UNIVERSITY COLLEGE LONDON
SCIENCE, WARFARE AND PEACE
COURSE OUTLINE

HPSC 3002
Autumn Term 2008

Course Convenors:
Dr Jon Agar
Dr Brian Balmer

About this course

This course investigates the relationship between science, technology and war, primarily using intellectual tools from history, philosophy and sociology of science. The course explores military science and technologies in their social, political and historical context, and focuses mainly on the twentieth century. The course is organised around a number of ‘big questions’ about science, warfare and peace:

- Is science peaceful or aggressive?
- Do new technologies change the way wars are fought?
- What are the sources of new military technology?
- Is war good for science?
- Are scientists responsible for the weapons they research?
- Who counts the dead?
- How can scientists contribute to peace movements?
- Can weapons of mass destruction be uninvented?
- How is military science and technology changing?
- Are humans naturally warlike?

As well as thinking about how science, technology and warfare have shaped each other, we will also consider the changing role of the scientist in relation to the state. The course will also consider broader themes such as arms control, ethics, popular culture and the body in relation to war.

By the end of this course you should:

- Be able to apply critical thinking to understanding issues around science, technology, war and peace.
- Possess an understanding of the duties and responsibilities of scientists involved in military research
- Have developed detailed knowledge of the history and governance of modern military technologies.
About the Department

You are advised to familiarise yourself with the departmental Student Handbook and consult them on all procedural matters. The notes are available on the departmental web-site at http://www.ucl.ac.uk/sts/

Lectures

Lectures will take place on Tuesdays 2-4pm (first hour in Roberts 110, second hour in Foster Court 220 until reading week and Foster Court Biology Seminar Room after reading week)

Reading:

The notes that you take in lectures will not be detailed enough to understand a topic or to write an essay on that topic. It is therefore essential that you make use of the reading lists. In essays you are expected read widely and to use (and make reference to) material in addition to that labelled essential reading. You may use material that is not on the reading list but use all readings critically - you don’t necessarily have to agree with everything you read.

Where to find the reading material

No one text covers this course. Most of the required and optional reading material is kept in the DMS Watson science library. Unless otherwise marked, assume journal articles are available online through the library Electronic Journals link. Material in the teaching collection is marked [TC nnnn] in this outline and is usually available on-line through the library or in a few cases you will need to get the material from the issue desk. All of the seminar readings, unless otherwise noted, can be accessed electronically through the library.

There is also useful material kept in Senate House Library which you can use with a UCL Identity Card.

You are also encouraged to use the Wellcome Library. The Service is a reference library with a large collection of science policy material - including some material on chemical and biological warfare.

You are also encouraged to use the internet for research. However make sure you reference the full web address, the site title and date visited. Be critical of what you read. Be very careful of purely descriptive sites, such as Wikipedia – we are looking for analysis and argument in your essays not just re-hashing basic information. Also note that plagiarism, particularly involving internet sources, will be treated as a severe exam irregularity.

Attendance

There will be either two lectures or one lecture and seminar each week. Attendance at both is a course requirement. Anyone who misses more than four lectures or seminars will be asked to provide an explanation via their tutor. Anyone who fails to provide an adequate documented explanation may be declared INCOMPLETE for the course.
Assessment
This term’s course will be assessed on the basis of one essay of 3,000-3,500 words worth 50%, and a written exam worth 50%. An abstract for the essay is due by reading week (see end of this syllabus for guidance).

If you are not used to writing essays then you should also read chapter 5 of A. Northedge’s The Good Study Guide.

The due dates for the assignment are:

| Essay Abstract | 31st October 2008 |
| Essay          | 15th December 2008 |

Work should be handed in via the Turn-it-in system, as well as a hard copy to either Dr Balmer’s or Dr Agar’s pigeonhole; no hard copy essay will be accepted unless accompanied by a completed Course Work Submission Sheet (available from the departmental office). Do not e-mail coursework direct to us without prior permission.

Late essays will be penalized: up to one week late, five points will be deducted; up to two weeks late, eleven points will be deducted; after two weeks essays will not be marked.

Completion of the course requires that coursework assignments be submitted. Any student who has not completed all coursework assignments (abstract and essay) may be refused permission to sit the exam paper.
Schedule of Lectures

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<th>Week</th>
<th>Question</th>
<th>Lecturer</th>
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<tr>
<td>1</td>
<td>Is science peaceful or aggressive?</td>
<td>BB/JA</td>
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<td>2</td>
<td>Do new technologies change the way wars are fought?</td>
<td>JA</td>
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<td>3</td>
<td>What are the sources of new military technology?</td>
<td>BB</td>
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<td>4</td>
<td>Is war good for science?</td>
<td>JA/BB</td>
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<td>5</td>
<td>Are scientists responsible for the weapons they research?</td>
<td>BB</td>
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<td>6</td>
<td>READING WEEK</td>
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<td>7</td>
<td>Who counts the dead?</td>
<td>JA</td>
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<td>8</td>
<td>How can scientists contribute to peace movements?</td>
<td>JA</td>
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<td>9</td>
<td>Can weapons of mass destruction be uninvented?</td>
<td>BB</td>
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<td>10</td>
<td>How is military science and technology changing?</td>
<td>JA/BB</td>
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<tr>
<td>11</td>
<td>Are humans naturally warlike?</td>
<td>BB</td>
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General Background Reading

These are readings that you would not necessarily expect to learn for the essay and exam, but may be worth reading quickly as they contain useful background material - particularly if you feel there is a gap in your knowledge.


Introduction to course (BB).

Lecture (JA) will review some of the broad ways science has been seen to be a peaceful, aggressive or neutral activity, including themes such as: the scientific method is destructive; science as masculine is aggressive; science is neutral; science is international and therefore peaceful; science is a disinterested inquiry into nature; science is a force for good; military science is a perversion of science.

Seminar Reading:
None

Essential Examinable Reading


Very useful, if compressed, summary of relationships between science, technology and war


Another overview.


Some useful insights on relationships between science and war.

Additional Reading for Essays


For the argument that the version of the scientific method successful in the scientific revolution was masculine and destructive.
Lecture (JA) will review the main lines of argument concerning the relationships between technologies and warfare. Examples will include the stirrup, firearms, machine gun, aircraft and the atomic bomb. Some themes addressed include mass killing, impersonalisation, bureaucratization, and “decisive weapons”.

**Seminar Reading:**


**Essential Examinable Reading**


Argues that low-tech, “low-intensity” warfare is returning to prominence


Sceptical look at innovation

**Additional Reading for Essays**


For the stirrup case.


Makes the challenging argument that the holocaust arose not from aberrations in German culture and society, but from normal and pervasive features of modern society, especially bureaucracy and scientific-technical rationality (If you’re brave, dip into chapter 7 for a theoretical development of this argument.)


An insider’s account of the worldview of the nuclear strategy bureaucrat. Fits well with Bauman’s analysis.

Sociological analysis of nature of modern warfare and its relationship to the development of capitalism and the state.


See chapter two for a discussion of the war images are sanitized.


The machine gun exemplifies the industrialisation and depersonalisation of warfare.


On metaphors of war as a machine, and the linage of mass produced killing to industrialized warfare.


First World War as cultural shock.


Technology just one of the factors behind the severity and nature of 20th century warfare.
Week 3  14th October 2007

What are the Sources of New Military Technology?

Lecture (BB): Where does new military technology come from? What role does science play in the invention of new military technologies? What does it mean to claim that a technology is ‘socially shaped’?

Seminar Reading:


Essential Examinable Reading


If you have not taken the first year course: Introduction to Science Policy Studies, you should also read the introductory essay in the book (pp.3-27).

Additional Reading for Essays


Not specifically about social shaping, but general and accessible introduction to theories of the arms race.


Specific Case Studies Discussed in the Lecture:


On the origins of the Internet.


This seems like a huge article, most of it is footnotes though – skim it through to get the general message.


Week 4 21st October 2008

Is War Good for Science?

Lecture (JA/BB): Wars can pour resources into science, but is war ‘good’ for science? What are the many ways ‘good’ can be interpreted in this case? We will look at questions such as: how significant is military funding for science?, is military science different from civil science?, does secrecy impede science?, in what ways is human experimentation different in military or civilian settings?

Seminar Reading:

Essential Examinable Reading
David K van Keuren, ‘Cold War science in black and white’, Social Studies of Science 31(2), April 2001, pp207-252

Shows how science in the cold war was the result of negotiation between scientists and military patrons, and reflected both sets of interests

Additional Reading for Essays

Also browse the articles

Also see other articles in this special issue, eg Roger L. Geiger, ‘Science, universities and national defense, 1945-70’.

Traces the increasing paranoia of the Cold War national security culture and how scientists were increasingly constrained by security regulation. Interesting parallels to today’s climate of ‘homeland security’.


Discussion of secrecy and how it affects the conduct of open air experiments


Argues that the material body parts from bomb victims, and the way they are (mis)treated, are a way of ‘instantiating’ (i.e. making concrete) abstract ideas such as victory in war).


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**Week 5  28th October 2008**

**Are Scientists Responsible for the Weapons they Research?**

Lecture (BB). This lecture will explore two senses of this moral question. What are the responsibilities of scientists doing research on weapons? Secondly, are scientists responsible for how those weapons are used? The lecture will explore how scientists have dealt with these issues during the 20th Century.

**Seminar Reading:**

Steven Shapin, ‘Don’t let that crybaby in here again’, London Review of Books, 7 September 2000, online at: http://www.lrb.co.uk/v22/n17/shap01_.html


**Essential Examinable Reading**

Analyses physicist J. Robert Oppenheimer’s views on the moral responsibility of the scientist, his initial opposition to the development of the hydrogen bomb, and the political backlash he faced during the McCarthy era.

Additional Reading/Watching for Essays

http://www.pbs.org/wgbh/amex/weapon/program/index.html


Big biography. Check out Chapter 24: “I feel I have blood on my hands”


Anthropological investigation of nuclear weapons laboratories.


This book is reviewed in the Shapin reading


Looks at responsibilities of civilian rather than defence scientists.


Week 6

READING WEEK
Lecture (JA) on counting in wartime, including: the way rationality can backfire (case study: Operation Igloo White), the politics of counting civilian versus military casualties; we will also see excerpts from the Erroll Morris documentary *Fog of War* about arch-bureaucrat Robert McNamara.

**Seminar Reading:**


On Igloo White, and thoughts on ‘containment’.

**Essential Examinable Reading**


Carol Cohn, ‘Sex and death in the rational world of defense intellectuals’, *Signs* (1987) 124, pp.687-718

An excellent discussion of the way that language shapes how nuclear weapons are dealt with

**Additional Reading for Essays**


Looks at how different organisational factors resulted in very different assessments by groups of defence planners of the damage that would be caused by a nuclear attack.


Looks at whether non-lethal weapons are so innocent when it comes to counting the dead.
Lecture (JA): during the Cold War both peace movements and strategic think-tanks presented themselves as rational responses to nuclear warfare. We look at the contrast, taking RAND as a case study of the latter and the anti-nuclear movements as examples of the former.

For the seminar we will be joined by Sandy Butcher (Pugwash UK)

Seminar Reading:

Browse the following websites. Take notes on the activities, past and present of the Pugwash movement. What are the advantages and disadvantages of Pugwash’s approach to peacemaking? On the basis of your notes, compose three questions you would like answered about Pugwash.

http://www.pugwash.org/
http://www.pugwash.org/uk/

Essential Examinable Reading


Additional Reading for Essays


For anti-nuclear movements in the UK.


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**Week 9  25th November 2008**

**Can Weapons of Mass Destruction be Un-invented?**

Lecture (BB): what factors guide the proliferation of weapons of mass destruction (atomic, biological and chemical weapons)? How can we prevent the spread and use of weapons of mass destruction? What role do international treaties play?

**Seminar Reading:**


**Essential Examinable Reading**


Jeanne Guillemin, *Biological Weapons: From State-Sponsored Programs to Contemporary Bioterrorism*, New York ; Chichester: Columbia University Press, 2005 (Chapters 1, 8 and 9)

**Additional Reading for Essays**


Examines the way in which threat is ‘framed’ in terms of dual-use.

Discusses former USSR bioweapons and what sort of knowledge might be needed to make and dismantle a weapons programme.


On the military and political circumstances under which CW weapons might be employed) [TC 2359]


On being a weapons inspector in Iraq

Week 10  2nd December 2008

How is Military Science and Technology Changing?

Lecture (JA and BB) will examine trends in science, technology and warfare in the twenty-first century. Examples may include cyber warfare, nuclear proliferation, asymmetric warfare, bioterrorism, and others.

Seminar Reading:

Scan recent newspapers and journals and bring along to class three articles relating to the changing character of twenty-first century warfare.

Essential Examinable Reading


About attacking infrastructure as a theme of modern warfare.
Additional Reading for Essays


This is an essay review of three books that identify changing trends in 21st century war


Where did Saddam acquire the products and know-how necessary to build his war machine?

Richard P. Hallion, Storm over Iraq: Air Power and the Gulf War, Washington: Smithsonian Institution Press, 1992

Rather gung-ho analysis of new technologies in the First Gulf War.

Special Issue of History and Technology (2003) 19(1)

Historians of technology reflect on 9/11.


Explores the convergence of the public health and military agendas, under the rubric of ‘biosecurity’, that has occurred since 9/11

http://www.guardian.co.uk/technology/2007/sep/05/hacking.internet

A useful place to start for thoughts and examples of cyber-warfare.

Good, provocative and short assessment of the threat from bioterrorism


Engaging academic travelogue through the world of military simulation


A long article, but the main message is about how ‘real’ a simulation needs to be in order to simulate reality, especially a reality that no one has ever experienced such as nuclear war.


An article about why big nations lose small wars.

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**Week 11  9th December 2008**

**Are Humans Naturally Warlike?**

Lecture (JA) will look at arguments from diverse disciplines, including anthropology, ethology and war studies, concerning the questions, are humans naturally violent? and are humans naturally warlike?

**Seminar Reading:**


**Essential Examinable Reading**


**Additional Reading for Essays**


Review of anthropological literature on warfare, with many further references, including to supposed chimp wars

More ethology.


Steven Rose (2003), Lifelines: Life beyond the Gene (Oxford: OUP)
      See ‘aggression’ in the index


Richard Tucker and Edmund Russell (eds.), Natural Enemy, Natural Ally: Toward an Environmental History of War, Oregon State University Press, 2004
ESSAY TOPICS FOR SCIENCE, WARFARE & PEACE

Part 1. Abstract

An abstract/overview of your essay is due by **Friday 31st October 2008**.

You will need to choose one of the questions posed by us as titles to each weeks lectures, which does not need to be one we have yet covered in the lectures.

You will need to have done some *preliminary* reading – the seminar reading and the essential examinable reading.

The weekly topic questions are very broad. To answer the question well in the form of an essay you will have to choose AND JUSTIFY a specific approach to answering the broad question. For example for topic one “Is science peaceful or aggressive?”, you might decide that the best illustration of the peaceful nature of science is its inherent internationalism, rather than, say, its destructive methodology, and so on. Your essay will then be a justification of this angle, and plenty of discussion of examples of this angle, based on your reading.

You should write a **250 word abstract/overview** of the topic you intend to cover. This is your justification and a sketch of possible examples.

This part of the assignment does not carry a mark but:
(a) you will be given recognition when we mark the assignment for thinking of an interesting question
(b) you will receive feedback on the abstract so that you know you are heading in the right direction for your essay (and for your question)

Part 2. Essay

Essays should be **3,000-3,500 words** long, *with references cited in the main text and a list of references at the end*. Do not cite material in the end references that you have not used in the main text. Essay font should be no smaller than 12 point type, essays should have page numbers, be double-spaced and include a word count at the end.

Please read the guidelines on how to write an essay. If you are not used to writing essays then you should also read chapter 5 of A. Northedge’s *The Good Study Guide*. 