

ENV1101

COURSE PACKAGE

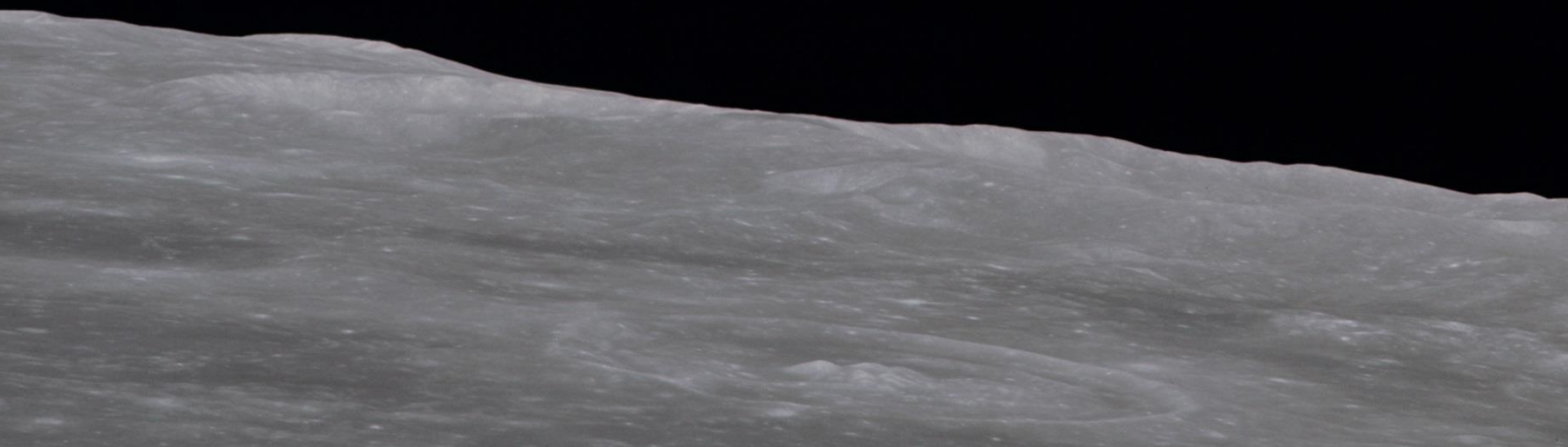
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BACHELOR OF ENVIRONMENTAL STUDIES
ENV 1101: Environmental Studies – An Interdisciplinary Overview
SYLLABUS

Don't blow it – good planets are hard to find.
– TIME Magazine, author unknown



ENV 1101: ENVIRONMENTAL STUDIES – AN INTERDISCIPLINARY OVERVIEW

Semester 1
AY 2019/20

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Office hours	Flexible!	
Grading	Letter grade	4 MODULAR CREDITS

1. RATIONALE

The field of environmental studies is very broad. It occupies the interface of a very diverse set of disciplines, which include (but are not limited to) biology, building & design, chemistry, economics, engineering, ethics, geography, law, philosophy and resource management. But at heart, the field examines the interactions between humans and our environment and – because so many of the challenges we are now facing have an environmental dimension – it is strongly problem-oriented.

This course, divided into four blocks, introduces you to the scope of environmental studies and provides an important foundation for the higher-level, specially designed ENV courses that form the Bachelor in Environmental Studies (BES) programme.

2. COURSE AIMS AND OUTCOMES

2a. Aims

The main aims of ENV 1101 are to:

1. Expose you to the **BREADTH**, interdisciplinary nature and some key foundational principles of environmental studies,
2. Arm you with some basic knowledge and skills that are key to this field of study,
3. Instil in you an environmental ethic, especially the notion that we must all take individual and collective action toward sustainability.

This way, ENV 1101 is a good initiation to the BES programme. You will acquire a **BROAD UNDERSTANDING** of the main environmental problems. You will also come to appreciate their inherent complexity (involving many causes and stakeholders), and so see why it takes an interdisciplinary approach to solve them. ENV1101, by imparting good academic practices and allowing you to practice different forms of assessment, also prepares you for the rest of your programme. By participating in individual and group activities that revolve around the theme of sustainability, you will also come away with a spirit of belonging to a group of individuals all dedicated to a common purpose – caring for the planet. **Note that the emphasis is necessarily (this being a 1101 course) on breadth rather than depth!**

2b. Learning Outcomes

By the end of ENV 1101, you will be able to:

- **articulate** the interdisciplinary nature of environmental studies,
- **list** and **explain** the main ultimate and proximate causes of the environmental crisis,
- **describe** the environmental impacts of human activities,
- **describe** mindset- and practice-based solutions to environmental problems,
- **form informed opinions** based on your critical evaluation of available information, particularly the primary literature,
- **think critically and creatively** about approaches to environmental problems,
- **work effectively** individually and as a member of a group,
- **demonstrate** evidence of observation and research skills,
- **design** a project,
- **present your ideas** clearly and effectively in oral and written form,
- **critique** and **receive criticism** from your peers.

3. **PREREQUISITE:** For BES students only.

4. ABOUT YOUR COURSE COORDINATOR AND LECTURER

My degrees: BSc in Agriculture (Environmental Biology, McGill University), MSc (Wildlife Biology, McGill), PhD (Urban Wildlife Ecology, University of Calgary).

I'm an ecologist and conservation biologist, with expertise studying urban wildlife and a growing record of studying the human-Nature relationship. I've been at NUS since November 2012, and most of my research students study urban ecology in Singapore.

When it comes to education, I'm big on active learning, especially problem-based and experiential learning. Things I love: family and friends, students, my parrot, music, dance, Nature, kids, travel, skiing, hiking, SCUBA diving, photography, maple syrup, cherries, tattoos, the smell of pine and BATS. Things I hate: bigotry, violence, abuses of human & environmental rights, smoking, going to the dentist, strong perfume, bananas (even seeing someone eat them), mushrooms. For more info on me and my work, see my [website](#).

5. FORMAT AND PROCEDURES

Modes of teaching

Current pedagogical theory views educators very much like the leaders of a company – because they rely upon their employees' hard work, their job is to provide employees with an environment that promotes productivity. And so, I ask: why should I shoulder the full responsibility for your learning? Instead, I should rely on you (at least to some extent) to discover things for yourselves and share this knowledge with the rest of us and facilitate this by creating an environment that encourages learning. I know holding you accountable and implicating you in acquiring knowledge promotes deep learning (the kind that sticks with you), and by holding you to high standards, I demonstrate my faith in your ability to excel.

Academically speaking, we will take an overview of environmental studies using readings from the primary and secondary literature on diverse topics. Practically speaking, class and tutorial time will be used in various ways, i.e., combining lectures, discussions, activities and field trips. Lecturing may be more interactive than you are used to, with a lot of questioning and some short activities.

Each class starts with a list of learning outcomes (the things you should be able to do) and ends with a set of take-home questions, called "WHAT NOW?". You won't submit answers to these questions for grades, but instead can and should use them to hone your abilities to think critically, synthesise info and apply knowledge to solving novel problems. In short, use them to prepare for the exam. Although I may occasionally ask you to return the following week prepared to share your answers, more often you can do them on your own timeline.

My assumptions

As an incoming BES student, the only must-have is a commitment to learning, to being open to unorthodox views and, **above all** to the environment. Also, to prepare you for what lies ahead, your full participation is essential, so please come with an open mind and prepared to: engage with your facilitators and peers in a respectful manner, think critically and challenge your own views and those of others.

Assessments

Assessment	Due	Value (weightage)
Environmental blog	Last day of instruction period (15-Nov-2019)	28 %
Group project	Last tutorial period (06-Nov-2019)	28 %
Participation	none	14 %
Final exam	TBA	30 %

See assessment description (on LumiNUS) for more details.

Standards of conduct

We should always act professionally and respect one another. If you violate this policy, then your participation grade will be affected. Violations of the policy include doing any of the following during our time together (non-exhaustive list):

- Using electronic devices to do anything other than work related to class, e.g., texting, playing Candy Crush, etc. Please put mobiles in silent mode. That said, it's fine to search the Internet for info directly related to the current topic, but if so, then be prepared to share what you find.
- Sleeping (**SRSLY!**)
- Arriving late / leaving early (unless you have a good reason that we agree on beforehand)
- Working on material for another course
- Engaging in any activity that prevents you from fully participating.

Lectures are two hours long. We will begin exactly five (5) minutes past the hour and end exactly 15 minutes before the hour. I take attendance. Tutorials are four hours long. There will be a break during tutorials but not during lectures or learning journeys. If you need to use the washroom or leave the room to grab a drink / food, just go ahead.

6. ACADEMIC INTEGRITY

You must abide by the NUS code of conduct, including its policy on honesty in academic communication. For ENV 1101, collaboration is necessary for the group project, but your individual contribution may be graded separately, to some extent (see assessment description for details). Throughout ENV 1101, you should work together and discuss info and concepts with your peers, but this cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in any form. Should copying occur, all students involved will automatically, and at a minimum, receive a grade of zero for the assignment. Penalties may be extended to include failure of ENV 1101 and disciplinary action by NUS. Incidences of plagiarism **WILL** be treated in a similarly severe fashion. You must attend the anti-plagiarism workshop that I give in ENV1202.

7. ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

We (the BES programme) are available to discuss appropriate accommodations for students with disabilities. Requests for such accommodations should be made two months before the start of the course, except in exceptional circumstances, so arrangements can be made.

8. INCLUSIVITY STATEMENT

We (the BES programme) understand that our students and faculty represent a rich variety of backgrounds and perspectives (and we **love** that). The BES programme is committed to providing a learning atmosphere that not only respects, but also celebrates diversity. While working together to build this community, we ask all participants to:

- share their unique experiences, values and beliefs,
- be open to and value the opinions/viewpoints of others,
- honour the uniqueness of each participant,
- appreciate this opportunity to learn from each other,
- communicate in a respectful way,
- keep confidential discussions that the community has of a personal nature,
- communicate in English only – it's the official language of instruction, and we are a group of individuals from diverse cultural backgrounds,
- use this opportunity to discuss ways to create an inclusive environment in ENV1101 and across the NUS community.

9. STUDENT FEEDBACK

The BES programme continuously strives to offer you the best possible learning experience. So, we want to know what you think of your courses and educators. This being a mandatory course, your feedback matters even more. To that end, I encourage you to please give feedback whenever you like, so I can make adjustments (where possible).

You can use the anonymous feedback forum on LumiNUS or just talk with me (in person or by email). I am genuinely open to hearing your thoughts and will never hold what you say against you (even criticisms of my teaching or the content). And don't hesitate to remind me if and when I forget to post lecture slides or any other promised material on LumiNUS – I appreciate the reminder.

10. SCHEDULE OF TOPICS: Please see schedule of topics – on LumiNUS.

11. READINGS: I usually don't recommend textbooks for university classes, but in 2017, I received a copy of the one below, and found it to be great. I think it could be a useful resource throughout your programme, with easy-to-digest background info relevant to many of the ENV 1101 classes. So I recommend it, but it isn't mandatory:

Cunningham & Cunningham (2017) Principles of Environmental Science – Inquiry and Application. 8th Edition. McGraw Hill Education, New York, NY.

There are also readings from the white and grey literature each week. They're in the schedule of topics, which also tells you which chapters of the above textbook are relevant each week and suggests other resources, such as videos.



ENV 1101 Environmental Studies – An Interdisciplinary Overview

CONTINUOUS ASSESSMENTS

My teaching philosophy hinges on the use of authentic assessments, i.e., meaningful activities and tasks that allow you to demonstrate your ability to apply essential knowledge and skills. By meaningful, I am referring to realistic, complex tasks that **replicate the contexts in which professionals are tested** (after all, isn't the purpose of university to prepare you for your careers?). I also try to design assessments that cater to different strengths. Therefore, ENV 1101 includes a variety of assessments that encompass my general ideals when it comes to pedagogy and, especially, environmental education. That said, this is a description of how you will be assessed. I'll also give you the rubrics that I'll use to grade your work, so you know exactly what my expectations are.

NOTE: you must COMPLETE ALL assignments in order to pass (receive credit for) ENV 1101.



1. ENVIRONMENTAL BLOG (28 %) DUE 15-NOVEMBER-2019

WHAT?

This is where you chronicle your reflections on **one environmental theme**, in a forum that lets you communicate with a wider audience and thus contribute to building a community.

WHY?

This blog is an **authentic assignment** for many reasons. Blogging is a marketable skill. Maintaining a blog is a requirement for many jobs in diverse fields, and blogs are increasingly important on the Internet – on Tumblr alone, there were 465 million blogs in May 2019 (that's a 14 % increase in one year). Also, this assignment gives you an avenue to establish a positive online presence. Prospective employers often check out online activities of job applicants. So, by the time you graduate, it's good to have 'established' yourself online with contributions beyond your activities on social media pages. Finally, it gives you a durable record of your learning and the evolution of your thought process.

This is a chance to consult outside sources and deepen your understanding of environmental issues via critical analysis and development of informed views, which you can express openly (*sans* censorship of mediated chat rooms or formal media outlets). But this blog being your global platform, you must think carefully about how to present yourself, and so this assignment allows you to improve your writing and tailor it to your readers, while practicing academic honesty (critical because the blog is publicly visible).

Finally, blogs are great platforms for giving and receiving feedback, and this assignment incorporates a component for how much interest your blog generates and your reaction to that interest. Thus, you develop your observation skills and can learn by reading and thinking critically about the writings by your peers. Blogs also encourage experimentation, creativity and development of the ability to strike a balance between seriousness and fun (fundamental life skills).

HOW?

Write **regularly** on **ONE** environmental theme of your choice. The possibilities are endless; here are **SOME**:

- Explore a specific environmental problem or controversy,
- Perform and document a study on an environmental question (do primary research),
- Examine the application of science, technology or grassroots efforts to environmental challenges,
- Blog about your **personal** learning journey in ENV 1101 (but don't just chronicle lecture content),
- Develop a well-informed personal strategy for contributing to environmental change.

Make **REGULAR contributions / updates**, i.e., one new post per week (7 days apart).

First, submit a plan, due by the end of week 2 (18h00, 23-August-2019) using the "ENV1101 blog plan" template posted on LumiNUS (change "YOUR NAME" in the filename to your actual name). The plan should include your **theme**, a rough **outline (topics of a few posts)** and a **draft of your 1st post**. I'll give you feedback, and then you may begin, with the 1st post due **by the end of week 3. I read and evaluate blogs weekly but stop at 18h00 on 15-November**. Though I encourage you to keep blogging, I don't evaluate posts / comments added after that.

Your blog should consist of a mix of reviews and opinion (presenting the ideas/work of others, but with an emphasis on **your original thinking**). It should also include active links to relevant sources (including scholarly journal articles; aim to discuss at least one every 2-3 weeks), news stories, other blogs, etc.

MORE GUIDELINES

1. You must use the [NUS tool](#) for creating and maintaining a blog.
2. Please complete this short (2-question) Google [form](#), so I have the URL of your blog. I'll collate a list of blogs and post it on the ENV1101 website. This way I (and others in the BES community) can visit your blogs.
3. Entry length: **100-500 words**. **I WON'T READ** posts that are shorter / longer by more than 10 %.
4. **DO** start by 'introducing' yourself and your theme, so your purpose and interest are clear.
5. **DO** aim for a blog that is cohesive and shows that you have evolved over the course of the term.
6. **DO** think about how to 'sell' your blog. The more inviting it is, the more readers you'll attract. Keeping them interested will depend on content, regularity of posts and visual appeal.
7. **DO** link to other websites, interesting articles, your peers' blogs, your other posts, etc.
8. **DO** write **plainly** in your own voice, meaning, in a way that is more like how you speak than like academic writing (e.g., essay). Avoid complex language, etc. Your target audience is the public.
9. **DO** comment on blogs of your classmates and other interesting ones you find – this is how you create a supportive community and earn participation grades.
10. **DO blog regularly**. I will **VIEW IT NEGATIVELY (PENALISE YOU SEVERELY)** if you leave this task to the last minute and add a flurry of entries. **And DON'T backdate / falsify dates of posts** – that's academic dishonesty.
11. **DO** prioritise quality over quantity – look at the rubric! And **DON'T** blast out a series of posts for me to grade at the end just because you want to reach a certain number of them (see # 10 above).
12. **DO** use photos and other images, but make sure to properly attribute your sources if they're not your own, and **DON'T** use copyrighted material – that's plagiarism.
13. **NEVER COPY-PASTE** text from other sources. You may include short quotes (properly attributed) if paraphrasing would distort the meaning (e.g., lyrics, poetry), but your blog must be entirely in your own words. Inadequate paraphrasing is plagiarism.
14. **DON'T** take anyone else's ideas (plagiarise) – use a reference list or an active link to the source.
15. **DON'T** create a parallel, but different version of an existing blog – that would be plagiarism too.
16. **Blogs that contain even the merest hint of plagiarism will (1) get a grade of zero and (2) be removed from the Internet.**

TIPS ON BLOGGING

There's plenty of advice available online and lots of examples of great environment blogs that you can examine. Consult widely, but these resources may be helpful to you:

<http://www.probblogger.net/how-to-write-great-blog-content/>

<http://scienceblogs.com/>

You can consult blogs created by your seniors [here](#) and feel free to ask me to point out ones that I rated especially awesome.

And here's a blog [post](#) I wrote.

2. GROUP SUSTAINABILITY PROJECT (28 %)

WHAT?

You form small groups (9 groups of 5-6 people) to develop a vision for a sustainable future. Each group presents the results of its research in a fair (held in the last, i.e., wk 12, tutorial). Projects are viewed by faculty members associated with BES and further afield, your peers and other community members.

WHY?

The group sustainability project is an **authentic assessment** for these reasons. First, it allows you to hone one of the most critical of all workplace skills: teamwork. Second, you get to practice your public speaking / oral communication skills – two key requirements in most careers. Third, this is a chance to get creative and think outside the box (two 21st century skills that are key to solving our sustainability issues). Fourth, you get to not only carry out and submit a research project for evaluation (something many professionals must do), but also create a deliverable with real-world applicability to sustainability goals. Finally, by engaging with multiple faculty and other community members, you can network and showcase your skills to people who could prove instrumental in your careers.

HOW?

First ***ask yourselves***: what is sustainability and how do we create a better world? Next, identify **ONE** sustainability challenge (product / system that you think is worthy of sustainable development analysis because of its harmful impacts on the environment). It can be anything that interests you, and the scale can range from the small (e.g., classroom, apartment) to global. Having settled on an issue, propose a **novel solution** to reduce the impacts. It's that simple.

Your solution must be well-researched and grounded, i.e., useful and feasible. Your presentation of it should be structured logically into sections (e.g., ID the problem, your methods and the solution), but should probably devote the most time to the solution. Basically, your goal is to portray what your group accomplished from start to finish and to place your project in context.

You may present your project using any medium you like. Some ideas: short video, Prezi, brochure (in electronic format, with oral explanations), business plan, website, blueprint, educational campaign, end product (prototype). Get creative! Bear in mind the forum: you'll showcase your projects in a fair, and visitors will walk around to see them. This may be outdoors. Don't count on having a power outlet.

This is a **self-starting project**, so start early in the term. Feel free to ask to meet with me ASAP to get feedback on your plan. Each group can have a **maximum of two 20-min. meetings** with me.

You will vote on how your group project grades are calculated...

Option 1: all group members get the same grade.

Option 2: combination of base group grade (for all group members) and grade for individual contribution (based on peer reviews by all teammates).

Please fill out this Google [form](#) to give me the info I need to evaluate you and to vote on your preferred grading scheme. The deadline is the end of week 4 (18h00 Friday, 6 September).

I will also ask you to give feedback to your peers on their projects later.

PARTICIPATION (14 %)

WHAT IS IT?

Now that you're in university, you deserve the opportunity to be responsible for your own learning, so you can develop your ability to think independently, critically and creatively. So your participation is both expected and essential, and it counts toward your final grade.

WHY DO IT?

Grading participation is an **authentic assessment** because in the "real world", employees are evaluated based on more than just tangibles and deliverables – work attitude and interpersonal skills are key to success. Active participation helps develop your critical-thinking skills, especially when it comes to issues that are complicated and/or controversial. Sharing your thoughts forces you to articulate your ideas and submit them to critical review, while actively listening exposes you to alternate ways of interpreting and using information. We also know that students who participate are better able than those who don't to recall and apply knowledge later.

WHAT DOES IT CONSIST OF?

Grading participation isn't without pitfalls. In particular, students and educators bemoan subjectivity and unclear expectations. Some say grading participation penalises those who are more introverted and quieter than their talkative peers. BUT remember, a person can be slow to speak up but no less engaged compared to a chatterbox, and sometimes, very extroverted students can dominate class time and even be detrimental to the overall group dynamic. Some also argue that instructors can't observe everything that goes on in class and so can't appreciate the whole picture of a student's contribution. With this in mind, your participation grade is based on a holistic evaluation of your overall contribution during the course. It will be based on two key components.

1. **Holistic rubric:** During class, I will note your: oral contributions and questions, level of preparation, attentiveness and desire to learn, responsiveness to your peers, etc., and grade you on a rubric that you receive ahead of time. I'll also review your participation in the blogging community, i.e., the frequency and quality of your engagement with your peers, and in other activities.
2. **Self-assessment:** You can use the above-mentioned rubric to assess yourself and argue for the grade you think you deserve, so you should continuously document your contributions. Halfway through the term, you **may ask** to chat with me, to discuss how you're doing so far. We can compare assessments (yours and mine, which hopefully won't be too disparate) and discuss ways to improve.

ADDITIONAL DETAILS

In your written work, I mainly grade you on content. But the ability to write well is a critical life skill, and written assignments are where you showcase your professional abilities in the best possible light, so I also judge your ability to create easy-to-read documents you can be proud of.

Please write in **STANDARD ENGLISH**. If you don't know what that means, find out. Try to avoid Singlish or colloquialisms, because they aren't understood outside SG and, although they're perfectly fine in spoken conversations, they shouldn't really appear in writing. This is important when blogging for a potentially international readership. Please use the simplest language possible and be concise.

In general, my editorial remarks are intended merely to help you write better – meaning, I'm not interested in penalising you for minor errors. BUT, if I have trouble reading your writing because of major organisation issues, typos, grammar / style errors, verbosity or stuffy language, this will negatively affect your grade, potentially severely depending how much I struggle. In my experience, tools such as Grammarly (there's a free version) are invaluable.

HOW TO USE INFORMATION FROM OTHER SOURCES

Always respect the NUS code of conduct on academic honesty when using info from other sources. Paraphrasing (putting all info completely your own words) combined with proper citations (EITHER APA style OR numbered citations, as in the journal Nature) is the only acceptable way to do this in most assignments at NUS. Note: You may use your blog to practice this (and give me the chance to help you improve via feedback), or you can just provide active links to original sources (to reduce post length). See examples below. ONLY use quotations when paraphrasing would distort the original meaning.

APA FORMAT

The urgent need to fill some of the most basic knowledge gaps in SE Asia is evident from a recent exercise (Coleman et al 2019) that identified the region's most pressing conservation research questions.

Coleman JL, Ascher JS,... & Carrasco LR (2019) Top 100 research questions for biodiversity conservation in Southeast Asia. *Biological Conservation* 234, 211-220.

NUMBERED CITATIONS, AS IN NATURE

The urgent need to fill some of the most basic knowledge gaps in SE Asia is evident from a recent exercise¹ that identified the region's most pressing conservation research questions.

1. Coleman, JL *et al Biol. Conserv.* **234**, 211-220 (2019).

HYPERLINK TO SOURCE (much slicker for a blog, i.e., avoids need for a reference list at the end)

The urgent need to fill some of the most basic knowledge gaps in SE Asia is evident from a recent exercise ([source](#)) that identified the region's most pressing conservation research questions.

Links between learning objectives and assessments

A ■ indicates which objectives are evaluated by each assessment. Note: objectives indicated by ○ may also be evaluated, depending on the specific nature of the assessment / issue tackled.

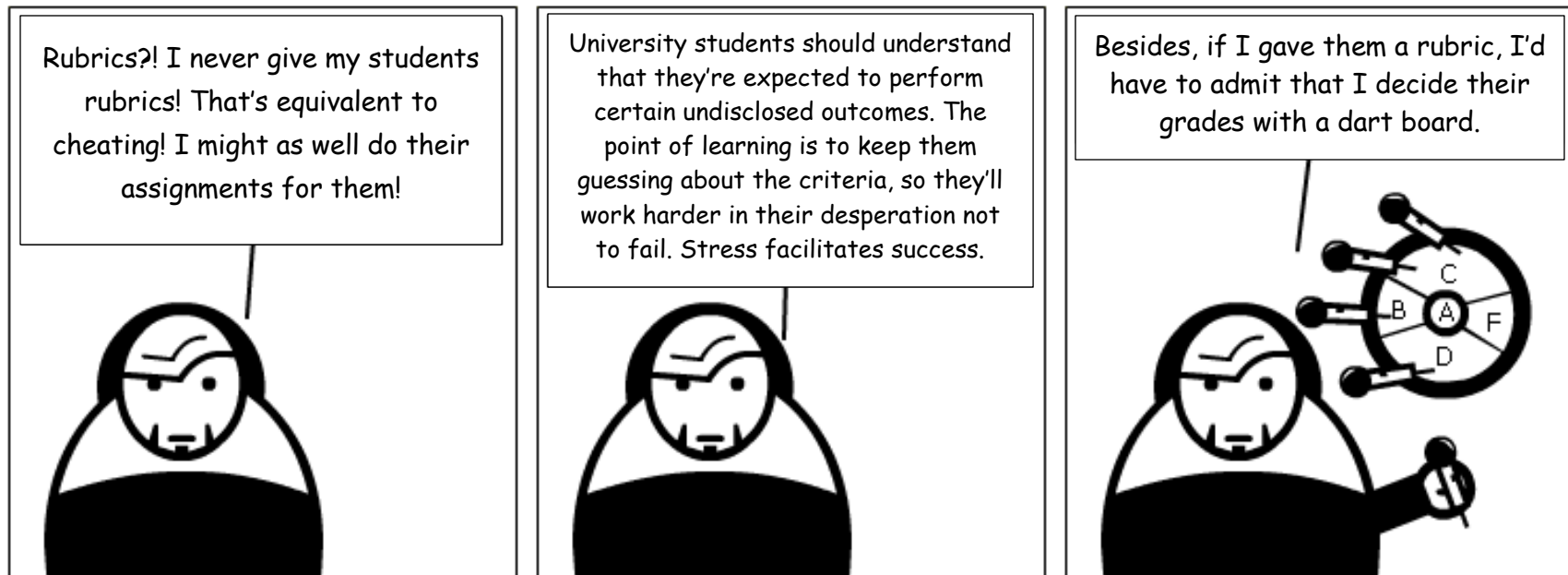
Learning objective	Assessment			
	Blog	Group project	Participation grade	Final exam
Articulate the interdisciplinary nature of environmental studies	○	○	○	■
List and explain the main ultimate and proximate causes of the environmental crisis	○	○	○	■
Describe the environmental impacts of human activities	○	■	○	■
Describe mindset- and practice-based solutions to environmental problems	○	■	○	■
Form informed opinions based on your critical evaluation of available information, particularly the primary literature	■	■	○	
Think critically and creatively about approaches to environmental problems	○	■	○	
Work effectively individually and as a member of a group	■	■	○	
Demonstrate evidence of observation and research skills	○	■	○	
Design a project	■	■		
Present your ideas clearly and effectively in oral and written form	■	■	○	
Critique and receive criticism from your peers	■	■	○	

ENV 1101: Environmental Studies – An Interdisciplinary Overview

AY 2019-20

GRADING RUBRICS

Rubrics & the Secret to Grading



STUDENT NAME

ENV 1101 – ENVIRONMENTAL BLOG (28 % of final grade) – MARKING RUBRIC

CRITERION	EXEMPLARY (4)	LEARNED (3)	BASIC (2)	APPRENTICE / INADEQUATE (0-1)	SCORE
FREQUENCY & REGULARITY (20)	<ul style="list-style-type: none"> > 9 posts Consistently updated once a week 	<ul style="list-style-type: none"> 9 posts Mostly updated once a week 	<ul style="list-style-type: none"> 7-8 posts Updating is a bit spotty 	<ul style="list-style-type: none"> < 7 posts Rarely updated once a week 	
THEME (15)	<ul style="list-style-type: none"> Totally relevant to ENV 1101 Sufficiently complex / deep 	<p>Similar to blog receiving exemplary rating, but some elements not quite at the same standard</p>	<p>Similar to blog receiving apprentice rating, but some elements noticeably better</p>	<ul style="list-style-type: none"> Barely / not relevant to ENV1101 Too basic 	
CONTENT OF POSTS (30)	<ul style="list-style-type: none"> All fit well with blog theme Shows superior knowledge Consistent evidence of upper-level thinking (analysis, synthesis, insight) Highly original / creative Considerable growth in thinking 			<ul style="list-style-type: none"> Several irrelevant posts Shows basic knowledge Little to no evidence of upper-level thinking Little to no originality / creativity Little to no growth in thinking 	
QUALITY OF POSTS (25)	<ul style="list-style-type: none"> All clear, concise and coherent Thoughtful approach with posts that flow together well Personality / voice shines through Consistently tailored to readers Publication quality: few, if any, errors in writing 			<ul style="list-style-type: none"> Several unclear / verbose / incoherent Forced and/or careless approach / lack of flow Cannot ID author's voice / generic Lack of awareness of readers Unpolished: frequent minor / several major errors hinder understanding 	
LEVEL OF ENGAGEMENT (10)	<ul style="list-style-type: none"> Blog is very inviting (graphics, etc.) Blog generates a lot of interest Highly responsive (promptly & thoughtfully addresses comments) Consistently takes scholarly approach (links major ideas to sources) 			<ul style="list-style-type: none"> Blog lacks appeal (graphics, etc.) Blog receives few to no comments Not responsive (responses to comments are infrequent, cursory or irrelevant) Rarely / never takes scholarly approach 	
TOTAL					

COMMENTS (OVERALL)

STUDENT NAME

STUDENT NAME						COMMENTS BY PEERS & AUTHOR RESPONSES
POST #	1	DATE OF POST		EVALUATED ON		
POST #	2	DATE OF POST		EVALUATED ON		
POST #	3	DATE OF POST		EVALUATED ON		
POST #	4	DATE OF POST		EVALUATED ON		
POST #	5	DATE OF POST		EVALUATED ON		
POST #	6	DATE OF POST		EVALUATED ON		
POST #	7	DATE OF POST		EVALUATED ON		
POST #	8	DATE OF POST		EVALUATED ON		
POST #	9	DATE OF POST		EVALUATED ON		

GROUP NAME (student names)

ENV 1101 – GROUP SUSTAINABILITY PROJECT (28 % of final grade) – MARKING RUBRIC

CRITERION	EXEMPLARY (4)	LEARNED (3)	BASIC (2)	APPRENTICE / INADEQUATE (0-1)	SCORE
THE PROBLEM (15)	<ul style="list-style-type: none"> Clearly identified Contributing factors and impacts identified Definitely worth addressing 	Like project receiving exemplary rating, but some elements not quite at same standard	Like project receiving apprentice rating, but some elements noticeably better	<ul style="list-style-type: none"> Not clear what the problem is Contributing factors & impacts not IDd May not be worth addressing 	
THE METHOD (25)	<ul style="list-style-type: none"> Method / thought process are clear Exploration involves use of appropriate and relevant evidence Superior evidence of critical-thinking Involves well-done cost/benefit analysis Applies interdisciplinary thinking 			<ul style="list-style-type: none"> Method / thought process are unclear Exploration based largely on subjective opinion / erroneous info Little to no evidence of critical-thinking No cost-benefit analysis Uni-disciplinary approach 	
THE SOLUTION (30)	<ul style="list-style-type: none"> Very well-grounded in research Highly innovative Effectively addresses the problem Totally feasible (do-able) Considers environmental, socioeconomic benefits 			<ul style="list-style-type: none"> May not be based on research done Been there, done that Unlikely to solve the problem Impractical (e.g., too costly, not inclusive) Benefits may be one-dimensional 	
DELIVERABLE & PRESENTATION (30)	<ul style="list-style-type: none"> Both done to polished standard Everything is well-explained Presentation shared by all members, well-coordinated Just the right amount of detail Language is totally appropriate All questions well-answered 			<ul style="list-style-type: none"> Either or both may be sloppy Major elements not well-explained One person dominates, lack of coordination Too vague or overly detailed in places Level of vocabulary is inappropriate Questions not well-answered 	
TOTAL					

COMMENTS

STUDENT NAME

ENV1101 – PARTICIPATION (14 % of final grade) – MARKING RUBRIC

		SCORE			
CRITERION		0 to 4			
Attendance	Show up to every class / tutorial on time – each unexcused absence / late arrival / early departure is a deduction.				
In class / tutorial participation		6	4 to 5.5	2 to 3.5	0 to 1.5
	<p>VERY ACTIVE, HIGH-QUALITY if you / your...</p> <ul style="list-style-type: none"> • Contribute proactively • Often ask relevant questions • Readily answer questions asked • Are enthusiastic! • Use appropriate terminology • Contributions are thought-provoking • Contributions balanced among opinions, general impressions, critiques and questions • Arrive fully-prepared • Raise questions / comments on material consulted outside of class • Actively listen (evident from comments that build on others' remarks and nonverbal cues) • Presence enhances the class dynamic • Consistently interact with lecturer(s) and peers 		CONSTRUCTIVE	PASSIVE / SOMETIMES INATTENTIVE	APATHETIC / DESTRUCTIVE
Other types of participation		4	3 to 3.5	2 to 2.5	0 to 1.5
	<p>ENTHUSIASTIC PARTICIPANT if you...</p> <ul style="list-style-type: none"> • Engage in the blog community often and constructively (comment on blogs of your peers) • Seize additional opportunities to participate (e.g., when asked to complete forms, give feedback on your peers' projects, etc.) 		MAKES A REAL EFFORT	COULD ENGAGE MORE	NEEDS AN OVERHAUL

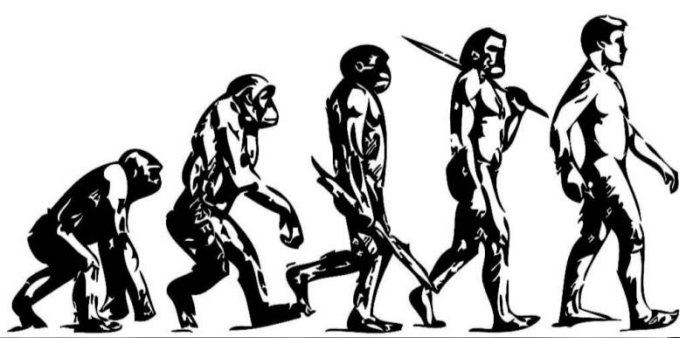
STUDENT NAME

YOU MAY POSITIVELY AFFECT YOUR PARTICIPATION GRADE BY:

1. Becoming more active and/or making more effective comments that raise overall level of discussion and set examples for others.
2. Asking thoughtful questions that will enhance discussion and engage your peers.
3. Listening carefully to, supporting, and engaging your peers in discussion. This improves everyone's learning experience.
4. Engaging with your peers as widely as possible (as opposed to with a small, select clique).
5. Participating enthusiastically in the course blog, i.e., supporting the work of your peers (and not just your friends).

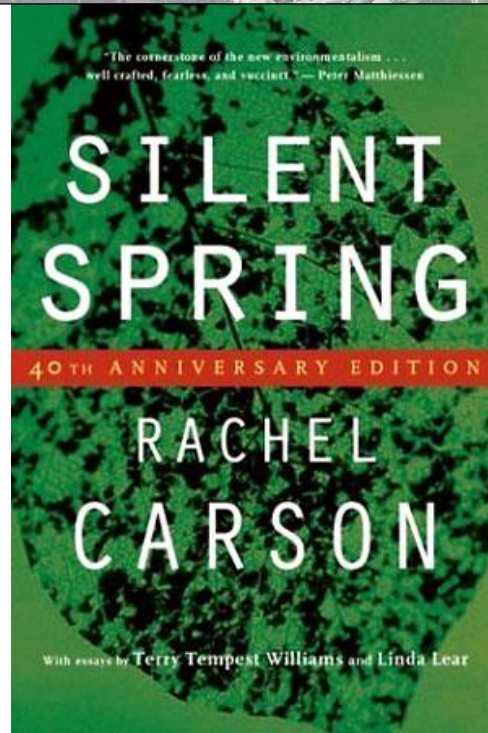
YOU MAY NEGATIVELY AFFECT YOUR PARTICIPATION GRADE BY:

1. Dominating class discussions, thereby restricting others' participation.
2. Disrupting others' opportunity to listen and/or participate.
3. Making negative, offensive and/or disrespectful comments.
4. Using electronic devices for reasons not related to the current class activities.
5. Sleeping, displaying overt disinterest.



ENV 1101 Environmental Studies – An Interdisciplinary Overview AY 2019/20

SCHEDULE OF TOPICS AND READINGS



WK	Topic(s) and <u>format</u> – subject to change/evolve	Hours		Relevant reading(s) and resources – subject to change; includes suggested resources that: we may refer to in class and you may consult beforehand
		lecture	tutorial	
SECTION 1 – PATIENT EARTH WITH A DISEASE (HUMANKIND)				
1	HOW WE TOOK OVER THE WORLD PT 1 <u>Interactive (active learning) lecture</u> <ul style="list-style-type: none"> Human evolution - traits that facilitated takeover 	2		READINGS <ol style="list-style-type: none"> Ellis (2015) Ecology in an anthropogenic biosphere. <i>Ecol Monogr</i> 85, 287-331. URL. Sets stage for section 1. Klein (2009) Darwin and the recent African origin of modern humans. <i>PNAS</i> 106, 16007-16009. URL. Marean (2015) The most invasive species of all. <i>Scientific American</i> 313, 32-39. On LumiNUS. Pontzer (2012) Overview of Hominin Evolution. <i>Nature Education Knowledge</i> 3, 8. URL. Shreeve (1996) Sunset on the Savanna. <i>Discover Magazine</i>. URL. VIDEO <ol style="list-style-type: none"> The Ape that Took over the World. 49-min. documentary. URL
2	HOW WE TOOK OVER THE WORLD PT 2 <u>Interactive (active learning) lecture</u> <ul style="list-style-type: none"> Late Quaternary Extinctions The three revolutions: Agricultural, Industrial, Green TUTORIAL 1 – SUSTAINABILITY VISION	2	4	READINGS <ol style="list-style-type: none"> Stuart (2015) Late Quaternary megafaunal extinctions on the continents: a short review. <i>Geol J</i> 50, 338-363. On LumiNUS. Diamond (2002) Evolution, consequences and future of plant and animal domestication. <i>Nature</i> 418, 700-707. URL. Evenson & Gollin (2003) Assessing the impact of the Green Revolution, 1960 to 2000. <i>Science</i> 300, 758-762. URL. The History Channel's website on the Industrial revolution - engaging resource with article and videos VIDEOS <ol style="list-style-type: none"> The Agricultural Revolution Crash Course – 10 mins. URL The Industrial Revolution Crash Course – 11 mins. URL Norman Borlaug & The Green Revolution – 8 mins. URL
3	THE CORE ISSUES <u>Interactive (active learning) lecture</u> <ul style="list-style-type: none"> Overpopulation Overconsumption Quantifying our impacts The Anthropocene 	2		READINGS (textbook Ch 4) <ol style="list-style-type: none"> Roser & Ortiz-Ospinoza (2018) World Population Growth. Interactive resource by Our World in Data. Rosa et al (2004) Tracking the anthropogenic drivers of ecological impacts. <i>Ambio</i> 33, 509-512. On LumiNUS. Kitzes et al (2008) Shrink and share: humanity's present and future ecological footprint. <i>Trans R Soc B</i> 363, 467-475. URL. Steffen et al (2011) The Anthropocene: from global change to planetary stewardship. <i>Ambio</i> 40, 739-761. URL. Ehrlich & Ehrlich (2013) Can a collapse of global civilization be avoided? <i>Proc Royal Soc B</i> 280, 20122845. URL. VIDEO <ol style="list-style-type: none"> Welcome to the Anthropocene – 3 mins. URL

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		lecture	tutorial	
SECTION 2 – THE SYMPTOMS – ENVIRONMENTAL IMPACTS OF HUMANS				
4	<p><u>Interactive (active learning) lecture</u> Impacts on land and soil</p> <ul style="list-style-type: none"> • Land use / land cover change – emphasis on deforestation • Land degradation • Soil degradation <p>TUTORIAL 2 – LEARNING JOURNEY 1 TO SKYGREENS – WILL LIKELY BE MOVED TO THURSDAY OF WK 6 (for logistic reasons) – STAY TUNED</p>	2	4	<p>READINGS (textbook Ch 7)</p> <ol style="list-style-type: none"> 1. Hooke & Martin-Duque (2012) Land transformation by humans: a review. <i>GSA today</i> 22, 4-10. URL 2. Venter et al (2016) Sixteen years of change in the global terrestrial human footprint and implications for biodiversity conservation. <i>Nature Comm</i> 7, Ar 12558. Updated knowledge since ref 1 above, but using same data source. URL 3. Ellis (2011) Anthropogenic transformation of the terrestrial biosphere. <i>Trans R Soc A</i> 369, 1010-1035. URL 4. Foley et al (2005) Global consequences of land use. <i>Science</i> 309, 570-574. URL 5. Amundson et al (2015) Soil and human security in the 21st century. <i>Science</i> 348, 1261071. URL <p>VIDEOS</p> <ol style="list-style-type: none"> 1. The Value of Soil – 4,5 mins. URL 2. Cambodia - Deforestation and Land Degradation by UNDP – 4,5 mins. URL
5	<p><u>Flipped classroom (e-lecture + activity)</u> Atmospheric impacts</p> <ul style="list-style-type: none"> • Air pollution • Ozone depletion • Climate change 	2		<p>READINGS (textbook Ch 9, 10)</p> <ol style="list-style-type: none"> 1. Daly & Zannetti (2007) An introduction to air pollution – definitions, classifications, and history. In <i>Ambient Air Pollution</i>, Zannetti et al, Eds. URL 2. Woodford (2018) Air pollution. Short article from Explain that stuff! 3. Nunez (2019) Climate 101: Air Pollution. <i>Nat Geo</i>. Short article with 3,5 minute video. 4. Sivasakthivel & Reddy (2011) Ozone layer depletion and its effects: a review. <i>Int J Environ Sci & Devel</i> 2, 30-37. URL 5. Bedford & Cook (2013) Agnotology, scientific consensus, and the teaching and learning of climate change: a response to Legates, Soon and Briggs. <i>Sci & Educ</i> 22, 2019-2030. On LumiNUS. <p>SOME CREDIBLE & UNBIASED RESOURCES ON CLIMATE CHANGE</p> <ol style="list-style-type: none"> 6. IPCC. URL Pls read the Oct 2018 Special Report (summary for policymakers) 7. Climate change: evidence and causes. By the US NAS and the Royal Society. URL 8. Union of Concerned Scientists. URL 9. NASA Global Climate Change – Vital Signs of the Planet. URL
6	<p><u>Interactive (active learning) lecture</u> Impacts on inland waters</p> <ul style="list-style-type: none"> • Too much (flooding) • Too little (drought) • Water pollution • Special case of salt intrusion <p>TUTORIAL 3 – LEARNING JOURNEY 2 SATURDAY 14 SEPT TO SEMAKAU</p>	2	4	<p>READINGS (textbook Ch 11)</p> <ol style="list-style-type: none"> 1. Rogers (2008) Facing the freshwater crisis. <i>Sci Am</i> 299, 46-53. URL 2. Hoekstra & Mekonnen (2012) The water footprint of humanity. <i>PNAS</i> 109, 3232-3237. URL 3. Mekonnen & Hoekstra (2016) Four billion people facing severe water scarcity. <i>Sci Adv</i> 2, e1500323. URL 4. UNEP (2016) Snapshot Report of the World’s Water Quality. Nairobi, Kenya. 162 pp. URL <p>COMPREHENSIVE RESOURCE ON WATER SCARCITY</p> <p>VIDEO</p> <ol style="list-style-type: none"> 1. Water: Think Again – 17-min. TED talk by Kaveh Madani. URL

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		lecture	tutorial	
7	<u>Interactive (active learning) lecture</u> Marine and coastal impacts <ul style="list-style-type: none"> • Coastal development • Fisheries collapse/depletion • Coral reef degradation • Ocean acidification • Marine/coastal pollution 	2		READING World Ocean Review . Series of reports by many eminent scientists. Easy to understand. I suggest starting by skimming <i>WOR 1 (2010) Living with the oceans. A report on the state of the world's oceans</i> and just reading parts that interest you. Check out WOR 2 through WOR 5 for more in-depth info on specific topics. GREAT RESOURCE ON REEFS IN GENERAL. Explore the fisheries and coral reef modules. Easy to understand. VIDEO NASA The Ocean: A Driving Force for Weather and Climate – only if you need this background info. URL
8	<u>Interactive (active learning) lecture</u> Biodiversity loss – the 6 th extinction <ul style="list-style-type: none"> • Main drivers • The most vulnerable taxa • Biodiversity hotspots • Special cases (extreme taxonomic and geographic examples) TUTORIAL 4 – LEARNING JOURNEY 3 ON GREEN BUILDING – LIKELY TO SDE4 – STAY TUNED	2	4	READINGS (textbook Ch 5) <ol style="list-style-type: none"> 1. Good background info: Sodhi et al (2009) Causes and consequences of species extinctions. Pp 514-520 <i>In</i> Princeton Guide to Ecology (Levin, ed). URL 2. Barnosky et al (2011) Has the Earth's sixth mass extinction already arrived? <i>Nature</i> 471, 51-57. URL 3. Alternative to # 2 above, your choice: Ceballos et al (2015) Accelerated modern human-induced species losses: Entering the sixth mass extinction. <i>Sci Adv</i> 1, e1400253. URL 4. Dirzo et al (2014) Defaunation in the Anthropocene. <i>Science</i> 345, 401-406. URL 5. WWF (2018) Living Planet Report: Aiming Higher. Grooten & Almond (Eds). WWF, Gland, Switzerland. URL 6. For your interest only: Pearce (2015) Global extinction rates: why do estimates vary so wildly? URL VIDEOS <ol style="list-style-type: none"> 1. Biodiversity, ecosystems and ecological networks California Academy of Sciences – 9 mins., superb. URL 2. Science Today: Stopping Chytrid, Saving Frogs California Academy of Sciences – 4 mins. URL 3. The Scary American Bat Die-Off – 4.5 mins. URL 4. Endangered Hawaii – HD – about the threatened avifauna, 30 mins. (well-done if this interests you). URL
9	<u>Interactive (active learning) lecture</u> Human impacts <ul style="list-style-type: none"> • Basic material for good life • Security • Health • Social relations • Freedom of choice and action 	2		READINGS (textbook Ch 8) <ol style="list-style-type: none"> 1. Myers et al (2013) Human health impacts of ecosystem alteration. <i>PNAS</i> 110, 18753-18760. URL 2. Costanza et al (2014) Changes in the global value of ecosystem services. <i>Global Environ Chang</i> 26, 152-158. URL 3. Hsiang et al (2013) Quantifying the influence of climate on human conflict. <i>Science</i> 341, 1235367. URL VIDEOS Ecosystem services California Academy of Sciences – 9 mins., excellent . URL

WK	Topic(s) and format – subject to change/evolve (but not tremendously)	Hours		Relevant reading(s) – subject to change; includes suggested journal articles that: we may refer to in class and you MAY consult for additional understanding
		lecture	tutorial	
SECTION 3 – THE TREATMENT – SOLVING ENVIRONMENTAL PROBLEMS				
10	<u>Flipped classroom (e-lecture + activity)</u> Solutions – environmental mindsets <ul style="list-style-type: none"> • Biocentrism / anthropocentrism • Reductionism / holism • Ecosystem valuation • Sustainability TUTORIAL 5 – ENVIRONMENTALISM	2	4	READINGS <ol style="list-style-type: none"> 1. Bourdeau (2004) The man-nature relationship and environmental ethics. <i>J Environ Radioact</i> 72, 9-15. URL 2. Hunter et al (2014) The complementary niches of anthropocentric and biocentric conservationists. <i>Conserv Biol</i> 28, 641-645. On LumiNUS. 3. Schröter et al (2014) Ecosystem services as a contested concept: a synthesis of critique and counter-arguments. <i>Conserv Lett</i> 7, 514-523. URL OTHER RESOURCES <ol style="list-style-type: none"> 1. Nature Education (2014) Environmental ethics [Minteer, ed]. Nature Education Knowledge Project. URL 2. Murray Bookchin: Anthropocentrism versus biocentrism – a false dichotomy (2012). Climate & Capitalism. URL
11	<u>Interactive (active learning) lecture</u> Practice-based solutions <ul style="list-style-type: none"> • Legislation • Protected areas 	2		READINGS (textbook Ch 16) <ol style="list-style-type: none"> 1. Young (2011) Effectiveness of international environmental regimes: Existing knowledge, cutting-edge themes, and research strategies. <i>PNAS</i> 108, 19853-19860. URL 2. Watson et al (2014) The performance and potential of protected areas. <i>Nature</i> 515, 67-73. On LumiNUS. 3. Gill et al (2017) Capacity shortfalls hinder the performance of marine protected areas globally. <i>Nature</i> 543, 665-669. On LumiNUS.

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		lecture	tutorial	
SECTION 4 – SINGAPORE AND THE ENVIRONMENT – WRAPPING IT UP				
12	<u>Flipped classroom (e-lecture + activity)</u> Practice-based solutions (cont'd) <ul style="list-style-type: none"> • Sustainability certifications • Ecological restoration • Urban solutions • Curbing consumption and population growth TUTORIAL 6 – ENVISIONING A SUSTAINABLE FUTURE – PRESENTING YOUR GROUP PROJECTS	2	4	READINGS 1. <i>Any one</i> of the sustainability certification readings below (whatever interests you) <ol style="list-style-type: none"> Edwards & Laurance (2012) Green labelling, sustainability and the expansion of tropical agriculture: Critical issues for certification schemes. <i>Biol Conserv</i> 151, 60-64. On LumiNUS Bush et al (2013) Certify sustainable aquaculture? <i>Science</i> 341, 1067-1068. URL Lester et al (2013) Encourage sustainability by giving credit for marine protected areas in seafood certification. <i>PLoS Biol</i> 11(12), e1001730. URL Visseren-Hamakers & Pattberg (2013) We can't see the forest for the trees. The environmental impact of global forest certification is unknown. <i>GAIA</i> 22, 25-28. URL Vos & Boelens (2014) Sustainability standards and the water question. <i>Dev Change</i> 45, 205-230. URL 2. Vaughn et al (2010) Restoration Ecology. <i>Nature Education Knowledge</i> 3(10):66. URL 3. Fischer et al (2012) Human behavior and sustainability. <i>Frontiers</i> 10 , 153-160. URL
13	<u>Panel discussion</u> Singapore and the environment <ul style="list-style-type: none"> • SG's environmental history • SG's environmental impact, lifestyles & ecological footprint • SG's govt & the environment • Is environmental change possible in SG? Barriers and opportunities for environmental action in SG's socio-political environment 			READINGS Introductory chapters on SG and the environment in: Ng et al [Eds] (2011) Singapore Biodiversity. An Encyclopedia of the Natural Environment and Sustainable Development. Editions Didier Millet, 552 pp. <u>Possible panelists (subject to change):</u> Darren YEO (DBS) Zeehan JAAFAR (DBS) Matthias ROTH (GEOG) Joseph CHUN (LAW) Dan FRIESS (GEOG)