Species are ephemeral. The assemblage of creatures on Planet Earth has changed countless times over the ages as new groups evolved and others have perished. For example, mammal species typically last for around a million years\textsuperscript{1} - an eye blink on the geological time scale, and only a millimeter on our Timeline of Life. Are humans an exception to this pattern? Perhaps, but a string of bad luck or a series of poor decisions could lead to an existential catastrophe.

Fortunately, we have many thoughtful and talented citizens who can keep us safe in a perilous world

You Are One of These Heroes!

To start you off, we have compiled a list of several threats to human survival. Your task is to choose one of these as your nemesis and to fight this foe with the most powerful weapons available: SCIENCE & Library Research. We want to have most topics represented in each lab section, so we’re asking you to choose your four favorites on Sakai so that your Instructors can adjust things so that all threats are covered. If you’re concerned about some topic that we haven’t listed, please let your Instructor know – they might be open to adding it.

We suggest locating some popular articles on your topic to help you understand the nature of your problem. However your paper and argument must rely on scholarly articles written by scientists. Use Google Scholar to locate some scholarly articles that have addressed your topic. You’ll want to begin the process soon – The Library can help you obtain almost any scholarly article, but it can take some time, so plan ahead. Check with the Reference Librarians and consider using InterLibrary Loan as necessary. The main Library page can get you started, and the Reference Librarians are eager to help.

To advance your cause, use a ‘White Paper’ format. White Papers are brief documents designed to describe and outline a problem and to make specific recommendations on how to proceed. Purdue University’s Online Writing Lab can provide additional information on this style of writing: https://goo.gl/PScAZm We suggest you follow their recommended format.

Before doing the main paper, you’ll write a half page telling us what your White Paper will be about. For this part of the assignment, just imagine you’re writing an email to a smart friend telling them about your project.

The paper itself should have around four pages of text. You’ll add a few more pages for references, a title page, etc. Spend several paragraphs describing the problem, the impact on humans, and any proposed solutions. Keep in mind that your reader might not believe

\footnote{http://www.pbs.org/wgbh/evolution/library/03/2/1_032_04.html}
there is a problem at first, or that they might be too cheap, selfish, or lazy bother caring. CONVINCE THEM! Then write a concluding paragraph or two that makes and justifies a solid recommendation on how to proceed. Our future hangs by a thread. This is no time to be wishy-washy. Imagine that you are charged with actually solving this problem – the information available to you now is the best you’re going to have. Tell us what path we should follow to keep our species safe! There is no hedging and no ‘waiting for additional research’. WE MUST ACT NOW!2

You may use figures and tables if they are relevant. As with any document, you must cite your sources properly. We will provide additional information on how to do this below.

Some notes on Citations
You’ll be supporting your ideas with items from the scientific literature. Good scholarship requires that you cite things properly. The notes below should get you started.

Citations have two parts. First, you need to cite things in your text where it’s relevant. Second, you need to provide the complete reference at the end of your document in a ‘Literature Cited’ or ‘References’ section. There are many different possible formats. We provide examples of widely used styles below.

Part 1: In text citations: The author's name appears, followed by the year of publication of the article. Two variants of this style are used – use whichever variant fits your sentence structure best. The one variant mentions the authors’ names in the sentence and the date alone follows in parentheses:

“A complete description of these networks can be found in Meyerson and Mooney (2007).”

In the second variant, both author and date appear together in parentheses. This style accommodates multiple citations easily:

“Because climate change and land use can exacerbate the spread and effects of invasive species across scales (Dukes and Mooney 1999; Simberloff 2000), identifying invasion and curtailing the spread of invaders is an enormous ecological and societal challenge (Lodge et al. 2006).”

Notice the use of “and” to separate two authors and “et al.” to add after the first author if three or more authors wrote the cited material. A semicolon separates individual citations.

Don’t use page numbers in ‘in-text’ citations, and do not give full bibliographic information. Just the authors and the publication dates!

2 It’s possible that what we’re already doing is fine and/or that the risk isn’t real. It’s fine to argue that no action is necessary as long as you clearly describe the risk and argue for inaction thoughtfully and thoroughly.
Part 2: Literature Cited / References Section:
You need to provide a complete list of references at the end of your paper so that readers can locate the works you cite. The exact format varies and depends on the type of material you are referencing. Here are some examples:

**Journal article**


Notice that no capitalization is used in the title of the article (except for the first word and for proper nouns), and that italics indicate the journal name.

**Book**


Notice that book titles are not italicized. Only the first word of the title is capitalized, unless a proper noun appears in the title. The place of publication (New York) and publisher (Oxford University Press) follow the title, separated by a colon.

**Chapter in Book**


The word "In" appears before the editors' names. The abbreviation "Eds" means "editors".

Don’t list university affiliations or other miscellany in the references. Use web links ONLY when the article exists solely as a web document. In general, scientific papers will exist in paper journals, even if you’re finding them on the internet. So Volume / Issue / Page / Year info will be available. When it’s available, you may also include the DOI number at the very end of the citation.

For this particular exercise, the effort of finding and citing outside references will be rewarded more than any penalty for minor problems with your reference style. Try your best and don’t be lazy and it’ll be fine. In addition to being a great resource for locating scholarly papers, Scholar.Google.com has tools for exporting references in different styles.
List of Topics
Evolution of antibiotic resistant pathogens in humans
Ocean acidification
Evolving Artificial Intelligence
Hypersalinity of soils from centuries of irrigation
Human Overpopulation (population bomb)
Asteroid / Meteor
Lost genetic diversity in food animals
Lost genetic diversity in food plants
Topsoil Crisis
Peak Phosphorous
Grey Goo
Genetic Engineering - plants
Genetic Engineering - animals
Genetic Engineering - bacteria
Genetic Engineering - altered viruses
Land Degradation and Deforestation
Air Pollution (not greenhouse gasses, everything else)
Nuclear Winter
Loss of honeybees and other pollinators
‘New’ diseases affecting humans
‘New’ diseases affecting farm animals and plants