Histories of World-making through Science, Technology and Design

The Anthropocene was announced by geologists and scientists as the most recent period in Earth’s history. It is named for anthropogenic activity, which is characterised by the human species’ use of science and technology in altering the earth. While the temporal designations and meaningful boundaries of this classification are up for debate, the planetary dimension of ‘the Anthropocene’ has brought up the question of scale in the construction of history and the future. It has also brought up the impact of constructions of scale enacted through science, technology and design, that have made Earth a legible object.

This class explores the making of the world as planet through the critical notion of worlding, as expressed by feminist philosopher Donna Haraway, that looks at the world as material-semiotic worlds in which “natures, cultures, subjects and objects do not pre-exist their intertwined worldings” (2016). It explores histories of how some forms, ideas and practices of science, technology and design – as seen in the development of the ecological and colonial botanical sciences, industrial technology and infrastructure, modernist architectural, urban planning and media environment design, the post-World War II
military-industrial complex, and planetary science – have projected, shaped and produced the world/planet as systems of knowledge, sociotechnical imaginaries and controllable environments from the 19th century onwards. We will also look at how worlds are reimagined or reconstructed in analysing visual texts, a climate change speculative fiction novel, and in engaging with readings from Science, Technology and Society studies.

Class format:
This is a seminar class. Class time will be devoted to lecture, seminar discussions based on the readings of the week, group presentations, preparation for assignments and to addressing questions.

Learning Objectives:
In this class, students will learn
- various arguments and critiques pertaining to the categorisation and interpretation of ‘the Anthropocene’
- ways in which forms, ideas and practices of science, technology and design have historically shaped the world/planet as systems of knowledge, sociotechnical imaginaries and controllable environments, and the histories behind them
- how to analyse and contextualise visual/literary texts and material objects and practices as cultural objects of study and as cultural history
- how to use various disciplinary methods and perspectives to construct a historical argument and a ‘global’ history
- how to theorise and critique the relationship between the past, present and the future with respect to various ideologies and applications of science, technology and design

Assessments and Expectations:
- Museum Review – 15%
- Group presentation – 20%
- Reading responses – 20%
- Final essay – 45%

Museum Review – 15%
Students will publish a blogpost/web entry that reviews the Lee Kong Chian Natural History Museum. The blogpost/entry should be of approximately 300 – 500 words and should feature at least one image. The review should reflect your overall impression of the curation and design of the Museum in relation to its context, and an analysis of one or two exhibits or features of the site. The review should be published online by the 4th of February 2021, Thursday, 11.59pm.
Group Presentation – 20%
In groups, students will provide a 15 – 20 minute presentation on the history of a chosen object/ image/ entity (living, inanimate, etc.) as part of a curated exhibition or an atlas on the ‘Anthropocene.’ The presentation will take place during the seminar.

The presentation should include an introduction to the broader thematic framing of their proposed exhibition/atlas that explains what their conceptualisation of the ‘Anthropocene’ is. It should also involve a visual and/or material component (either presentation slides or webpage or other visual presentation forms) to communicate the history of the object/image/entity within the exhibition/atlas. This history should be based on primary and secondary sources.

Here are some readings/examples that you can refer to for initial inspiration:

- *A History of the World in Seven Cheap Things* by Raj Patel and Jason W. Moore
- *Feral Atlas* (featured in Week 13’s reading list)
- *A History of the World in 100 objects* (podcast) - [https://www.bbc.co.uk/programmes/b00nrt2/episodes/downloads](https://www.bbc.co.uk/programmes/b00nrt2/episodes/downloads)
- “Surfacing” by Nicole Starosielski, Erik Loyer, and Shane Brennan [http://surfacing.in/](http://surfacing.in/)

Reading response papers (20%)
Students will submit 2 reading response papers in the course of the semester of about 500 words each. Each paper should be a critical response to one or two readings assigned for the week and it should be submitted on the day of class in hard copy.

Final paper (45%)
Students will submit a 4000-word research paper at the end of the semester that focuses on the historical analysis of an entity or object of their choice. The paper should engage with both primary and secondary sources. It should also either engage with other
disciplinary methods/research, and/or engage with a topic area or theme of the class. Paper topics should be discussed and confirmed with me by the 9th of April 2021. The final paper is due by 16th April 2021, 11.59 pm.

Seminar policies

Seminar Attendance
The success of our collective learning in the class depends on your attendance and participation in the seminar. You should come prepared for each class having done the assigned reading, and you are expected to contribute to discussion. If you are unable to attend seminar, you should have a medical certificate to account for your absence. I will also require that you complete specific tasks to make up for the seminar absence.

Assignment Submission Policy
Late submissions will be subjected to a deduction of 10% of the full number of points for every 24 hours block or part thereof (i.e. submitted any time within 24 hours after deadline: -10%; within 48 hours after deadline: -20%; within 72 hours: -30%, etc.). Late submissions will not be accepted for grading after a week. Extensions will only be considered with respect to extraordinary circumstances, and they will not be considered within a week of the assignment deadline.

Academic Integrity & Plagiarism
This class follows NTU’s Academic Integrity Policy, and academic misconduct and plagiarism will not be tolerated in this class. If you are unsure of what plagiarism entails, please approach me.

Readings for the course:
The assigned readings for the class will mostly be available for download either on the class site, or from the NTU library. Readings that are available on the Internet should be accessible through the urls stated in this syllabus. You will be required to obtain the following book on your own:


This book should be available on various formats (e.g. paperback, Kindle) through Amazon, Book Depository and other booksellers.

The readings for this class are thematically organised and I have included some references for further reading. Please discuss with me if you would like recommendations for further reading about certain topics.

There might be changes to the reading schedule in the course of the semester. I will inform you beforehand of any changes to the reading schedule.
Reading schedule:

**Week 1 (15th January 2021) - History and/in ‘The Anthropocene’**


**Further reading:**


Natasha Myers, “From Edenic Apocalypse to Gardens against Eden: Plants and People in and after the Anthropocene” in *Infrastructure, Environment and Life in the Anthropocene*, 115-148


**Week 2 (22nd January 2021) – A Global World (Seminar hours will be rescheduled)**

Lee Kong Chian Natural History Museum (https://lkcnhm.nus.edu.sg/)


Further reading:

**Week 3 (29th January 2021) – Knowing and Constructing the World in the 19th Century through Science**


*Museum review due online by 4th February 2021, 11.59pm*

**Week 4 (5th February 2021) – Colonial Knowledge in the 19th century and its legacies**


Further reading:


**Week 5 (12th February 2021)** – No seminar (Chinese New Year)

**Week 6 (19th February 2021)** – Infrastructure and the built environment in the 19th to 20th century

Devyani Gupta, “Stamping Empire: Postal Standardization in Nineteenth-Century India” in *Global Scientific Practice in an Age of Revolutions, 1750 – 1850* (2016), 216-234


**Further reading:**


Ashley Carse, *Beyond the Big Ditch: Politics, Ecology and Infrastructure at the Panama Canal* (MIT Press, 2014)


**Week 7 (26th February 2021) The Global Order of the Cold War**


The World Game (https://worldgameworkshop.org/brief-history)

*Whole Earth Catalog* (1968)


C.A. Doxiadis (1964) “Ekistics, the science of human settlements”


**Further reading:**


*Powers of 10 and the Relative Size of Things in the Universe* (1977) - Charles and Ray Eames

Ryan Bishop, “The Eames Office, the Cold War and the Avant-Garde: Making the Lab of Tomorrow,” *Theory, Culture and Society*, October 13, 2020


**Mid-Semester Break (5th March 2021)**

**Week 8 (12th March 2021) Militarisation and the Environment: Simulation and Securitization**


Peter Galison, “War Against the Center” *Grey Room* 4 (Summer 2001): 6 - 33


**Further Reading:**


Week 9 (19th March 2021) Planetary Design (I) – Visualizing Futures


Daniel Rosenberg, “The Trouble with Timelines” (Interlude IV) in Histories of the Future, eds. Daniel Rosenberg and Sandra Harding (Duke University Press, 2005), 4 - 17


Further reading:
Containment (2019) (documentary)


Week 10 (26th March 2021) Planetary Design (II) – Space and Speculation

Peder Anker, “The Ecological Colonization of Space,” Environmental History 10 (2005): 239 - 265


**Further reading:**

*Spaceship Earth* (documentary)

*Making New Worlds* podcast (https://makingnewworlds.com/)


“Earth-like: Design Your Planet” (http://www.earthlike.world/)

**Week 11 (To be rescheduled) – ‘Smart’ environments**


**Further reading:**


**Final paper topics to be discussed and confirmed by the 9th of April.**

**Week 12 (9th April 2021) Climate Change Near-Futures**

Kim Stanley Robinson, *Ministry of the Future*

**Further reading:**

Week 13 (16th April 2021) Reimagining the Present and Future


Michelle Murphy, “Some Keywords Towards Decolonial Methods: Studying Settler Colonial Histories and Environmental Violence from Tkaronto,” History and Theory 59 (3) (September 2020), 369-375.

Feral Atlas https://feralatlas.org/

Final paper due 16th April 2021, 11.59pm