

## GLOBAL WARMING: THE SCIENCE AND ITS IMPLICATIONS—COURSE OUTLINE Evening School, Semester 2, 2008

Convened by Philip Sutton

### COURSE SUMMARY

Did you know that, based on recent observational data, it is quite likely that the Arctic ice cap will have completely melted by 2012, leaving the Arctic Ocean fully free of ice in summer? This course is designed for non-specialists wanting to develop a detailed sense of how the climate system works and an effective grasp on the scientific controversies surrounding climate science – the debates between the sceptics, the IPCC consensus science and the beyond-IPCC science. The course also looks at what decision-making systems should be applied and what goals should be set for action to address the full gamut of climate-related maladies. How do ethics and risk management strategies apply? And finally, if the threat of climate change is as serious as much climate science suggests, how should this be handled?

### STRUCTURE OF COURSE

#### Week 1

- Arctic Ice - The Big Melt
- Dynamics of Arctic climate, knock-on warming effects of large-scale ice-loss

#### Week 2

- Arctic Ice - How did we lose it?

#### Week 3

- Climate Science and Its Antagonists:
- IPCC science, non-IPCC science, denialism

#### Week 4

- The Dilemmas of Inaction - Part I: What are the foreseeable consequences of failing to return earth's climate to stable safe conditions?

#### Week 5

- The Dilemmas of Inaction - Part II

#### Week 6

- Puzzles of Climate Science
- Short student presentations (optional) on a particular problematic of climatology, ecology, earth science, etc.

#### Week 7

- Problems of Timing
- Tipping points and avoiding them. What constitutes irreversible damage to climate systems? When does runaway greenhouse warming set in?

#### Week 8

- Prevention and Recovery - part 1: Aims
- Goals for avoiding dangerous climate change and achieving a safe climate

#### Week 9

- Prevention and Recovery - part 2: Science
- Zero emissions, CO<sub>2</sub> draw-down, direct cooling, natural and engineered

#### Week 10

- How to be a skilled amateur climate science researcher (presenter: David Spratt)

#### Week 11

- Climate Science - Planning and Action
- Short student presentations (optional) on tackling a climate-related issue of immediate importance

#### Week 12

- Conclusion. The Sustainability Emergency
- Reflections on business-as-usual and the imperative to surmount it

## SUGGESTED READING

D.Spratt and P.Sutton, *Climate Code Red: The case for a sustainability emergency* (available on-line: <http://www.carbonequity.info/climatecoded/5keys.html>)

Kump, Kane and Casting, *Earth Science*

G.Monbiot, *Heat: How to stop the planet burning*

T.Flannery, *The Weather-makers*

M.Lynas, *Six Degrees*

F.Pierce, *With Speed and Violence*