Armed Force and Society: Social and Political Perspectives on Technology and National Security

Course teacher: Richard Brodie

Fridays 11-1
Weekly, except week 6
Venue: Lecture 1 Sydney Smith Lecture Theatre
The course in brief

The main focus of the course is sociological and political perspectives on the relationship between human societies and military technologies, which we explore via:

- discussion of a wide range of historical case studies and contemporary security issues
- discussion and analyses of the distinctive nature of military technologies and the way they are shaped by social and political factors
- analyses of the role played by military technology in shaping the nature and outcome of conflicts, as well as the nature of peacetime society
- investigation of the ways that knowledge about military technology is derived, and of the effects that high levels of military R&D have had on economic activity, and scientific agendas

The course involves a significant ‘research component’, so is assessed entirely by essays: there is no examination. Undergraduate and visiting-student assessment is via a 1,500 word mid-term essay (25% of the overall mark) and a 4,000 word final essay (75% of mark).

Don’t be alarmed by the size of this reading list! The essential readings for each week are modest in number and length (and are available through the University Library’s Electronic Journals page, directly from indicated web addresses, or electronically via LEARN). The readings indicated for these discussion sessions form the core of the course and reading beyond the essential readings is recommended, but the essential reading must be read prior to the classes. The lengthier lists of further readings are for those doing essays on the topic, and their length arises because I wanted to provide an introduction to the literature on each topic, leaving you free to choose what to focus on, rather than giving you prescriptive essays lists. Most of the journal articles indicated for further reading are available via the University Library’s electronic journals page.

The discipline of Sociology addresses a number of topics that some might find sensitive or, in some cases, distressing. You should read this handbook carefully and if there are any topics that you may feel distressed by you should seek advice from the course convenor and/or your Personal Tutor.

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<th>Assessment</th>
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Note: All course work is submitted electronically through ELMA. Please read the School Policies and Coursework Submission Procedures document for important information on submission procedures and assessment polices.
Objectives

The learning outcomes are that at the end of the course you will be familiar with and able to discuss:

- the key role that technology plays in many current security issues, including terrorism, proliferation of weapons of mass destruction, intervention and peacekeeping, and regional conflict;
- how the effects of military technology can be difficult to evaluate, and the important role played by testing;
- the nature of the weapons procurement process and how this relates to economic impacts and pressure to sell weapons to other nations;
- the role of science and technology in the Cold War;
- how the nuclear arms race developed, and Britain’s part in it.

Organisation of the Course

The Course is organised around a series of lectures, discussions, tutorials and debates. Each week there will be a lecture in the first hour followed by a discussion or seminar on an important question raised by that week’s topic. The questions are included in this handbook. It is essential that you are prepared for that discussion by doing the background reading. You may be asked to do a presentation as a group or debate a topic from a particular viewpoint. Tasks will be allocated on a week to week basis and all students will be required to contribute.

Contacting me

Please tell me as soon as possible if you are having any problems with the course, if you would find it helpful to have an individual chat about your presentation or essay topics, or if there are any other aspects of the course you would like to discuss with me.

Please email me if at r.brodie@ed.ac.uk you want to make an appointment to see me.

Course Secretary Shazia Leonard
Undergraduate Teaching Office (G.04/05)
School of Social & Political Science
Chrstal Macmillan Building
Shazia.leonard@ed.ac.uk
Reading List

‘Key’ readings are designed to tie in closely with lectures, so please read some of them before each session of the class. The essential readings are marked (*) and must be read before the class as they will form the starting point for the post-lecture discussion. All essential readings will be available either as journal articles via the University Library’s Electronic journals page or via LEARN.

‘Further’ readings are for those doing an essay on a particular topic. Don’t feel you need to read all of these for your essay, but equally don’t restrict yourselves to them: for an honours-level course such as this, you can do your own literature searches. The further readings below are intended to start you in this process by acting as a guide to the kind of literature available: they are not a definitive essay reading list.

Recent journal articles will normally be available electronically via the electronic journal holdings of Edinburgh University Library (http://www.lib.ed.ac.uk/): you’ll need to be logged in via EASE to get access to them. Unfortunately, some older volumes of journals are often not available electronically.

Please tell me if you are experiencing problems getting hold of any of the readings.

Useful overall readings

There is no course textbook; indeed there does not seem to be any single book that provides these kinds of sociological and political perspectives on military technology. The following are all useful in different ways.

Barry Buzan and Eric Herring, The Arms Dynamic in World Politics (Lynne Rienner Publishers, 1998) provides the best coverage of the theoretical issues dealt with in the course.

A good readable history, that we will draw on particularly in weeks 1 and 2, is Max Boot, War Made New: Technology, Warfare, and the Course of History: 1500 to Today (Gotham, 2006).


Week 1: Introduction to the Course. Air Power and Intervention: The Examples of Iraq, Afghanistan, Libya and Syria

After the lecture, you should be able to answer the following questions:

(1) Why do we need to consider more than just machines to understand the role of technology in warfare?
(2) In what ways can technology be seen as having social and political aspects?
(3) What can be achieved by airpower (distinguishing between ‘winning the war’ and ‘winning the peace’)?
(4) What are the main critiques of the ‘revolution in military affairs’ concept?

Discussion questions: has new technology made ‘intervention’ easier?; and, in your view, should we (the UK, EU, NATO, ‘the West’) intervene in other countries to:
(a) restore, create democracy;
(b) stop genocide;
(c) prevent the acquisition of weapons of mass destruction
(d) gain access to natural resources?

Key readings

PLEASE READ THOSE MARKED * BEFORE LECTURE

Many articles relating to the ‘revolution in military affairs’ can be found at: http://www.comw.org/rma/
Further reading


Donald C. F. Daniel, Peter Dombrowski, and Rodger A. Payne, ‘The Bush Doctrine is Dead; Long Live the Bush Doctrine?’ *Orbis* (Spring 2005), 199-212.


Andrew P. N. Erdmann, ‘The US Presumption of Quick, Costless Wars,’ *Orbis* (Summer 1999), 363-381.


Week 2: Nuclear Weapons and the Cold War: Deterrence and the Arms Race

After the lecture, you should be able to answer the following questions:

1. What drove the nuclear arms race, and why did the USA and USSR build thousands of nuclear weapons?
2. Does deterrence depend on rational state behaviour?
3. Are nuclear weapons usable?
4. What factors contribute to the risk of nuclear war?
5. What unintended consequences can result from arms control agreements?

Debate question: Should the UK disarm unilaterally?

Debate readings


Lecture readings


Michael Krepon, ‘Moving Away from MAD,’ *Survival*, Vol. 43, No. 2 (Summer 2001), 81-95.


Kenneth N. Waltz, ‘Nuclear Myths and Political Realities,’ *American Political Science Review*, Vol. 84, No. 3 (September 1990), 731-745.

**Further reading**


Desmond Ball and Jeffrey Richelson (eds.), *Strategic Nuclear Targeting* (Cornell University Press, 1986).


Stephen Twigge and Len Scott, Planning Armageddon: Britain, the United States, and the Command and Control of Western Nuclear Forces 1945-1964 (Harwood, 2000).
Week 3: Armed Force, War, and Societies

After the lectures, you should be able to answer the following questions:

(1) What does the idea of a ‘decisive weapon’ entail?
(2) How do technology and doctrine interact?
(3) To what extent has military technology changed the nature, not just of warfare, but also of the organisation of society?
(4) Is conflict an essential part of state development?

Discussion questions: What are the lessons of 1914 and World War I? Was technology decisive? Does history shape the present or vice versa?

Key readings


Further reading


See also the essays in Colin Creighton and Martin Shaw, The Sociology of War and Peace (Macmillan, 1987).

The classic account of the outbreak of WWI is Barbara Tuchman, The Guns of August also known as August 1914 (first published in 1962 by Constable, now available from Ballantine or Presidio Press).


Week 4: Proliferation of Weapons of Mass Destruction

After the lectures, you should be able to answer the following questions:

1. Would the spread of nuclear weapons to more nations be dangerous, or would it just mean more deterrence?
2. Why was there an inherent contradiction in the ‘atoms for peace’ policy?
3. Can nuclear weapons be uninvented, and if so, how, and to what extent?
4. What can be done about nuclear proliferation?
5. Why do some states choose to stay (or in the case of South Africa, go) non-nuclear?

Debate questions: Is the spread of nuclear weapons necessarily a bad thing?

Key readings

Tanya Ogilvie-White, ‘Is there a Theory of Nuclear Proliferation? An Analysis of the Contemporary Debate,’ The Nonproliferation Review (Fall 1996), 43-60. This is good review of theoretical positions.

Further reading


Weeks 5: Knowing the Properties of Weapons Through Testing and Use: the Case of Ballistic Missile Defence

After the lectures, you should be able to answer the following questions:

(1) Why is testing so fundamental to the development of many weapons technologies?
(2) Why are the results of tests always open to contestation?
(3) What is the ‘fog of war’ and how does it affect claims of efficacy based on use?
(4) Why is the question ‘will missile defence work?’ difficult to answer?

Discussion question: What were the missile defence ‘lessons’ of the 1991 Gulf War, and what does the Patriot experience tell us about the roles of testing and use in the development of weapons technology?

Key readings

* H. M. Collins and Trevor Pinch, Chapter 1 ‘A Clean Kill?: The Role of Patriot in the Gulf War’ (pp. 7-29) of The Golem at Large: What You Should Know About Technology (Cambridge University Press, 2002). [webct]

Further reading

* Dennis M. Gormley, ‘Missile Contagion,’ Survival, Vol. 50, No. 4 (Aug-Sept 2008), 137-154. Argues that cruise missile proliferation is a bigger problem than that of ballistic missiles, overlooked in the enthusiasm for BMD.
Richard L. Russell, ‘Swords and Shields: Ballistic Missiles and Defenses in the Middle East and South Asia,’ Orbis, Vol. 46, No. 3 (Summer 2002), 483-498.

Week 6: no class
Week 7: The Defence Industry and Arms Trade

After the lectures, you should be able to answer the following questions:

1. What is distinctive about the development of military technology?
2. Why are weapons so expensive?
3. Is quality always more important than quantity?
4. Is the ‘military-industrial complex’ a useful concept?
5. To what extent can high defence research and development provide useful civil ‘spin-off’?

Debate questions: Should we build weapons and sell them? If so, who to? If not, why not? Or should we buy them from someone else?

Discussion reading

Donald MacKenzie, ‘Science and Technology Studies and the Question of the Military,’ Social Studies of Science, Vol. 16, No. 2 (May 1986), 361-371 provides a neat summary of some of the key characteristics of defence technology.

Further reading


Weeks 8: Weapons Development: The Technical Imperative, Rational Actor, and Bureaucratic Politics

After the lectures, you should be able to answer the following questions:

(1) Why can weapons developments not be seen simply as the rational responses of states to external threats?
(2) Does technology drive the arms race?
(3) What is the role of inter-service rivalry?
(4) How can nuclear weapons decisions be conceptualised?

Discussion question: What best explains ‘arms dynamics’?

Key readings


Further reading


Week 9: Cold War Society – Science, Technology and Academia

After the lecture, you should be able to answer the following questions:

(1) Why did basic science become seen as important to military strength in the Cold War?

(2) What role have scientists had in fuelling/controlling the arms race? Does their expertise give them special status or responsibility?

(3) What is the role of expert (scientific) advice in defence policy-making?

(4) How did Cold War funding for academia affect the practice and the content of science?

Discussion questions: What, in your view, is the proper relationship between the state and its military and political objectives, and academia? Do scientists have a privileged position to either promote or oppose the development or use of weapons?

Key readings


John S. Rigden, ‘Eisenhower, scientists, and Sputnik,’ Physics Today, (June 2007), 47-52. Available at:
http://link.aip.org/getpdf/servlet/GetPDFServlet?filetype=pdf&id=PHTOAD000060000000600004700001

Further reading


Paul Forman and Jose Manuel Sanchez Ron (eds), National Military Establishments and the Advancement of Science and Technology (Springer, 1996).
Dominick Jenkins, The Final Frontier: Science, America and Terror (Verso, 2002).
Rebecca S. Lowen, Creating the Cold War University: The Transformation of Stanford (University of California, 1997).
Margaret Pugh O’Mara, Cities of Knowledge: Cold War Science and the Search for the Next Silicon Valley (Princeton University, 2004).
Zuoyue Wang, In Sputnik’s Shadow: The President’s Science Advisory Committee and Cold War America (Rutgers University Press, 2008).

Week 10: Terrorism and Technology

After the lectures, you should be able to answer the following questions:

(1) How does the changing nature of science and technology affect terrorism?
(2) Is terrorism now different than in previous times (eg the IRA, Baader-Meinhof gang, Red Brigade)?
(3) Does access to weapons of mass destruction pose a real terrorist threat?
(4) What role can technology play in preventing terrorism?

Discussion questions: To what extent is terrorism about technology or about people, and should the response to it be seen as a ‘war”? Consider your conclusions in relation to the threat of WMD terrorism?

Key readings

Gavin Philip H. Gordon, ‘Can the War on Terror Be Won” How to Fight the Right War,’ Foreign Affairs, Vol. 86, No. 6 (2007), 53-66.
http://polisci.osu.edu/faculty/jmueller/STEWJTS.PDF
Further reading


Robert W. Poole, Jr., ‘Improving Airport Passenger Screening,’ (Reason Public Policy Institute, September 2002). Available at: http://72.10.40.168/ps298.pdf


Peter J. Roman, ‘The Dark Winter of Biological Terrorism,’ *Orbis*, Vol. 46, No. 3 (Summer 2002), 469-482.


Week 11: Emerging Technology and Warfare: Cyber War and the Robot Revolution

After the lecture, you should be able to answer the following questions:

(1) What impact might cyber war technology have on the nature of conflict?
(2) Does it matter that robots are changing not just how war is waged, but also by whom?
(3) What might be the consequences of a robot arms race? Who would be empowered most?
(4) Will reduced risk of human death make war/intervention seem less costly, and therefore more likely?

Debate question: Should robots and drones be used wherever possible instead of humans in warfare?

Key readings (do some googling for up-to-date news coverage and check websites of some of these authors to see if they have new publications)

* P. W. Singer, Wired for War: The Robotics Revolution and Conflict in the 21st Century (Penguin, 2009). You can view a lecture by Singer at:
* Paul F. M. Zahl, Daniel M. Bell and Brian Stiltner, ‘Drones: Is it Wrong to Kill by Remote Control?’, Christianity Today (October 28, 2011). You can get this by googling.
Word Count Penalties

Your MID TERM ESSAY should be between 1400 AND 1600 words (excluding bibliography)*. Essays above 1600 words will be penalised using the Ordinary level criterion of 1 mark for every 20 words over length: anything between 1601 and 1620 words will lose one mark, between 1621 and 1640 two marks, and so on. You will not be penalised for submitting work below the word limit. However, you should note that shorter essays are unlikely to achieve the required depth and that this will be reflected in your mark.

Due on the 29/02/2016

Your LONG ESSAY should be between 3900 and 4100 words (excluding bibliography)*. Essays above 4100 words will be penalised using the Ordinary level criterion of 1 mark for every 20 words over length: anything between 4101 and 4120 words will lose one mark, between 4121 and 4140 two marks, and so on. You will not be penalised for submitting work below the word limit. However, you should note that shorter essays are unlikely to achieve the required depth and that this will be reflected in your mark.

Due on the 29/02/2016

Do not include your name anywhere on the essay but include your exam number at the top right hand corner on the first page of your essays. On the first page of both essays, give an exact word count for the essay, which your word processing software can provide (don’t include the bibliography in the count, since it does not form part of the word limit).

Discussing Sensitive Topics

The discipline of *Sociology* addresses a number of topics that some might find sensitive or, in some cases, distressing. You should read this Course Guide carefully and if there are any topics that you may feel distressed by you should seek advice from the course convenor and/or your Personal Tutor. For more general issues you may consider seeking the advice of the Student Counselling Service, http://www.ed.ac.uk/schools-departments/student-counselling
ELMA: Submission and Return of Coursework

Coursework is submitted online using our electronic submission system, ELMA. You will not be required to submit a paper copy of your work. Marked coursework, grades and feedback will be returned to you via ELMA. You will not receive a paper copy of your marked course work or feedback. For information, help and advice on submitting coursework and accessing feedback, please see the ELMA wiki at https://www.wiki.ed.ac.uk/display/SPSITWiki/ELMA. Further detailed guidance on the essay deadline and a link to the wiki and submission page will be available on the course Learn page. The wiki is the primary source of information on how to submit your work correctly and provides advice on approved file formats, uploading cover sheets and how to name your files correctly.

When you submit your work electronically, you will be asked to tick a box confirming that your work complies with university regulations on plagiarism. This confirms that the work you have submitted is your own.

We undertake to return all coursework within 15 working days of submission. This time is needed for marking, moderation, second marking and input of results. If there are any unanticipated delays, it is the course organiser’s responsibility to inform you of the reasons.

All our coursework is assessed anonymously to ensure fairness: to facilitate this process put your Examination number (on your student card), not your name or student number, on your coursework or cover sheet.

Important note to students

To ensure your course work is submitted successfully, students should aim to upload their submissions at least 1 hour before the deadline. Students are responsible for ensuring they have sufficient internet access and connection to submit their course work electronically. Technical difficulties and poor internet connection are not acceptable reasons for submitting work late. You should monitor your university student email account in the 48 hours following the deadline for submitting your work. If there are any problems with your submission the course secretary will email you at this stage.
Plagiarism Guidance for Students:

Avoiding Plagiarism:
Material you submit for assessment, such as your essays, must be your own work. You can, and should, draw upon published work, ideas from lectures and class discussions, and (if appropriate) even upon discussions with other students, but you must always make clear that you are doing so. **Passing off anyone else’s work** (including another student’s work or material from the Web or a published author) **as your own is plagiarism** and will be punished severely. When you upload your work to ELMA you will be asked to check a box to confirm the work is your own. All submissions will be run through ‘Turnitin’, our plagiarism detection software. Turnitin compares every essay against a constantly-updated database, which highlights all plagiarised work. Assessed work that contains plagiarised material will be awarded a mark of zero, and serious cases of plagiarism will also be reported to the College Academic Misconduct officer. In either case, the actions taken will be noted permanently on the student's record. **For further details on plagiarism see the Academic Services’ website:**

http://www.ed.ac.uk/schools-departments/academic-services/students/undergraduate/discipline/plagiarism

Data Protection Guidance for Students
Note that this could be placed alongside plagiarism guidance
In most circumstances, students are responsible for ensuring that their work with information about living, identifiable individuals complies with the requirements of the Data Protection Act. The document, **Personal Data Processed by Students**, provides an explanation of why this is the case. It can be found, with advice on data protection compliance and ethical best practice in the handling of information about living, identifiable individuals, on the Records Management section of the University website at:

http://www.ed.ac.uk/schools-departments/records-management-section/data-protection/guidance-policies/dpforstudents
Pitfalls to avoid: Lateness

Unlike in Years 1 and 2, **NO EXTENSIONS ARE GRANTED WITH RESPECT TO THE SUBMISSION DEADLINES FOR ANY ASSESSED WORK AT HONOURS LEVEL.**

Managing deadlines is a basic life-skill that you are expected to have acquired by the time you reach Honours. Timely submission of all assessed items (coursework, essays, project reports, etc.) is a vitally important responsibility at this stage in your university career. Unexcused lateness can put at risk your prospects of proceeding to Senior Honours and can damage your final degree grade.

If you miss the submission deadline for any piece of assessed work 5 marks will be deducted for each calendar day that work is late, up to a maximum of five calendar days (25 marks). Thereafter, a mark of zero will be recorded. There is no grace period for lateness and penalties begin to apply immediately following the deadline. For example, if the deadline is Tuesday at 12 noon, work submitted on Tuesday at 12.01pm will be marked as one day late, work submitted at 12.01pm on Wednesday will be marked as two days late, and so on.

Failure to submit an item of assessed work will result in a mark of zero, with potentially very serious consequences for your overall degree class, or no degree at all. It is therefore always in your interest to submit work, even if very late.

**Please be aware that all work submitted is returned to students with a provisional mark and without applicable penalties in the first instance. The mark you receive on ELMA is therefore subject to change following the consideration of the Lateness Penalty Waiver Panel (please see below for further information) and the Board of Examiners.**

How to submit a Lateness Penalty Waiver Form

If there are extenuating circumstances beyond your control which make it essential for you to submit work after the deadline you must fill in a ‘Lateness Penalty Waiver’ (LPW) form to state the reason for your lateness. This is a request for any applicable penalties to be removed and will be considered by the Lateness Penalty Waiver Panel.

Before submitting an LPW, please consider carefully whether your circumstances are (or were) significant enough to justify the lateness. Such circumstances should be serious and exceptional (e.g. not a common cold or a heavy workload). Computer failures are **not** regarded as justifiable reason for late submission. You are expected to regularly back-up your work and allow sufficient time for uploading it to ELMA.

You should submit the LPW form and supply an expected date of submission as soon as you are able to do so, and preferably before the deadline. Depending on the circumstances, supporting documentation may be required, so please be prepared to provide this where possible.

LPW forms can be found in a folder outside your SSO’s office, on online at: http://www.sps.ed.ac.uk/undergrad/on_course_students/assessment_and_regulations/coursework_requirements/coursework_requirements_honours
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<td>Politics</td>
<td>Alex Solomon</td>
<td><a href="mailto:Alex.Solomon@ed.ac.uk">Alex.Solomon@ed.ac.uk</a></td>
<td>0131 650 4253</td>
<td>Room 1.05, MacMillan Building</td>
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<td>Rebecca Shade</td>
<td><a href="mailto:rebecca.shade@ed.ac.uk">rebecca.shade@ed.ac.uk</a></td>
<td>0131 651 3896</td>
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<td>Vanessa Feldberg</td>
<td><a href="mailto:vanessa.feldberg@ed.ac.uk">vanessa.feldberg@ed.ac.uk</a></td>
<td>0131 650 3933</td>
<td>Room 1.04, MacMillan Building</td>
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<td>Social Policy</td>
<td>Louise Angus</td>
<td><a href="mailto:L.Angus@ed.ac.uk">L.Angus@ed.ac.uk</a></td>
<td>0131 650 3923</td>
<td>Room 1.08, MacMillan Building</td>
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<td>Social Work</td>
<td>Jane Marshall</td>
<td><a href="mailto:jane.marshall@ed.ac.uk">jane.marshall@ed.ac.uk</a></td>
<td>0131 650 3912</td>
<td>Room 1.07, MacMillan Building</td>
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<tr>
<td>Sociology</td>
<td>Karen Dargo</td>
<td><a href="mailto:Karen.Dargo@ed.ac.uk">Karen.Dargo@ed.ac.uk</a></td>
<td>0131 651 1306</td>
<td>Room 1.03, MacMillan Building</td>
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<td>Sustainable</td>
<td>Sue Renton</td>
<td><a href="mailto:sue.renton@ed.ac.uk">sue.renton@ed.ac.uk</a></td>
<td>0131 650 6958</td>
<td>Room 1.09, MacMillan Building</td>
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<td>Development</td>
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If you are a student from another School, you should submit your LPW to the SSO for the subject area of the course, **Karen Dargo**

Forms should be returned by email or, if possible, in person to your SSO. They will sign the form to indicate receipt and will be able to advise you if you would like further guidance or support.

Please Note: Signing the LPW form by either your SSO or Personal Tutor only indicates acknowledgment of the request, not the waiving of lateness penalties. Final decisions on all marks rest with Examination Boards.

There is a dedicated SSO for students in each subject area in SPS. To find out who your SSO is, and how to contact them, please find your home subject area on the table below:
How the mid-term and final essay differ

The mid-term and final essays must be on different topics. I haven’t set separate questions or reading lists for them, but the obvious difference is that, because the mid-term essay is shorter and you have less time to work on it, it is less ambitious. In both essays, you’ll obviously want to read all the key readings, but for the mid-term you can draw on the further reading in a more limited way.

You are perfectly at liberty to give your class presentation on the topic of your mid-term or final essay.

Essay topics

You are not restricted to the list below, in which I suggest possible topics for each week. You can base your essay on one question or several so long as the essay remains coherent. Although you should consult me if you intend to do so, you may construct your own essay title within any of the areas covered by the course. For readings, see the appropriate sections of the reading list. Bear in mind that it might be better to do essays after you have heard the relevant lecture.

(1) What are the technological underpinnings of the Revolution in Military Affairs, and what are the limitations of this approach?
(2) What are the implications of the increasing use of robotic technologies in warfare?
(3) Describe how US and UK bombing evolved in WWII - especially the arguments for and against ‘strategic bombing’ and ‘precision bombing’ - and to what extent changing technology has made such a distinction moot.
(4) To what extent is technology decisive in determining the outcome of conflicts? What does such a question imply about how we define technology? Discuss some examples (eg machine gun, tank, atom bomb, radar).
(5) Was there any logic to the nuclear arms race? How can the acquisition by the USA of thousands of nuclear warheads be explained in terms of ‘deterrence’?
(6) How useful has arms control been in controlling arms races?
(7) To what extent can Britain’s nuclear weapon capability be seen as independent?
(8) What are the policy options that could be used to prevent the proliferation of nuclear weapons?
(9) Would the world be safer if more nations had nuclear weapons?
(10) Why is it difficult to know if missile defence technology will work? To what extent are questions of technical feasibility linked to questions of whether missile defence is judged to be necessary?
(11) Why are weapons so expensive? What are the barriers to ‘dual-use’ technology?
(12) What can/should be done about the arms trade?
(13) What are the arguments for and against the UK continuing to be a major arms exporter?
(14) Can military technologies be seen simply as the result of rational decisions made by states in response to external threats?
(15) Is there a ‘technical imperative’ driving the arms race?
(16) What is the relationship between the military and science? Did the Cold War change the nature of science?
(17) Can technology play a significant role in combating terrorism? (It might be sensible to focus on a few particular examples: eg biometric identification, airport screening)

(18) What factors might shape terrorists choices as regard the use of weapons of mass destruction or other forms of attack? Do scientific advances mean that bioterrorism is more likely?

(19) Are robot technologies (eg ‘drones’) a desirable advance in military technology?

**Learning Resources for Undergraduates**

The Study Development Team at the Institute for Academic Development (IAD) provides resources and workshops aimed at helping all students to enhance their learning skills and develop effective study techniques. Resources and workshops cover a range of topics, such as managing your own learning, reading, note making, essay and report writing, exam preparation and exam techniques.

The study development resources are housed on 'LearnBetter' (undergraduate), part of Learn, the University's virtual learning environment. Follow the link from the IAD Study Development web page to enrol: [www.ed.ac.uk/iad/undergraduates](http://www.ed.ac.uk/iad/undergraduates)

Workshops are interactive: they will give you the chance to take part in activities, have discussions, exchange strategies, share ideas and ask questions. They are 90 minutes long and held on Wednesday afternoons at 1.30pm or 3.30pm. The schedule is available from the IAD Undergraduate web page (see above).

Workshops are open to all undergraduates but you need to book in advance, using the MyEd booking system. Each workshop opens for booking 2 weeks before the date of the workshop itself. If you book and then cannot attend, please cancel in advance through MyEd so that another student can have your place. (To be fair to all students, anyone who persistently books on workshops and fails to attend may be barred from signing up for future events).

Study Development Advisors are also available for an individual consultation if you have specific questions about your own approach to studying, working more effectively, strategies for improving your learning and your academic work. Please note, however, that Study Development Advisors are not subject specialists so they cannot comment on the content of your work. They also do not check or proof read students' work.

To make an appointment with a Study Development Advisor, email iad.study@ed.ac.uk

(For support with English Language, you should contact the English Language Teaching Centre).