorial BEFORE class, and complete any pre-class assignments in advance. Log in to tutorials on time, stay focused on tutorial content, do not distract classmates.
- Ask questions and discuss the material with other students. Group discussion promotes learning. There will be opportunities for group discussion virtually so please participate!
- Be an active learner and participate fully in all aspects of the course. Hold yourself and your teammates accountable for all tasks assigned to you / them in any group activity. Be honest with yourself if you are not contributing as fully as you should be, and make positive changes, if necessary.
- When using technology, which includes (but is not limited to) cellphones, tablets and computers, please use them responsible. The human mind is NOT capable of multitasking (as many scientific studies have shown), and distracted learners are not high-achieving learners. Please minimize the distractions around you when you are taking part in online learning.
- Review course content often. This will be more productive than waiting until just before an assessment and studying for long blocks of time at once. The same amount of time that you might spend trying to memorize information right before a major assessment is better spend re-reading lecture notes or your answers on tutorial worksheets over a more prolonged period of time, with breaks in between to allow knowledge to shift into long term memory. In general, humans learn best with repetition, and the more often you see the same information the better you will be able to recall it on high-stakes assessments such as exams.

## 5) Accessibility

We welcome students with diverse learning styles and needs at this University and in this course. If you require some sort of accommodation, please see me and/or contact the AccessAbility Services Office (see below links) as soon as possible. We will work with you to ensure that you are able to meet the course learning objectives successfully. The UTSC AccessAbility Services staff are available by appointment to assess your specific needs, provide referrals, and to arrange appropriate accommodations. All enquiries are confidential. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

UTSC AccessAbility: ability.utsc@utoronto.ca, (416) 287-7560, AA 142 (Arts and Administration Building)

## 6) Equity, Diversity, and Inclusion Statement

The University of Toronto is committed to equity, human rights, and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. UTSC does not condone discrimination or harassment against any persons ore communities. The Department of Biological Sciences at UTSC acknowledges the barriers that people of colour and other marginalized groups face, particularly in science and academia. As a department, we are highly committed to creating a welcoming scientific community where everyone feels safe, comfortable participating, and which provides the necessary support to thrive. We acknowledge and are disheartened that Black, Indigenous and other marginalized communities are, and always have been, disproportionately impacted by systemic racism and face barriers within academia. In August 2020, our department formed an equity and inclusion task force that will meet regularly to discuss equity and inclusion and enact improvements to our departmental practices by actively engaging with the literature on best practices, and seeking ongoing input from all members of the department including students, post-doctoral fellows, staff and faculty. Among our main priorities will be a commitment to hire and support faculty and staff that are representative of our diverse student population, and to promote a departmental culture that will foster inclusive teaching and research excellence. To find out more information about this initiative, please visit https://www.utsc.utoronto.ca/biosci/biological-sciences-edi-statement.

## 7) Assessment

### a) Methods of instruction

The basic information of this course will be presented through virtual lectures on major topics that will be posted to the course website, TA-led literature reviews of recent articles, and individual and group-based active learning exercises. Lectures will be posted at the start of the scheduled class time and students will have 24 hours to watch the lecture and complete the related active-learning content. Please see the course website for more details.

Class attendance for tutorials is **mandatory** and prompt arrival is crucial. **There are no options for attending tutorial asynchronously, but students in a different time zone can gain permission to attend the tutorial time that works best for them.** We will be using TopHat Classroom for lecture participation – please see Quercus for more details.

Class participation will be graded based on active participation in any online active learning exercises / quizzes / discussions / assignments and also based on prompt attendance and full participation in all tutorials. If you log in late, or you are unprepared or unwilling to participate, you will earn a lower grade. If you miss a tutorial or lecture without a valid reason, the relevant scores (quizzes / assignments / etc.) will be dropped but the absence will impact your participation score.

### b) Lectures

Lectures will be posted to TopHat Classroom every Monday by 3pm. You are expected to watch the lecture content within 24-hours and will be held responsible for all material covered, including active learning components (which will be due at 5pm each Tuesday). Active learning lecture components will be graded for both participation and correctness. Students are strongly encouraged to watch each lecture prior to the associated tutorial as tutorials are based on lectures and assume prior exposure to lecture content.

### c) Tutorials

Students will be broken into two groups based on their last names (group A and group B). Each group will attend online tutorial on a different week (see schedule of classes on the last page of this syllabus for specific dates). Students who wish to permanently switch groups have until **Friday, September 17th** to request this – you do this by emailing the teaching assistant. After this time, no students may make a permanent switch. Students who know they will miss a tutorial may contact their TA to request a one-time switch. This must happen **ONE WEEK** before the tutorial they will miss. Only students with valid reason will be permitted to switch tutorials.

In tutorial, students will spend time analyzing and discussing scientific papers on topics related to lecture, as well as participating in group-based exercises aimed at promoting deeper thinking about the concepts introduced in this course. Some of these activities may require that you go outside to survey places around your place of residence. For these activities, students should pay attention to any weather forecasts and dress accordingly. Students who are uncomfortable or unable to participate in this type of exercise may contact the instructor to make alternate arrangements.

Students are expected to read the assigned paper and be prepared to discuss it in tutorial. Discussion will take place in both small groups and as a class-wide discussion in which each group will present their findings for one or more questions. **At the end of the class-wide discussion, students will take a quiz designed to test their understanding of the paper.** Through these discussions, you will learn how to read scientific literature critically, and how to identify both the limits of a study and the general principles that we can draw from it. Reading scientific literature requires understanding of the basics of methodology, putting effort into thinking about the research and the results, and critical thinking skills.

These readings will supplement the lecture material, and material from these papers will be covered on exams.

In addition to paper discussions, tutorial exercises may include, but are not limited to, completing worksheets, other writing assignments, or giving small presentations to your tutorial group. Some of these activities may require that you read additional material or conduct research outside of the classroom. Any written assignments will be checked for originality using a plagiarism detection tool (see section 8 of this syllabus for details). More details regarding these assignments will be given out as the semester progresses. Assignments will generally be due either at the end of tutorial or within 24 hours of tutorial – students who fail to attend the scheduled online tutorial cannot earn credit for any work that is due after tutorial.

**No makeup tutorials will be permitted.** All students are expected to attend their assigned days of online tutorial and must obtain permission from the TA to switch sections. Without a valid reason, students will not be permitted to attend a tutorial section other than the one they have been assigned to. The lowest tutorial score will be dropped at the end of the semester. Note this dropped score also includes all university-accepted excused absences (such as illness). If you will miss more than one tutorial for a university-accepted reason, you must contact your TA or myself as soon as possible so we can discuss alternate accommodations. No late assignments will be accepted for work that is completed in tutorial. For all other assignments, please refer to the late penalties outlined in section **f) Grading Policies**, below.

## d) BIOC90 Integrative Multimedia Documentary Project

This course is one of several that can be used to fulfill the BIOC90 program requirement that all students in Biological Science specialist and major programs need to complete before graduation. If you decide to enroll in BIOC90 this semester, you can do so through Acorn – you will need to enroll before the course add/drop date. Please note that if you are enrolled in more than one of the C-level courses that can be used to fulfill this program, you will need to decide which course you want the 10% grade for BIOC90 applied to (you can only apply this grade to ONE of the participating C-levels).

Please see https://www.utsc.utoronto.ca/biosci/biob90h3-bioc90h3 for a list of participating courses. It is your decision as to when you will complete BIOC90 (you do not need to do so this semester, but you do need to complete this course to graduate if you are enrolled in the most recent versions of our programs), but if you end up taking BIOC90 at a time when you are not enrolled in any of the participating classes, you cannot benefit from the assignment grade in any way. If you are not sure if you need to take BIOC90 to complete your program, please consult degree explorer – it will show up there as a program requirement if it is something you need to complete. Note: even if it is not one of your program requirements, you can still choose to complete this course if you wish to do so.

Under the 'BIOC90 Module' on our Quercus Page, the C90 Course Instructor will post all the information you will need to help you decide whether you want to take BIOC90 this term. Here, you will be able to find (i) the C90 course syllabus, as well as (ii) an information session held by the course instructor covering the details of the project.

## e) Exams

There will be a midterm exam and a cumulative final exam in this course. The value of both items can be found in section **f) Grading Policies**, below. Both exams will be based on lectures, tutorials, and the assigned readings. Readings supplement the lecture material and are immeasurably helpful in preparing for exams. All exams will consist of multiple choice, short answer and problem-solving questions. The final exam will take place during the final exam period.

Both exams will be run online and will involve virtual moderating. **It is the responsibility of all students to ensure that they have a secure wifi connection and a working device before all exams.** Students who do not have access to this technology MUST let the instructor know before the exam takes place in order for alternate arrangements to be made. Note: students should also let the instructor know if this will be an issue at the start of the semester so alternate arrangements can be made for all course content!

### Makeup midterm exams

If you miss the midterm due to a university-accepted reason, please contact me within three days of the missed test and provide documentation to support your absence. Students with a valid excuse will be given a makeup exam within one week of the missed test (unless there is a valid reason for a longer delay). Students who fail to contact me within three days will earn a score of zero and no makeup exam will be permitted. Note that students who are unable to contact me within this time frame due to circumstances beyond their control are exempt from this. **Makeup midterm exams will consist solely of ten short answer questions.** If you miss the final exam, you must go through the registrar's office to request a deferred exam.

Please see https://www.utsc.utoronto.ca/biosci/missed-term-work-policy for details on acceptable documentation and how to submit it (Note: this information has been updated as of August 2021).

## f) Grading policies

Students are responsible for all material that is presented in lecture and tutorial. If you miss a class, you are strongly advised to watch it as soon as you are able to and review any active learning assignments you missed as soon as possible. Participation in lecture and tutorial will be an important factor in determining borderline grades, so attendance and participation are strongly advised. Please note again that that **NO MAKEUP TUTORIALS ARE PERMITTED AND ATTENDANCE IS MANDATORY.** For more details, please refer to the relevant section of this syllabus. Two breakdowns of grades can be seen below. The first is for students who have opted into TopHat and who are either not in BIOC90 or not applying their BIOC90 grade to this course, and the second is for students who are in BIOC90 and have chosen to apply their grades to BIOC61. Please see the following page for more details.

Grade Breakdown for students NOT in BIOC90 & students in BIOC90 who add 10% to different C-level

| Category | Percent |
|---|---|
| Midterm Exam | 25% |
| Lecture Participation* | 10% |
| Reading Quizzes | 5% |
| Tutorials† | 20% |
| Final Exam (cumulative, during final exam period) | 40% |

* Lecture participation is based on TopHat active learning activities. Students can opt out of TopHat usage by completing the survey posted to Quercus. For students who opt out, the grades change as follows: Midterm Exam 25%, Final Exam 45%. Students who opt out will take exams in Quercus. All other students will have a choice between Quercus and TopHat testing.

† 5% of the Tutorials grade is based on tutorial participation. This includes showing up to tutorials on time, being fully engaged in all aspects of the class, and remaining until class has ended. This also includes attending all tutorials, where possible, and providing documentation for absences as needed. Students cannot opt out of this part of the grade.

Grade Breakdown for students in BIOC90 who decide to apply 10% grade towards BIOC61

| Category | Percent |
|---|---|
| Midterm Exam | 22.5% |
| Lecture Participation* | 9% |
| Reading Quizzes | 4.5% |
| Tutorials† | 18% |
| BIOC90 Integrative Multimedia Documentary Project | 10% |
| Final Exam (cumulative, during final exam period) | 36% |

* Lecture participation is based on TopHat active learning activities. Students can opt out of TopHat usage by completing the survey posted to Quercus. For students who opt out, the grades change as follows: Midterm Exam 22.5%, Final Exam 40.5%. Students who opt out will take exams in Quercus. All other students will have a choice between Quercus and TopHat testing.

† 5% of the Tutorials grade is based on tutorial participation. This includes showing up to tutorials on time, being fully engaged in all aspects of the class, and remaining until class has ended. This also includes attending all tutorials, where possible, and providing documentation for absences as needed. Students cannot opt out of this part of the grade.

## Late penalties

No late assignments will be accepted for tutorial reading quizzes, lecture active learning assignments, or for other work that is completed in lecture or tutorial. For all other assignments, work that is turned in late will be penalized by 10% per day, **starting with 5 minutes after the due date / time**, unless the student provides documented proof of the reason for their tardiness. Illness on the day an assignment is due is **NOT** considered an acceptable excuse for late assignments where students had sufficient time to complete them prior to the start date of their illness (note: for longer-term illnesses, accommodations can be made – please reach out at the onset of the illness so you keep us informed). For group assignments, if you fail to participate during class and your groupmates choose to complete the assignment without you as a result, then you will earn a 0 grade unless you missed the assignment for a university-accepted reason. Putting your name on an assignment that you did not contribute to is an academic offence. If we catch you doing this, we will report you to the Office of Academic Misconduct.

**Forms required to document missed coursework**

Students who miss class or tutorial for a university-accepted reason must provide documentation to support their absence. Please see https://www.utsc.utoronto.ca/biosci/missed-term-work-policy for more details on documentation. Please note that, even though we will drop your lowest tutorial score, you still need to document all absences for tutorials – if you miss one tutorial that you have properly documented, and a second tutorial for which you have no documentation, this second absence will count as a zero, lowering your tutorial grade. In addition, missed lectures and tutorials will impact your participation scores unless you submit proper documentation to support your absence.

**One week 'Statue of Limitations'**

All grading questions about exams, homework, quizzes, group exercises, literature reviews, etc. must be addressed within one week of the scores being posted online or handed out in class. **After this time, no changes will be made to existing grades unless there is a calculation error**. Thus, it is essential that you check your grades regularly and contact your TA or instructor within one week if you feel an error has been made or if you are unsure why you lost points.

## 8) Plagiarism Detection Tool

Some of your tutorial assignments will involve group and individual written work. You are expected to submit a digital copy of these assignments, when instructed to do so, through Quercus where your work will be checked via a plagiarism detection tool (PDT). The following statement is included for your information, as per University policy: *Normally, students will be required to submit their course essays for review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of PDT service are described on the University's website.*

**Schedule of Classes***

**Instructor: Dr. Rachel Sturge (rachel.sturge@utoronto.ca)**
**Lecture: Asynchronous online (posted by 15:00 every Monday)**
**Tutorials: Wednesdays 14:00 – 17:00 online****
** students will attend tutorial on alternate weeks

Readings from Gary Mittelbach *Community Ecology 2nd ed* (recommended).

| *Week* | *Date* | *Topic* | *Chapter* |
|---|---|---|---|
| 1 | Sep. 6 | **NO CLASS OR TUTORIAL THIS WEEK** | |
| 2 | Sep. 13 | Introduction & Patterns of Biodiversity<br>Tutorial 1 - Group A | 1, 2 |
| 3 | Sep. 20 | Biodiversity & Ecosystem Functions<br>Tutorial 1 - Group B | 3 |
| 4 | Sep. 27 | Population growth & density dependence<br>Tutorial 2 - Group A | 4 |
| 5 | Oct. 4 | Predators & Prey<br>Tutorial 2 - Group B | 5, 6 |
| 6 | Oct. 11 | **READING WEEK - NO CLASS** | |
| 7 | Oct. 18 | Competition<br>Tutorial (all students) – Exam review session | 7, 8 |
| 8 | Oct. 25 | **MIDTERM EXAM**<br>Tutorial 3 - Group A | |
| 9 | Nov. 1 | Mutualisms & Facilitation<br>Tutorial 3 - Group B | 9 |
| 10 | Nov. 8 | Food chains & food webs<br>Tutorial 4 - Group A | 10, 11 |
| 11 | Nov. 15 | Metapopulations<br>Tutorial 4 - Group B | 12, 13 |
| 12 | Nov. 22 | Species Coexistence & Environmental Heterogeneity<br>Tutorial 5 - Group A | 14 |
| 13 | Nov. 29 | Evolutionary Community Ecology<br>Tutorial 5 - Group B | 15 |
| 14 | Dec. 6 | **EXAM REVIEW SESSION DURING LECTURE TIME** | |
| **FINAL EXAM WILL TAKE PLACE DURING EXAM PERIOD** | | | |

* Schedule is subject to change based on inclement weather, large-scale power outages, or other unforeseen circumstances