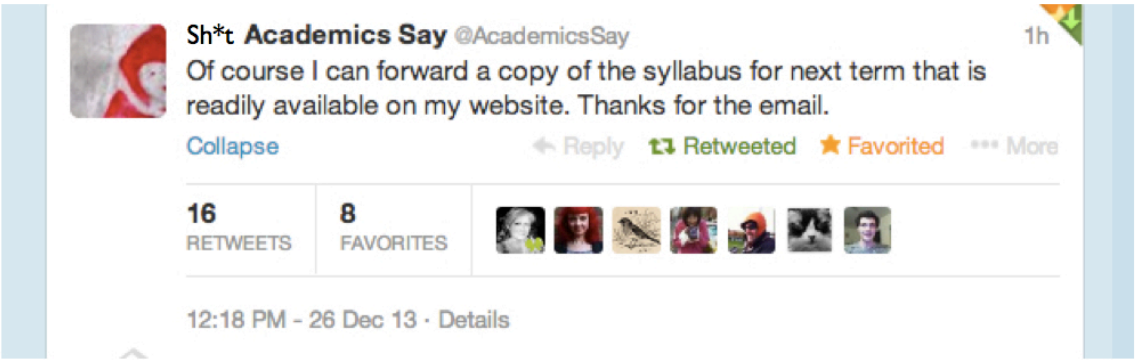
BIOL/ENVS 3290.40 Plant Ecology (handout 30-12-2015)

Course Begins Monday January 4th 2016 Stong College 216
Labs are in Farqharson 204

"The World is Run by Those Who Show Up" Weingardt, R. 1997
http://dx.doi.org/10.1061/(ASCE)0742-597X(1997)13:4(61)

Therefore, we (you) are going to be organized, manage our time well, focused, work hard, learn a lot and have fun with science!



Course Director: Professor Dawn R. Bazely

Teaching Assistant: Mr. Dmitri Perlov
Email: dperlov@my.yorku.ca

Contact Information: Office: 206B Lumbers; Extension: 20109;
Email: dbazely@yorku.ca;
Twitter: @Biol4090DawnB;
Twitter & Instagram Course Hashtag: #Biol3290

LECTURES
Mondays, Wednesdays & Fridays: 1:30-2:30 SC 216: Stong College

LABORATORIES
Monday 2:30-5:30 p.m. FQN 204: Farqharson Building, Biology

MOODLE website
For lectures, podcasts, discussion fora (forum(s)), assignments, grading etc.
You must use your YorkU email address to access the course website.

In 2014, I got back to teaching this course for the first time since 2005-06. I had been on secondment for 7 years, as director of York University's Institute for Research and Innovation in Sustainability. I originally designed the Plant Ecology course in 1990: well before most of you were born.

Because of the 10-year gap since I last taught this course, I spent a lot of time updating Plant Ecology with new content. I added social media and Moodle. I first used Moodle in 2010, and unlike many other course directors, I like to take advantage of its many features.

In 2013, I won the York University President's Senior Professor's Teaching Award. A whole bunch of my former students nominated me for that award which is for all tenured professors across York University. But, before that, I was regularly nominated for, and I won teaching awards, like the Faculty of Science (and Engineering) Teaching Award in 2003. This means that I take teaching, learning and pedagogy very seriously (if you don't know what pedagogy means, please don't hesitate to google it).

BIOL 3290.40, used to be listed as BIOL 4090.40, but at a 2014 Biology Department curriculum retreat, after much discussion about the undergraduate biology programme, we decided to make it a third year course. The main reason was that many of the 4th year Biology Ecology courses that were launched in the last 25 years, do not have laboratories. Yet, labs are key part of learning to do science. So, BIOL 3290.40 provides you with important research and critical thinking skills for doing well in your 4th year Ecology, Evolution, Environmental Science and Conservation courses.

This course emphasizes showing initiative, and teamwork. You have all had at least 2 years as undergraduate students, so I expect you all to demonstrate and implement what you have learned in previous courses. This means that you should be reviewing your notes from previous courses – this is how it is in the real world – life after university. You will be expected to bring previously learned knowledge and skills to the table.

This course also transitions you from lower year courses, which are more in line with high school science thinking, to upper year courses, where we expect you to ask and find the answers to science questions that may not be straightforward.

How much time should you expect to spend on this course?
There are 6 hours of lectures & labs per week. In addition to attending all labs and lectures, you should expect to put in a minimum of an additional 6 hours per week. That's 12 hours per week of time spent on this course, in order to pass it with a respectable mark in the >70% range.

There are 13 weeks in the term: 12 weeks of classes and 13 of term (including Reading Week). In the course grading breakdown, I have suggested approximate times that should/could be spent on each assignment.

You have probably heard about the need to "work smarter, not harder". There's no doubt that our top performing university students produce more, better quality work, in the same amount of time, than the rest of our students. These top students may be procrastinating less, and being more focused and better time managers. They are probably showing lots of initiative, and going above and beyond minimum expectations. Everyone can learn these skills. I address this "soft skill" side by including all kinds of skills development and training exercises in the course that is aimed at helping every student to improve her or his performance. These are also skills that you will be expected to have in the real world, after graduation.

TEXT BOOK:
Jonathan Silvertown and Deborah Charlesworth. 2001. *Introduction to Plant Population Biology*. 4th Edition. (in the bookstore) – a great small text.

You will also learn to read and dissect the primary, peer-reviewed literature. Relevant reference articles supporting the lectures will be posted every week.

Important thing to know: the difference between:
Primary literature
Secondary literature
Peer-reviewed literature
Grey literature
And, how to identify different kinds.

MARKING SCHEME

The course grading scheme is designed to support students in learning to ask and answer the questions: "who, what, where, when, why and how?", about all of the ecology subject matter that I will cover.

You should allow for approximately 78 hrs of total study time outside of labs/lectures during the term. If you are super-efficient, you may be able to spend more time, but that assumes that you are an outstanding (top10%), rapid researchers, reader and writer.

Written Assignments (total 40% of final grade)

1. Twitter assignment (5 hrs prep)	05% (2% is a Twitter quiz)
2. Letters to the Editor as a blog post (4 hrs prep)	05%
3. Wikipedia page entry (3 hrs prep)	05%
4. Research Essay (24 hrs prep)	20%
5. Seminar on any of 1-4 above in Pecha Kucha format (6m 40s) to be given in lab time (3 hrs prep)	05%

Laboratory Write-Ups (total 30% of final grade)

Project 1 is a group projects with heavily managed group dynamics, in order to reduce the possibility of one or two students in the group dropping the ball on workload. They will be presented.

Projects 2 and 3 are an individual research lab write up.
DETAILS OF LAB projects WILL BE POSTED IN JANUARY 2016 on Moodle.

Project #1 (10 hrs + lab time)	10%
Project #2 (10 hrs + lab time)	10%
Project #3 (10 hrs + lab time)	10%

Final exam (during exam period) 30%

PROPOSED (but not set in stone) **LECTURE OUTLINE** and **IMPORTANT DATES for Plant Ecology: Stong College 216**

DATE TOPIC

Week 1

Labs start this week: see summary notes on the Moodle website and bring your laptops or tablets with you to the lab in Rm. 204 Farquharson.
In Week1 Week2, Week3 labs, we will practice various computer skills:

A. Twitter and Social Media training.
B. Blogging training for Letters to the Editor assignment.
C. Wikipedia page editing training.
D. Library Research Training with our Steacie Biology science librarian.
E. Pecha Kucha seminar format training.

M 4 Jan	Overview of ecological concepts, and course outline
W 6 Jan	History of (Plant) Ecology & Current Hot Issues
F 8 Jan	Succession and the ecosystem

Week 2

M 11 Jan	Succession and the ecosystem
W 13 Jan	Nutrient cycling and feedbacks
F 15 Jan	Nutrient cycling and feedbacks

Week 3

M 18 Jan	Diversity and stability
W 20 Jan	Diversity and stability
F 22 Jan	Past plant communities

Week 4

M 25 Jan	Plant population ecology
W 27 Jan	Variation and inheritance
F 29 Jan	Evolutionary and Ecological Genetics

Week 5

M 1 Feb	Evolutionary and Ecological Genetics
W 3 Feb	Interactions: intra-specific competition
F 5 Feb	Interactions: intra-specific competition

Week 6

M 8 Feb Interactions: intra-specific competition
W 10 Feb Population dynamics
F 12 Feb Population dynamics

Week 7

M 15 Feb Reading Week - NO CLASSES – but you should be working
W 17 Feb Reading Week - NO CLASSES – but you should be working
F 19 Feb Reading Week - NO CLASSES – but you should be working

Week 8

This week's lab will include 2 hours of student presentations:
M 22 Feb Age-structured and stage-structured populations
W 24 Feb Age-structured and stage-structured populations
F 26 Feb Population dynamics: metapopulations

Week 9

This week's lab will include 2 hours of student presentations:
M 29 Feb Population dynamics: metapopulations
W 2 Mar Interactions: competition
F 4 Mar Interactions: competition

Week 10

This week's lab will include 2 hours of student presentations:
M 7 Mar Interactions: competition
W 9 Mar Plant distribution, climate and life histories
F 11 Mar Plant life-history: breeding systems

Week 11

M 14 Mar Plant life-history – seeds & life-stages
W 16 Mar Plant life-history – clones
F 18 Mar Plant life-history – immortality

Week 12

M 21 Mar Interactions: predation and herbivory
W 23 Mar Interactions: predation and herbivory
F 25 Mar Interactions: predation and herbivory

Week 13

M 28 Mar Revisiting specific topics – student choice
W 30 Mar Revisiting interesting topics – student choice
F 1 Apr What is a twitter quiz and what about the questions?

Week 14
M 4 Apr Wrap-up: reflections and ecological debate: a Tweet chat quiz worth 2% of your final grade.

CLASSES END – final examination (30%) will be written during the exam period

ACADEMIC HONESTY

York University has a very strict policy on Academic Honesty, which covers PLAGIARISM. Plagiarism is the uncredited use of someone else's work (writing or ideas). It is very important to reference all of your sources, so that someone else, in this case, me, can check on them. Access to the Internet has significantly increased the ease of plagiarism. It's so easy to download large chunks of text and insert them into essays etc. without any kind of rewording or synthesis. BUT, our ability to detect plagiarism has also increased hugely. Many of your assignments will be submitted through Turnitin software via Moodle.

Everyone, no matter who they are, is ethically bound to avoid plagiarism, and I have blogged about some very public cases in which professional journalists have been caught plagiarizing.
http://dawnbazely.lab.yorku.ca/2013/10/academic-honesty-is-not-just-for-students/

The best plagiarism prevention and cure, is to develop your own strong writing voice, based on efficient and effective research and synthesis skills. In the case of collaborative group projects (1 of your lab projects is a strictly guided group project), the whole group authors the report and I have instituted research-based criteria and protocols to ensure that everyone's contribution is weighted appropriately.

N.B. Assignments will be submitted through the Moodle website & time stamped. Some, but not all will be submitted via Turnitin, through Moodle.

WRITTEN ASSIGNMENT #1 (5%): You will be tweeting about plant ecology for marks using #Biol3290 in your plant ecology course tweets!

Twitter for learning about plant ecology runs all term, and ends on Monday April 4th with a twitter quiz tweet chat.

1. Create a Twitter account for the course or use your existing one:

My Twitter handle is @dawnbazely
Follow me, and each other in the course, and some other ecology and science-related websites – you can see who I'm following. I tweet a lot about plants and ecology.

2. Read the Twitter resources and background information
PLEASE SEE HANDOUT ON MOODLE

3. Compose interesting & useful tweets, or Retweet other plant ecology relevant tweets
You must tweet at least 3 times per week of the term, using the #Biol3290 hashtag from weeks 1-13 for 39 tweets. You can RT other people's tweets by adding a comment and the #Biol3290 hashtag.
One tiny tweet is worth 0.077% of your final grade.
0.077 x 39 tweets = 3%

I will track your tweets through an API script to make sure that you have tweeted enough to get 3% and then you will get the final 2% by answering tweet quiz questions on April 4th for 1 hour of lecture time – I will give you the questions ahead of time!

Reference: Moodle resources on Tweeting and paper on mobilizing research via social media – see assignment handout.

WRITTEN ASSIGNMENT #2 (5%): LETTERS TO THE EDITOR: BLOG posts about them due Friday January 22nd midnight.

You must register for a Wordpress.com account and then accept the invitation that I send you to post your blog about your 2 letters to the editor, at the course website:

Ecology is very relevant to our everyday lives. Open the newspaper, and you will see articles on climate change, invasive species, overfishing etc. But, are the public and the journalists that cover the news really interested in the science of ecology or just about the controversy? Ecology studies how all populations, and individuals are ultimately limited by resources. In other words, growth cannot be limitless. Is it possible to bring this complexity into public conversations, outside of the university and your lectures & labs?

An increasing amount of research suggests that the public understanding of science is quite limited. If we adopt the working hypothesis that part of the reason is that old media is not that interested in publishing letters about scientific articles, we can do an experiment to test a prediction arising.

Each member of the class will write (and submit) two letters to the Editor of a major Old or Traditional Media newspaper (eg The Sun, Globe & Mail, Toronto Star, National Post).
The first letter will be about a non-science article in the paper.
The second letter will be about an environmental or ecological article.

Letters to the Editor are a very specific writing format. They must short & to the point. In the third week of class, you will read a newspaper and write two letters responding to two **different** articles in the **SAME** newspaper on the same day.

I hope that some of your letters will be published! We will then be able to compare the likelihood of having a letter on a non-science/ecology topic published with that of having a letter with an ecology slant published.

After you have submitted (most easy to do by e-mail) each letter to the editor of one of the Toronto newspapers, you will write a blog post on the class Wordpress website about why you chose the two articles, and include in your post, links to them, and copies of your letters. You can also include whether your letter was published or not.

The letters will be graded out of (for a total of 5% of your grade), based on how well they are written and how well they make your argument.

WRITTEN ASSIGNMENT #3 (5%): Learn how to be a Wikipedia editor.
PLEASE SEE HANDOUT ON MOODLE

You will write or edit (add to) an existing entry about a prominent Plant Ecologist: Due last midnight Friday of Reading Week: 19 February 2016.

This assignment is rooted in a Wikipedia project dedicated to getting more Wikipedia entries for Female Scientists. We have adapted it for prominent Plant Ecologists.

You will learn how to create web-based content.
Each student will research and identify a plant ecologist who deserves a Wikipedia page. If they already have one, you could edit the page.

I am looking for you to create 250 new words of text on an important plant ecologist who doesn't have a Wikipedia page. This text must be supported by references.

WRITTEN ASSIGNMENT #4 (20%): RESEARCH ESSAY
Due Friday March 18th midnight 2016

1. Find a journal paper on a plant ecology topic from one of these journals: *Ecology*, *Journal of Ecology*, *Oikos*, *Oecologia*, *Journal of Applied Ecology*, *Journal of Vegetation Science*, *Science*, *Nature*.
a. The paper must have been published in the year of your birth.
b. The paper must have been cited (check in google scholar, scopus or web of science, a minimum of 25 times).

2. Write a 10 page double spaced essay on the research progress that has been made since you were born on the research question posed by the authors of the paper.

Please see essay guidelines posted on Moodle.

The lab session with our science librarian will help you to develop an annotated reference list.

ASSIGNMENT #5 (5%): Pecha Kucha SEMINAR PRESENTATION (6 mins 40 secs)

The seminar topic can be about your letter to the editor (and the article on which it was based), the prominent plant ecologist covered by your Wikipedia entry, what you are tweeting about, or your essay topic.

You will be following the seminar style known as Pecha Kucha:

20 ppt slides each shown for 20 seconds for a total of 6 mins 40 seconds.

Each student will have a 10 minute total time slot. Talks will be held for 2 hours during 3 weeks of labs in February to March (see schedule above).

http://www.habitatx.com/pecha-kucha/
http://www.pechakucha.org/faq
http://trends.masie.com/archives/2013/8/27/787-pecha-kucha-20-slides-a-time-to-kill-work-and-social-med.html
http://sociobiology.wordpress.com/2013/03/08/ignite-your-audience-with-lightning-or-pecha-kucha-form-talks/

Have I done a talk like this? Yes, at an international polar conference – it was tough! But I had more time to answer questions than anyone else in my session.