**Guidelines for developing good seminar discussion questions (BIOL 411, Winter 2021)**

Developing good questions is a fundamental critical-thinking skill. The best seminars and lectures are often focussed on addressing a clearly articulated, high quality, thematic question. Likewise, good writing is often based around synthesising your thoughts into a clear, focussed question that then becomes the basis for the argument or thesis statement or specific research questions or hypotheses. Thus, being able to develop good questions is a fundamental component of learning how to ‘think like a scientist’, but more widely, it is an important life skill for any citizen.

Seminar questions should be constructed so that they will likely lead to focussed, intelligent discussion that will move the seminar group toward some potential answer, or toward a more refined perspective on the issue/theme, or toward an even more refined question.

Study the assigned reading material carefully, and reflect on it. What really interests you about it, and why? Develop questions that would take you (and your audience) *beyond* the reading’s text. In other words, formulate a question, and then develop an answer... and use the ideas that arise in that initial answering process to further develop your original question so that is more refined, and probing, and therefore likely to lead to an interesting focussed discussion. This iterative cycle can be repeated multiple times. Good questions have the following features:

* Challenging – they contain ideas that are new and indicate an advance on what is stated in the text
* Original – they indicate clear deep thinking by the questioner, often including his/her own specific ideas
* Focussed/specific – they contain enough detail that they will narrow the discussion and constrain it from vague generalisations
* Rarely can be simply answered as Yes or No, without adding some explanation. For example, don’t ask the reader what ‘he/she thinks’ (e.g. Do you think.....?) - instead put in your own thoughts and then pose the question as an assertion (E.g. If.... , then why/what/how....).
* Concise – Keep your text as focussed as possible... text length is NOT correlated with question quality. Recommendation: If your question absolutely needs some introductory text (and it may not!!), keep it to **no more than 2-3 sentences at most, followed by just one single question.**
* Questions that begin with ‘Why?’, and sometimes with ‘How?’ are often particularly engaging, focussed, and effective in developing a good discussion.

**Some examples of good questions, or text from which good questions could readily be developed:**

1. If there are other civilisations out there on other planets in the Universe, and they are developing according to the principles of evolution by natural selection, what factors might make it not inevitable that they will all ultimately reach the same global environmental crisis point as our current civilisation?
2. People often look to technology to solve environmental issues instead of addressing the underlying behavioural problems at hand. In light of this, I worry that many people blindly put their faith in technology to come to the rescue while ignoring what is really needed: behavioural changes (i.e. consuming less). In light of this, do you think that publicizing the discovery of new energy recovery technologies for example does more harm than good? Or do you think that the public should be led to believe that technology can solve our world’s environmental problems?
3. Since the Industrial Revolution, humans have caused a dramatic *disconnect*within biodiversity. Man-made structures have replaced natural habitats, the removal of water bodies, the domestication and separation of species, and the melting of Arctic ice have significantly impacted the earth’s species. These destructive human activities have become so severe that scientists suggest that earth’s sixth mass extinction event is underway. Thus, will biodiversity ever be able to *reconnect* so long as humans are connected to it? In other words, will it take the disappearance of humans for the restoration of all the critical connections that Attenborough inferred?
4. After reading the papers circulated on indigenous perspectives, I started wondering about not only how we can use Indigenous philosophies but also about what the implementation of such philosophies would look like. With this in mind, how could we ethically use Indigenous philosophies to work towards sustainability without verging on an almost modern act of colonialism whereby we try to avoid undermining the grief and trauma of these communities or appropriating aspects of these cultures for our own benefit?
5. In the documentary “Surviving Progress” Ronald Wright talks about how civilization itself is a ‘progress trap’ in which the rapid rate of human change and innovation of technology, economy, and industrialization may seem beneficial in the short term, but ultimately leads to major problems due to its unsustainable nature, thus causing eventual collapse in the long-run. At the end of the film Wright suggests that humans will need to go against their natural instincts to correct this path and create a more equitable and sustainable world. However, would deconstructing civilization (a product of human “intelligence”) actually inactivate human nature’s want for continual progress? Or has the creation of civilization prevented humans from recognizing their animalistic instincts and their important connections to nature, such as their relationships to other organisms and spirituality?
6. A huge bias that David Attenborough holds is his perspective as a privileged white male and as a result, I have noticed that in his films (both a life on our planet and others) he can perpetuate a misleading, colonial rhetoric that plagues much of the western environmentalist narrative where we dictate the developing world without recognizing our own complicity in climate change. Those in the developed world and those governing it must also reflect and understand its positionality and complicity in the coming climate disaster. Shifting the blame onto the developing world and ignoring the root of the problem, as David seems to do sometimes, will not help in saving humanity. In terms of promoting restoration of biodiversity, is he doing more harm, than good?
7. Global planetary boundaries are interconnected in that when one is transgressed, so are the others. I wonder if the opposite could be true, where if we are able to solve one large issue and reverse the negative impacts, would the others be more likely to be resolved as well? Could the global crises essentially be solved by solely identifying and fixing on one main underlying issue (such as David Attenborough’s focus on the restoration of biodiversity?
8. The climate change section of the 2009 Global Planetary Boundaries paper mentioned the long-term climate feedback processes that will occur even after the atmospheric CO2 concentration has regained equilibrium, which will further the warming of the planet. At first I thought that highlighting this continued increase after reaching equilibrium is a strength of the paper because I believe many people don’t even think about this or are aware that this will occur. But is it actually a good or a bad addition in terms of motivating behaviour to address this global change issue, because many readers will feel overwhelmed by the enormous temporal scale of the problem?
9. “It’s such an appealing idea. So long as we keep human environmental impact’s within ‘planetary boundaries’ we can have business-as-usual without jeopardising the ability of Earth’s ecosystems to recover….Alas, all this is deeply flawed” says Stuart Pimm in a review of the Rockström 2009 Global Planetary Boundaries article. Rockström concludes with the following sentence: “The evidence so far suggests that, as long as the thresholds are not crossed, humanity has the freedom to pursue long-term social and economic development.” After reading this, I felt it was a bit contradictory to the whole theme of sustainability. What I take from this, is that as long as the impacts of our civilization’s activities are always just below an uncertain threshold, our society can continue as usual with its current lifestyle. However, would it not be more sensible to encourage substantial and profound changes in current living habits to ensure that the progression of human civilization is more sustainable and always well below the thresholds?
10. So much of climate change and irreversible damage to the environment seems to be embedded in capitalism. The main two questions that came to my mind while reading about the planetary boundaries were: will this proposed planetary boundary framework restrict development of under-developed countries? Is it unfair to propose such restrictions on these countries when the damage has been almost completely done by Westernized, capitalistic societies?
11. The 2015 Global Planetary Boundaries follow-up article indicated that economics is believed to be a science, one that has nothing to do with nature. Having a housemate who majors in economics, and just being at a school surrounded by so many people teaching and learning this "science", I think it is so important to highlight the problems associated with this assumption. Economics should in fact be based on the natural world since all our commodities (and realistically everything involving money) is associated with natural resources or ecosystem services. Since economics is just a social construct, should this field of knowledge be entirely restructured to incorporate nature and its influence on the economy. Isn’t this "science" another example of a progress trap that contributes to the polarization of wealth globally and locally?