**Guidelines for developing good seminar discussion questions**

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 synthesizing your thoughts into a clear focussed question which 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 reading material carefully. What really interests you about it, and why? Develop questions that would take you (and your audience) *beyond* the reading’s text. Good questions are:

* **Challenging** – contain ideas that are new and indicate an advance on what is stated in the text
* **Original** – indicate clear deep thinking by the questioner, often including his/her own specific ideas
* **Focussed/specific** – contain enough detail that they will narrow the discussion and constrain it from vague generalisations

**Some examples of really good questions based on readings in a previous version of this course are listed below**

Nuclear Energy - What are the implications of following the status quo of current energy use versus using nuclear energy as a sustainable resource?

1. Fear is introduced as a potent motivator for controlling behaviour. Currently, the paper presents fear being used in an anti-nuclear sentiment and how to dispel those fears. However, if we really wanted to convince the public, we should also use fear, that without nuclear energy, our society as we know it will collapse. The question then is, is it ethical to manipulate people on a large scale in order to do what is best for them, or to let nature run its course and if catastrophic events occur, accept them as evolution at work?

Household waste - Are consumer-based societies able to alter their wasteful behaviours to help sustainably manage and reduce the amount of municipal solid waste?

1. Is the collection of vast resources an instinctual behaviour of *Homo* *sapiens*? In the earliest of human societies, the more resources you had at your disposal, the better equipped you were to survive harsh conditions. How is a reduction in consumerism ever going to occur if we are inherently structured for the mass consumption and collection of resources?
2. In your focal article, there was some mention of exciting advancements in the realm of energy recovery from waste. For example, incineration of waste can reduce the volume of disposed waste by 90% (World Bank, 2012). The gases that are recovered from this thermal treatment are then used to create steam, which can be fed into a steam turbine to generate electricity. This is a very innovative and promising way of minimizing waste. However I am worried that these and other similar advancements in energy recovery will take away from the main issue of overconsumption and waste production. The notion that people often look to technology to solve environmental issues instead of addressing the underlying behavioural problems at hand, has been discussed at great length in our class. In light of this, I worry that articles like this one will allow readers to 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 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?

What can Biology tell us about our Future – Grogan, 2012.

1. In the passage “*What Biology Can Tell Us”*, it was mentioned that our current civilization now embodies the genes for denial, distraction, and escapism which draws our attention away from the impending crash of the Earth and the human population. It is also commonly brought up that we heavily rely on Science to solve our world problems. We spend so much time trying to change the course of environmental change, perhaps we should change humans themselves. Why is it ethical to change the living breathing things around us (genetically modified crops) but unethical to genetically modify humans to no longer possess traits of denial, and distraction? Is it still unethical if it is for the greater good of humanity and our long-term survival?
2. Should we avoid an inevitable crash? Humanity has evolved to become egocentric, greedy, and in turn wasteful. To change the course of evolution, and thus our ancestral instincts takes millions of years – unless of course there is a bottleneck. If there was a population crash, we can essentially start over and carve a more favorable path of evolution where those who conserve resources and live sustainable lives will prosper. Is this precisely what humanity needs?
3. Is our genetically engrained compassion for others ultimately the cause of Earth’s impending doom? If we imposed laws restricting reproduction (which we consider immoral and unethical), then a large majority of Earth’s problems in relation to overpopulation would be relaxed. Likewise, if we simply were not compassionate to those in other countries perishing from diseases irrelevant to us then perhaps this too would contribute to a more manageable population size. Is it more unethical to deny some of our overpopulated race equal rights, or to give equal rights and thus neglect the scientific facts that 10% of species on Earth are at risk of perishing if we do not change?
4. 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?