**Memo regarding Class Presentations: Sessions 16 and 17**

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**Dear Student,**

In this course, you will be asked to (i) give a **group presentation** in class. You will work in 4-5 small groups of around 3-5 students each. In order to complete the presentation you are required to read one of a selection of books on Law, Science and Technology. After the class, you will need to (ii) **individually** submit a review of this book. For more information about these two exercises, please refer to the description at Session 16 of the reading guide.

I have tried to select books which are provocative, relevant and not too expensive. You can either borrow them from the library or buy them.

- Angela Saini, *Inferior: How Science Got Women Wrong and the New Research That's Rewriting the Story* (2017)
- Raj Patel and Jason W Moore, *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature and the Future of the Planet* (2017)
- Siva Vaidhyanathan, *Anti-Social Media: How Facebook Disconnects Us and Undermines Democracy* (2018)
- Juliette Volcler, *Extremely Loud: Sound as a Weapon* (2013)
- Glenn Greenwald, *No Place to Hide: Edward Snowden, the NSA and the Surveillance State* (2014)

  (As a companion to this book, I highly recommend watching *Citizen Four*, directed by Laura Poitras, and currently available online on iTunes and via dailymotion.com)

**Note:** When you get this reading guide, please decide on the book you would prefer to read **as soon as you can** (along with a second book just in case) and email your preferences to me (*parker@unimelb.edu.au*). I will then coordinate to make sure there is an even distribution of people to books while doing my best to give everyone their first preference.

University of Melbourne

# Law, Science and Technology in Global Context
# LAWS90129

Course Outline and Reading Guide

James Parker

14 November – 20 November 2018

# READING GUIDE

## ABOUT THE SUBJECT

Science and technology are at the heart of many of the most pressing legal and social problems of our day: climate change, war, famine, disease prevention, bioethics, big data, social media, state and corporate surveillance, election rigging, border security, 'post-truth' politics, the Uberisation of everything… the list could get very long. This course invites students to consider the common challenges of law, policy and public discourse posed by problems of this sort, at both the domestic and international level. In doing so it asks: How do scientific discoveries and their technological applications shape our social and legal worlds? And how do law and society affect scientific and technological developments in turn?

The overall aim is to equip students with diverse backgrounds, training and experience with the analytical and critical tools necessary to understand and respond to complex questions of science and technology in all their legal, social, (geo)political, ethical, and cultural dimensions.

## LEARNING OUTCOMES

Students who successfully complete the subject will be able to:

- Have an advanced and detailed knowledge of a range of analytical tools and concepts that may be applied in diverse contexts concerning the interactions between law, science, technology and society.
- Have a sophisticated appreciation of the challenges involved in regulating science and technology at a global scale.
- Have the capacity and skills to critically appraise encounters between law, science and technology across both domestic and international jurisdictions.
- Have an advanced and integrated understanding of the specific legal, social, political, ethical, and cultural dimensions of several key case studies considered throughout the course.
- Have the capacity to critically examine, analyse, interpret and assess the effects, both intended and unintended, of regulatory responses to scientific discoveries and their technological applications.
- Be an engaged participant in debates around the co-production of science, technology, law and society.

**READINGS AND PREPARATION**

There are three kinds of resource referred to in this reading guide. Each one serves a slightly different function in the overall architecture of the course and should be treated accordingly.

**Essential Readings** are the key texts we will be working with in class. They are all included in the printed materials **[PM]**, except where they are an online resource. You are expected to have read as many of these texts as you can before the course begins. You will certainly get more out of each class if you have. As you do these readings, please be attentive to the 'tasks' detailed in separate boxes. There are a few of these. Each task requires additional preparation of some kind, normally alongside or in relation to one of the essential readings.

Many of the essential readings have been paired with some **complementary multimedia**. This might be a podcast, video, blogpost or newspaper article. Sometimes it will cover substantially similar ground to one of the essential readings (perhaps a recording of an author giving a talk on the same topic), in which case it's included either as a way into the ideas in that text or as a reminder. Sometimes, however, the complementary multimedia offer a different take on something in one of the main texts as a prompt to further reflection or critique. In both cases, you may like to listen/watch/read during a commute, walk, or downtime at home. Though definitely not a substitute for the essential readings, I hope they provide a helpful supplement.

**Source Materials** have been selected to help you with your research essays and future engagements – professional and academic – with the interactions between law, science and technology. Where possible, I have tried to organise them as clearly as possible. Most are available in electronic form through *Discovery* (Melbourne University's electronic database) and many of them are available through the University of Melbourne general catalogue or via *BONUS*.

**TIMETABLE**

The course will be taught intensively from **Wednesday 14 November** until **Tuesday 20 November 2018**. For anyone interested and available, we will have drinks after class on Friday 16 November. Classes will proceed largely as follows. It may be that the timing of individual sessions/breaks/lunches will change slightly on a given day as required. Start and end times will however remain constant.

| | **Wednesday** | **Thursday** | **Friday** | **Monday** | **Tuesday** |
|---|---|---|---|---|---|
| **9.30 – 11.00** | Session 1 | Session 5 | Session 9 | Session 13 | Session 17 |
| Tea Break | | | | | |
| **11.30 – 12.30** | Session 2 | Session 6 | Session 10 | Session 14 | Session 18 |
| Lunch | | | | | |
| **1.30 – 3.00** | Session 3 | Session 7 | Session 11 | Session 15 | Session 19 |
| Tea Break | | | | | |
| **3.30 – 4.30** | Session 4 | Session 8 | Session 12 | Session 16 | Session 20 |

**ASSESESMENT**

| | |
|---|---|
| 5% | Class Participation |
| 25% | (i) Group Presentation in Class (10%)<br>(ii) Individual Book Review (1500 words) (15%) Due **Wednesday 5 December (5pm)**<br>For more information, see Sessions 16 and 17 in this reading guide. |
| 70% | Research Essay on a topic of your choice (5,500 – 7000 words)<br>Topics must be approved by your lecturer by **16 January 2019**<br>Due **Wednesday 13 February 2019 (5pm)** A copy must be submitted electronically following the instructions on the subject webpage. |

**YOUR LECTURER**

Dr James Parker Rm: 912
Tel: 9035 7436
parker@unimelb.edu.au

# WEDNESDAY 14th (Day 1)

**Task:** In the first class, we will all introduce ourselves. Please come prepared to say a few words about (i) why you are doing the course, and (ii) a favourite book, film, artwork or thinker that has offered you an important insight on questions of law, science or technology (either separately or together).

## SESSIONS 1 & 2

### INTRODUCTIONS AND OVERVIEW

The first morning will be dedicated to introductions: to each other and to the course's architecture and key themes.

As you'll have seen in the overview on the Law School's website or in the handbook, the course is pitched quite generally. It is intended to offer a rigorous conceptual and intellectual grounding from which to critically examine, explain and evaluate the relations between law, science and technology in whatever field of research or practice. This means confronting a whole range of 'big ideas' and conventional wisdoms: in relation to scientific objectivity, technological progress, legal authority, and so on.

In order to keep the course grounded, therefore, we will be looking closely at three case studies: (i) genomics, (ii) drones and (iii) big data. If some or all of these topics are new or unfamiliar to you, or if they feel a long way from your current research interests, please don't worry. Your research paper can be about something else entirely, and your book review has to be! The case studies allow us to explore how some of the big questions we're considering 'hit the ground' in ways that have profound social and political consequences, and at a global scale. The three case studies operate as a kind of sandbox, therefore, in which to test our thinking. The idea is to think *with* these case studies at least as much to learn *about* them, so that once we're done you can go to apply and expand on what you've learned elsewhere. Having said that, the case studies are not chosen at random. They are 'constitutional', as Sheila Jasanoff and Bruno Latour might put it. Each case study addresses something both highly contemporary and fundamental; which is why, in this reading guide, they go by the titles (i) LIFE, (ii) DEATH and (iii) MACHINE. This is what is at stake.

### Reading questions

1. What do you understand by the term 'science'? What are some other common ways of understanding it?
2. What is a technology? How and why do new technologies emerge?
3. What are some of the different ways in which law relates to science and technology?
4. In what sense or senses are law, science and technology 'political'? What is the proper relationship between each of these categories and politics?

**Essential readings**

In different ways, each of the following short texts offers a general introduction to the ways of thinking about law, science and technology we will be developing in the course. They are intended as a primer to get you thinking. Spend as much time with them as you can, but I won't be asking you to do a close reading of them in class.

- Sergio Sismondo, Chapter 1: 'The Prehistory of Science and Technology Studies' in *An Introduction to Science and Technology Studies* (2010). **[PM]**
- Sheila Jasanoff, 'What Judges Should Know about the Sociology of Science,' *Judicature* 77(2) (1993), 77-82. **[PM]**
- Michael Polanyi, 'The Republic of Science: Its Political and Economic Theory', *Minerva* 1 (1962), 54-73. **[PM]**
- Australian Government, *Welcome to the Ideas Boom: The National Innovation and Science Agenda* (2015). **[PM]**
- James Bridle, Chapter 1: 'Chasm' in *New Dark Age: Technology and the End of the Future* (2018). **[PM]**
- Stephen Ross, 'Western Science and Aboriginal People' **[online resource]** http://www.sydneybarani.com.au/sites/western-science-and-aboriginal-people/

**Complementary multimedia**

Like the texts above, these podcasts and videos offer a quick way in to some of the themes of the course:

- Sheila Jasanoff, 'Law, Science and the Forging of "Truth"' (2016) (podcast) - https://pursuit.unimelb.edu.au/podcasts/law-science-and-the-forging-of-truth
- James Bridle discussing his book (2018) (video) - https://www.youtube.com/watch?v=7hSj01bAZAU
- *National Innovation and Science Agenda* YouTube channel, including promo material from Malcolm Turnbull, Christopher Pine, Venture Capitalists, various start-ups and scientists: https://www.youtube.com/channel/UC6DpVsZGFXu1sImPSYtKLHQ
- The Chomsky-Foucault debate (1971) (video):
- Part 1: https://www.youtube.com/watch?v=W9S1CiGPX2Q
- Chomsky disagrees: http://www.youtube.com/watch?v=dAqVBlf2mSc&NR=1

## SESSION 3

### LAW, SCIENCE, TECHNOLOGY, SOCIETY - TOGETHER AND COPRODUCED

In this session, I will introduce the field of Science and Technology Studies (STS) and outline some of its key preoccupations and theoretical claims. For our purposes, the key point is that law, science and technology have much more in common that we tend to think. 'Our methods of understanding and manipulating the world curve back and reorder our collective experience' Jasanoff explains. On close inspection the nature/culture divide quickly breaks

down. It is not just that science and technology are relentlessly social – produced by people, trained in communities, in language, and responding to cultural and institutional imperatives. What we know about the world is intimately linked to our sense of what we can do about it. Science and technology aren't just social practices, but normative and political agents; a lot like law. And this is essential to understand if we are to think well about questions of regulation and the relations between science, technology and justice.

**Essential readings**

These texts are difficult. But the ideas in them are extremely important. They provide some of the key vocabulary and ideas we will be working with throughout the course, so spend as much time with them as you can. Work systematically through the reading questions below, which are intended to point you in the right direction. In class, I won't expect you to be able to answer close reading style questions about these texts however. I will do my best to clarify their most important ideas and situate them in relation to the broader field of STS and the rest of the course.

- Bruno Latour, Chapter 1, 'Crisis' in *We Have Never Been Modern* (1993). **[PM]**
- Sheila Jasanoff, 'Ordering Knowledge, Ordering Society' in *States of Knowledge: The Co-Production of Science and Social Order* (2004), 13-45 **[PM]**.
- *Daubert v Merrell Dow Pharmaceuticals, Inc*. 509 U.S. 579 (1993), especially Justice Blackmun, 582-598 **[PM]**.

**Complementary multimedia**

- Sheila Jasanoff, 'Science and Sense-Making' (lecture given at the Royal Danish Academy of Sciences and Letters in 2016): http://www.royalacademy.dk/en/ENG_Foredrag/ENG_Sheila-Jasanoff
- 'Bruno Latour, The Relativist' (short interview on the public role of science) https://www.youtube.com/watch?v=0jZrCVjwcIo
- Australian Law Reform Commission on *Daubert* and the nature of 'specialised knowledge' in the provision of expert evidence - https://www.alrc.gov.au/publications/9.%20The%20Opinion%20Rule%20and%20its%20Exceptions/opinions-based-specialised-knowledge
- Aims and Goals of *March for Science Australia*, https://marchforscienceaustralia.org/aims/

**Reading questions**

1. What does Latour mean by 'modernity'? How does this relate to your own understanding?
2. What is Latour's critique of nature/culture, human/non-human divides?

3. What are some of the different senses in which science and technology might be said to be 'socially constructed'? Do any of these seem more controversial to you than the others? Why?
4. What does Jasanoff mean by co-production? What is the basic difference between its 'constitutive' and 'interactional' varieties? What would be one practical example of each? (either as narrated by Jasanoff or from your own experience)
5. What would it mean to say that a technology is 'inherently political'? Do you think any are? Which? In what sense?
6. What do you understand by 'objectivity' in science/law? Does anything in Jasanoff's text make you question that understanding?
7. What was the central 'problem' in Daubert? And what was at stake in the decision as far as the relationship between science and law is concerned?
8. What is the test for the admissibility of expert evidence in Blackmun J's majority judgment? How is it different from the test in *Frye*?
9. What do you think Jasanoff would make of both tests? What do you make of them in light of the readings?

**Source materials**

*Overviews and introductions to STS*

- Sergio Sismondo, *An Introduction to Science and Technology Studies* (2010).
- Jasanoff et al, *The Handbook of Science and Technology Studies* (first edition, 1995)
- Hackett et al (eds), *The Handbook of Science and Technology Studies* (third edition, 2008).
- Kleinman and Moore, *The Routledge Handbook of Science, Technology and Society* (2014).

*Classic texts*

The following is a selection of classic texts in STS along with a few more recent favourites of mine. You needn't read them before class, though I will be drawing on some in my lectures. At some point before writing your essay, however, and with the benefit of having attended the course, I would recommend reading at least two of them to get a richer sense of some of the philosophical underpinnings of STS as a field.

- Robert Merton, 'The Normative Structure of Science,' in R.K. Merton, *The Sociology of Science: Theoretical and Empirical Investigations* (1973), 267-278.
- David Bloor, Ch. 1 'The Strong Programme in the Sociology of Knowledge' [1976], *Knowledge and Social Imagery* (1991), 3-23.
- Ian Hacking, Ch. 2 'Too Many Metaphors', *The Social Construction of What?* (1999), 35-62.
- Evelyn Fox Keller, *Reflections on Gender in Science* (1985), 75-94.

- Donna Haraway, Ch. 3 ‘Teddy Bear Patriarchy’, in *Primate Visions* (1989), 26-58.
- Donna Haraway, Ch. 9 ‘Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective’ in *Simians, Cyborgs and Women* (1991), 183-201.
- T. F. Gieryn, ‘The Boundaries of Science,’ in S. Jasanoff et al., eds., *Handbook of Science and Technology Studies* (1995), 393-443.
- Sheila Jasanoff, ‘Future Imperfect: Science, Technology and the Imaginations of Modernity’, in Jasanoff and Kim (eds), *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power* (2015), 1-33.
- Jim Johnson (aka Bruno Latour), ‘Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer’ 35(3) *Social Problems* (1988), 298-310.
- Bruno Latour and Couze Venn, ‘Morality and Technology: The End of the Means’ *Theory, Culture, Society* 19 (2002), 247.
- Bruno Latour, *Politics of Nature: How to Bring Sciences into Democracy* (2004).
- Bruno Latour, *Reassembling the Social: An Introduction to Actor Network Theory* (2005).
- Tal Golan, *Laws of Men and Laws of Nature* (2004).
- B. Joerges, ‘Do Politics Have Artefacts,’ *Social Studies of Science* 29 (1999), 411-431.
- Michel Foucault, Ch 3 Part III ‘Panopticism’, in *Discipline and Punish* (1979), 195-228.
- J. C. Scott, Ch. 1 ‘Nature and Space’ and Ch. 3 ‘Authoritarian High Modernism’ in *Seeing Like a State* (1998), 1-52, 87-102.
- Annelise Riles, *The Network Inside Out* (2000).
- Ron Levi and Mariana Valverde, ‘Studying Law by Association: Bruno Latour Goes to the Conseil d’État’, *Law and Social Inquiry* 33(3) (2008) 805.
- Alain Pottage, ‘The Materiality of What?’ *Journal of Law and Society* 39(1) (2012) 167.
- Cornelia Vismann, *Files: Law and Media Technology* (2008).

## SESSION 4

### ASKING BETTER QUESTIONS ABOUT LAW, SCIENCE AND TECHNOLOGY

In the timeframe we have for this class we cannot do justice to the numerous theories and methods available to help us understand the complex interactions between law, science and technology today. The object of this session is instead to dig a little deeper into the conceptual and practical challenges entailed in trying to make sense of them, so that we can ask better questions moving forward. In class we will analyse three texts, each of which is focused on a different one of our key terms.

**Task:** I have prepared four general questions to inform your reading of the texts for this class. If you have time, you should try to read all the texts, respond to these questions for each of them, and ideally also think about the relations between them. However, I will be in touch with you by email before the course starts to let you know which **one** of the texts you will need to dedicate particular attention to in advance. **You should come prepared to answer all of the questions asked in respect of your allocated reading**. We will then discuss these questions in class and draw out some continuities and differences together as a group.

**Reading questions**

1. What is the problem or orthodoxy this text responds to? How does it do so? What is the general argument presented?
2. How does the author understand the relationship between law, science and technology on the way to this argument? Is this relationship detailed explicitly or implicitly? If the latter, what do you take the author's position to be?
3. How might the author's argument be applied to an example not included in the text? What can this text help us 'see' or understand about this example that isn't ordinarily recognised?
4. What is missing from the author's analysis? How could the argument be fruitfully extended?

**Essential readings**

**a. Science: knowledge/power**

- Shiv Visvanathan, 'On the Annals of the Laboratory State' in *A Carnival for Science* (1997), 15-47. **[PM]**

**b. Technology: tool/politics**

- Langdon Winner, 'Do Artifacts Have Politics?' in *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (1986), 19-39. **[PM]**

**c. Law: truth/norm**

- Sheila Jasanoff, 'Serviceable Truths: Science for Action in Law and Policy', 93 *Texas Law Review* (2015), 1723. **[PM]**

# THURSDAY 15th (Day 2)

## SESSION 5

### LIFE, DEATH, MACHINE

In the morning, I will spend some time re-introducing the case studies and pointing towards some connections between them. We will then start focusing in on genomics and what it means to live in a 'postgenomic condition'. In doing so, we will not only consider the truth-claims made by genomics, along with the enormous socio-political potential of the field, but also the way in which genomics' truth-claims are necessarily bound up with ethical and legal questions, and so with what Rose calls the 'politics of life itself'. We will think about the ways in which, as a field of knowledge, genomics is a site of enormous power. We will talk about how its risks and revolutionary possibilities are balanced against each other in gene editing, and consider the growing problem of governance by (genomics) experts and the democratic deficit such governance often entails.

### Essential readings

The readings allocated for this session offer an in-depth understanding of the matters we will draw out in class. It is important to read them. However, the session will be conducted as a lecture, and in order to manage workload, you may prefer to skim them before the lecture and read them again more closely afterwards. I won't expect you to be able to answer close reading style questions about these texts in class.

- Nikolas Rose, Chapter 2: 'Politics and Life' in *The Politics of Life itself* (2007) **[PM]**.
- Jenny Reardon, 'Introduction' in *The Postgenomic Condition: Ethics, Justice, and Knowledge After the Genome* (2017) 1-24. **[PM]**
- J Benjamin Hurlbut, 'Laws of Containment: Control Without Limits in the New Biology' in Irus Braverman (ed) *Gene Editing, Law, and the Environment: Life Beyond the Human* (2018), 77-94. **[PM]**
- Stephen Hilgartner, Barbara Prainsack, and J Benjamin Hurlbut, 'Ethics as Governance in Genomics and Beyond', in Felt et al (ed), *The Handbook of Science and Technology Studies* (fourth edition, 2016), 823 – 852. **[PM]**

### Complementary multimedia

- Jenny Reardon, 'The Genomic Open' (short article): https://limn.it/articles/the-genomic-open/
- ABC RN, Big Ideas, 'How just is genomics and biomedical research' (podcast from 2017 in which Jenny Reardon discusses ideas from her book ): http://www.abc.net.au/radionational/programs/bigideas/just-genomics/8838350
- New Books in Science Technology and Society podcast, discussing *The Postgenomic Condition* with Jenny Reardon: https://podtail.com/en/podcast/new-books-in-

science-technology-and-society/jenny-reardon-the-postgenomic-condition-ethics-kno/ (also available via iTunes and other podcast apps)

- Benjamin Hurlbut discussing CRISPR in a similar way to the article above at Arizona State University in 2017 (video) https://www.youtube.com/watch?v=T1esAGoppxc
- Rosa Castro, 'Safe and ethical ways to edit the human genome' *The Conversation* (short editorial from 2017): http://theconversation.com/safe-and-ethical-ways-to-edit-the-human-genome-73110
- Nikolas Rose being interviewed about neurobiology and mental illness (so not genomics, but the way of thinking about the political and ethical dimensions of science is very similar, and it's important to be able to see these kinds of methodological/theoretical continues) at the European Molecular Biology conference in 2011 (video): https://www.youtube.com/watch?v=P8mkcXdTZ_g

**Source materials**

- Benjamin Hurlbut, 'Remembering the Future: Science, Law and the Legacy of Asilomar' in Jasanoff and Kim (eds) *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power* (2015), 126-151.
- Benjamin Hurlbut, *Experiments in Democracy: Human Embryo Research and the Politics of Bioethics* (2017).
- Sheila Jasanoff (ed), *Reframing Rights: Bioconstitutionalism in the Genetic Age* (2011).
- Stephen Hilgartener - *Reordering Life: Knowledge and Control in the Genomics Revolution* (2017).
- Ulrich Beck, Chapters 7 & 8, 'Knowledge or Non-Knowing?' and 'The Insurance Principle' in *World at Risk* (2007), 115-139.
- Jay Aronson, 'DNA on Trial' in *Genetic Witness: Science, Law, and Controversy in the Making of DNA Profiling* (2007), 33-55.
- Jonathan Kahn, 'Race, Genes and Justice: A Call to Reform the Presentation of Forensic DNA Evidence in Criminal Trials', 74 *Brooklyn Law Review* (2009), 325.
- Jennifer Mnookin, 'Fingerprints: Not a Gold Standard,' 20(1) *Issues in Science and Technology* (2003), 47-54 http://www.issues.org/20.1/mnookin.html.

## SESSION 6

### RACE, JUSTICE AND THE POLITICS OF GENOMICS

**Task:** In this class, we will do a **close reading** of the three texts below. Please **come prepared to discuss** in small groups and with the rest of the class. As you read, you might like to ask yourself the same set of questions as for session 4, which I have included again below.

**Reading questions**

1. What is the problem or orthodoxy this text responds to? How does it do so? What is the general argument presented?
2. How does the author understand the relationship between law, science and technology on the way to this argument? Is this relationship detailed explicitly or implicitly? If the latter, what do you take the author's position to be?
3. How might the author's argument be applied to an example not included in the text? What can this text help us 'see' or understand about this example that isn't ordinarily recognised?
4. What is missing from the author's analysis? Where might the argument have been fruitfully extended?

**Essential readings**

- Jonathan Kahn, Chapter 1: 'Organizing Race' in *Race in a Bottle: The Story of BiDil and Racialized Medicine in a Post-Genomic Age* (2013), 25-47. **[PM]**
- Kaushik Sunder Rajan, 'Two Tales of Genomics: Capital, Epistemology, and Global Constitutions of the Biomedical Subject,' in Jasanoff (ed) *Reframing Rights: Bioconstitutionalism in the Genetic Age* (2011), 193-216. **[PM]**
- National Centre for Indigenous Genomics, *2017 Annual Report* **[online resource]** http://ncig.anu.edu.au/files/NCIG-2017-Annual-Report.pdf

**Complementary multimedia**

- Jonathan Kahn offering some opening words at an event on 'Understanding Genetic Technologies' in 2010 (video): https://www.youtube.com/watch?v=vPJuxtMTyu4
- Dorothy Roberts, 'The Problem with Race Based Medicine' (TED Talk, 2016): https://www.youtube.com/watch?v=KxLMjn4WPBY
- Genomic Health website: http://www.genomichealth.com/ and marketing videos: (i) 'Delivering Precision Medicine' https://www.youtube.com/watch?v=I-zD88MXDM0; (ii) 'The Genomic Health Brand and Company Mission' https://www.youtube.com/watch?v=hbmEs9JuetY
- WellSpring Clinic, Bangalore website: https://www.wellspringhospitals.com/

- Seemingly abandoned GenoMed website: http://genomed.com/
- Kaushik Sunder Rajan leading a conversation with other key figures in STS about the postcolonial politics of technoscience at the Harvard Kennedy School in 2011 (video): https://www.youtube.com/watch?v=gyJwRcD2lbA
- 'National Centre for Indigenous Genomics: An Introduction' (publicity video): https://www.youtube.com/watch?v=wftujBV2LPs

**Source materials**

- Patricia Williams, 'The Elusive Variability of Race' 22(3-4) *Gene Watch* (July – August 2009), 34.
- Jonathan Kahn, 'The Troubling Persistence of Race in Pharmacogenomics', 40 *The Journal of Law, Medicine and Ethics* (2012), 873.
- Jonathan Kahn, 'Race-ing Patents/Patenting Race: An Emerging Political Geography of Intellectual Property in Biotechnology', 92 *Iowa Law Review* (2007), 353.
- Jonathan Kahn, *Race on the Brian: What Implicit Bias Gets Wrong About the Struggle for Racial Justice* (2017).
- Dorothy Roberts, *Fatal Invention: How Science, Politics, and Big Business Re-create Race in the 21st Century* (2011).
- Kaushik Sunder Rajan, *Biocapital: The Constitution of Post-Genomic Life* (2006)
- Kaushik Sunder Rajan, *Lively Capital: Biotechnologies, Ethics and Governance in Global Markets* (2012)
- Geoffrey Bower and Susan Star, 'The Case of Race Classification and Reclassification Under Apartheid' in *Classification and its Consequences* (1999).
- Henry Reynolds, 'Racial Thought in Early Colonial Australia', *The Australian Journal of Politics and History* (2008), 45-53.
- Paul Burke, *Law's Anthropology: From Ethnography to Expert Testimony in Native Title* (2013).
- Howard Morphy, 'The Practice of an Expert: Anthropology in Native Title', *Anthropological Forum* 16(2) (2006), 135-151.

## SESSIONS 7 & 8

### HEALTH, LAW AND EMERGING TECHNOLOGIES

Guest lecture and discussion on contemporary Australian issues in genomics and biomedicine with members of the Health, Law and Emerging Technologies Research Group (HeLEX@Melbourne).

# FRIDAY 16th (Day 3)

## SESSION 9

### DEATH

Today we move on to the second of our case studies: drones – or, less colloquially, 'unmanned aerial vehicles' (UAVs) – and how they were both produced by and reconfigure the nature and norms of contemporary war. We will think about where drones are used and why they might have emerged as a technique of war when they did. We will consider the rhetoric of 'precision' used to justify them in both legal and public discourse; how drone warfare inaugurates a form of combat without 'combatants'; and some of the ways in which the new security/surveillance paradigm of warfare is also taking root in civilian contexts.

### Essential readings

As before, this session will be conducted as a lecture. The texts below are important to read, but you won't be expected to answer close reading style questions about them in class. If you have not studied International Humanitarian Law before (which is absolutely fine for our purposes here), you may like to spend some time on the website of the International Committee of the Red Cross (ICRC), starting with the links listed separately below:

- Gregoire Chamayou, 'Prelude', 'Introduction', 'Part III: Necroethics', 'Part IV: The Principles of the Philosophy of the Right to Kill' in *Drone Theory* (2015). **[online resource]**
- Michael W Lewis and Emily Crawford, 'Drones and Distinction: How IHL Encouraged the Rise of Drones,' 44 *Georgetown Journal of International Law* (2012), 1127–66. **[PM]**
- David Kennedy, Introduction and Chapter 1: 'War as a Legal Institution' in *Of Law and War* (2011), 1-45. **[online resource]**

### ICRC on IHL / the Law of War

- Introduction to the Law of War: https://www.icrc.org/en/rules-of-war
- The Geneva Conventions: https://www.icrc.org/en/document/geneva-conventions-1949-additional-protocols
- Customary IHL by Rule: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul
- IHL and the Challenges of Contemporary Armed Conflicts, esp VII(ii) on 'autonomous weapons systems': https://www.icrc.org/en/document/international-humanitarian-law-and-challenges-contemporary-armed-conflicts

### Complementary multimedia

- Barack Obama Explains Drone Strikes (recorded Q&A): https://www.youtube.com/watch?v=Fi1t_aqhCks

- Jonathan Derbyshire, 'Drone Theory by Grégoire Chamayou review – a provocative investigation' (review in the Guardian) https://www.theguardian.com/books/2015/jan/21/drone-theory-by-gregoire-chamayou-review-provocative-investigation
- Grayson Clary, 'Manic Pixy Drone War' (Drone Theory reviewed in the Los Angeles Review of Books, 2015): https://lareviewofbooks.org/article/manic-pixie-drone-war/
- David Kennedy discussing his book at Harvard in 2012 (video): https://www.youtube.com/watch?v=9tYV3gSjUYA
- Forensic analysis of the aftermath of drone strikes by the Turner prize nominated research group Forensic Architecture, in collaboration with SITU Research and the Bureau of Investigative Journalism (TBIJ) (media rich website and reports): https://www.forensic-architecture.org/case/drone-strikes/

**Source materials**

- Marcus Gunneflo, *Targeted Killing: A Legal and Political History* (2016).
- Rain Liivoja, Kobi-Renée Leins and Tim McCormack, 'Emerging Technologies of Warfare' *Melbourne Legal Studies Research Paper No. 721*.
- Eyal Weizman, 'Introduction' in *Forensic Architecture: Violence on the Threshold of Detectability* (Zone, 2017).
- Susan Schuppli, 'Uneasy Listening', in Weizman et al (eds) *Forensis: The Architecture of Public Truth* (2014).
- Judith Butler, *Frames of War: When is Life Grievable?* (2009).
- Achille Mbebe, 'Necropolitics' 15(1) *Public Culture* (2003), 11-40.

## SESSION 10

**PERMANENT LETHAL SURVEILLANCE**

**Task:** In this session, we will undertake a **close reading** of Stanford and NYU Law Schools' influential *Living Under Drones* (2012). Since the report is long, in class we will break it down into parts and task each group with analysing one. This way will be able to build up a picture of the complete report together and then think about how it relates to the readings from the morning. We will determine these groups closer to the time. Nevertheless, it is worth looking at the report before class. Please come prepared to work with a **digital copy** on the day.

**Essential readings**

- International Human Rights and Conflict Resolution Clinic (Stanford Law School) and Global Justice Clinic (NYU School of Law), *Living Under Drones: Death, Injury and*

*Trauma to Civilians from US Drone Practices in Pakistan* (September 2012). **[online resource]** https://law.stanford.edu/publications/living-under-drones-death-injury-and-trauma-to-civilians-from-us-drone-practices-in-pakistan/

**Complementary multimedia**

- *Living Under Drones* discussed by its authors for War Costs: https://www.youtube.com/watch?time_continue=3&v=6yMOzvmgVhc
- All Party Parliamentary Group on Drones, British Parliament, 'Psychological Terror? Lessons from Pakistan and Yemen on the Psychological Impact of Drones' (March 5, 2013) http://appgdrones.org.uk/appgmeetings/psychological-terror-lessons-from-pakistan-and-yemen-on-the-psychological-impact-ofdrones-5-march-2013/
- David Wroe, 'Australia to spend nearly $7 billion buying unmanned military planes from America (25 June 2018), https://www.smh.com.au/politics/federal/australia-to-spend-nearly-7-billion-buying-unmanned-military-planes-from-america-20180625-p4znmc.html

**Source materials**

- For a much more recent and in some ways less critical report, released by the All Party Parliamentary Group on Drones in July 2018, see: http://appgdrones.org.uk/wp-content/uploads/2014/08/INH_PG_Drones_AllInOne_v25.pdf

## SESSION 11

Time will be set aside in this session to work on your class presentations with the other members of your book review group.

## SESSION 12

**FILM SCREENING: RISE OF THE DRONES**

In this session, we will watch the documentary film ***Rise of the Drones*** **(2013)**, produced by NOVA for the US station PBS. As a counterpoint to the film, please read the text below which also offers a bridge into our final case study on Monday.

**Essential Readings**

- Mark Andrejevic, 'Theorizing Drones and Droning Theory' in Ales Zavrsnik (ed) *Drones and Unmanned Aerial Systems* (2016), 21-43. **[PM]**

**Complementary multimedia**

- Mark Andrejevic, 'Drone Logic: Distributed, Ubiquitous Monitoring and the 'Big Data' deluge', lecture given at ANU in 2014 (video): https://www.youtube.com/watch?v=6o_KTqdM44E

# MONDAY 19th (Day 4)

## SESSION 13

### MACHINE

For our final case study, we turn to big data and the politics of data science and machine learning. Data science, as Dan McQuillan points out, isn't just a method but an 'organising idea' which promises (or threatens) to 'reveal a hidden mathematical order in the world that is superior to our direct experience of it.' Whether or not this claim turns out to be correct, following data science and its sociotechnical applications down this path will have enormous socio-political consequences, what we should not necessarily expect to be benign. Especially when you consider the enormous concentration of algorithmic power in the hands of a handful of corporations and states worldwide.

### Essential readings

- Chris Anderson, 'The End of Theory: The Data Deluge Makes the Scientific Method Obsolete' *Wired* (2008) **[online resource]** https://www.wired.com/2008/06/pb-theory/
- Excerpt from Raymond Kurzweil, *The Singularity Is Near: When Humans Transcend Biology* (2005) **[online resource]** https://www.npr.org/books/titles/138051148/the-singularity-is-near-when-humans-transcend-biology#excerpt
- Dan McQuillan, 'Data Science as Machinic Neoplatonism' *Philosophy and Technology* (2018), 1-20. **[PM]**
- Frank Pasquale, 'Introduction: The Need to Know' in *The Black Box Society: The Secret Algorithms that Control Money and Society* (2015), 1-18. **[PM]**
- Jorge Contreras, 'Big Genomics Data and the State' in Hamid et al (eds), *Big Data is Not a Monolith: Policies, Practices and Problems* (2016), 93-103. **[PM]**
- Jack Latimore, 'Indigenous data sovereignty: More than Scholarship, it's a Movement' **[online resource]** https://croakey.org/indigenous-data-sovereignty-more-than-scholarship-its-a-movement/

### Complementary multimedia

- Interview with Ray Kurzweil on NPR: 'Will We Recognize the Future?' (podcast): https://www.npr.org/templates/story/story.php?storyId=91239477
- Frank Pasquale being interviewed on 'The Agenda' for TV Ontario (video): https://www.youtube.com/watch?v=PDjgyTnzWuQ
- 'We're all Data Now' (conversation at UNSW Law School, on ABC's *Future Tense*): http://www.abc.net.au/radionational/programs/futuretense/we%E2%80%99re-all-data-now:-what-big-data-could-mean-for-law-&-policy/6988048
- Niels Wouters and Frank Vetere, 'Holding a Black Mirror up to Artificial Intelligence' (editorial and accompanying video on the 'Biometric Mirror' on campus at UniMelb):

https://pursuit.unimelb.edu.au/articles/holding-a-black-mirror-up-to-artificial-intelligence

- Edward Snowden: 'The people are still powerless, but now they're aware' https://www.theguardian.com/us-news/2018/jun/04/edward-snowden-people-still-powerless-but-aware
- 'What is Indigenous Data Sovereignty?' (panel discussion at University of Melbourne, 2017): https://vimeo.com/243600584
- More or less any episode of Charlie Brooker's *Black Mirror* (streaming on Netflix)
- *Minority Report* (2002) (still a touchstone in the tech world, streaming on Netflix)

**Source materials**


- Nathan Eagle and Sandy Pentland, 'Reality Mining: Sensing Complex Social Systems' 10(4) *Journal of Personal and Ubiquitous Computing* (2006), 255-268.
- Nathan Eagle and Kate Greene, *Reality Mining: Using Big Data to Engineer a Better World* (2014).
- James Bridle, 'Calculation' in *New Dark Age: Technology and the End of the Future* (2018), 77-102.
- Tahu Kukutai and John Taylor, *Indigenous Data Sovereignty: Toward an Agenda* (2016).
- Hurlbut, 'A Science that Knows no Country: Pandemic Preparedness, Global Risk, Sovereign Science' *Big Data and Society* (2017).
- Sarah Logan, 'The Needle and the Damage Done: Of Haystacks and Anxious Panopticons' *Big Data and Society* (2017).
- Nick Seaver, 'Algorithms as Culture: Some Tactics for the Ethnography of Algorithmic Systems' *Big Data and Society* (2017).
- Shoshana Zuboff, 'Big Other: Surveillance Capitalism and the Prospects of an Information Civilization' 30 *Journal of Information Technology* (2015), 30.
- Mike Ananny and Kate Crawford, 'Seeing Without Knowing: Limitations of the transparency ideal and its application to Algorithmic Accountability' 20(3) *New Media and Society* (2018), 973-989.
- Kate Crawford, 'Four Ways of Listening with an iPhone: From Sound and Network Listening to Biometric Data and Geolocative Tracking' in Hjorth et al, *Studying Mobile Media: Cultural Technologies, Mobile Communication and the iPhone* (2012), 213-239.
- Zook et al, 'Ten Simple Rules for Responsible Big Data Research' 13(3) *PLOS: Computational Biology* (2017), 1-10.
- Bernard Harcourt, *Exposed: Desire and Disobedience in the Digital Age* (2015).
- Evgeny Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism* (2013).

- Nick Srnicek and Alex Williams, *Inventing the Future: Postcapitalism and a World Without Work* (2015)

## SESSION 14

### AUTOMATION: THE LAWS OF ROBOTICS

**Task:** In this class, we will do a **close reading, comparison and critique** of the two texts below, the second of which is a response to the first, as you'll see. Please **come prepared** to discuss in small groups and with the rest of the class. As before, the reading questions from session 4 may serve as a helpful guide.

**Essential readings**

- Jack Balkin, 'The Three Laws of Robotics in the Age of Big Data' 78 *Ohio State Law Journal* (2017), 1217-1241. **[PM]**
- Frank Pasquale, 'Toward a Fourth Law of Robotics: Preserving Attribution, Responsibility, and Explainability in an Algorithmic Society' 78 *Ohio State Law Journal* (2017) 1243-1255. **[PM]**

**Source materials**

- Lawrence Lessig, *code 2.0* (2006), free to download at http://codev2.cc/
- Jake Goldenfein and Andrea Leiter, 'Law and Engineering on the Blockchain: "Smart Contracts" as Legal Conduct' 29(2) *Law and Critique* (2018), 141.
- Mark Andrejevic, 'Digital Citizenship and Surveillance: To Pre-Empt a Thief' 11 *International Journal of Communication* (2017), 879-896.
- Sheila Jasanoff, 'Virtual, Visible, and Actionable: Data Assemblages and the Sightlines of Justice' *Big Data and Society* (2017).
- Robin Cameron et al, Chapter 3: 'A Global Context: Networks, Corporations and States' in *Digital Criminology: Crime and Justice in Digital Society* (2019).
- Mireille Hildebrant and Antoinette Rouvroy (eds) *Law, Human Agency and Autonomic Computing: The Philosophy of Law Meets the Philosophy of Technology* (2011).
- Antoinette Rouvroy, 'Of Data and Men: Fundamental Rights and Freedoms in a World of Big Data', *Report for the Bureau of the Consultative Committee of the Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data, Council of Europe* (2016).

## SESSION 15

**COMPUTATIONAL THINKING**

**Task:** In this class, we will break into groups. Each group will be asked to provide a short explanation and critical analysis of one of the following documents: (i) a pair of scientific papers, (ii) a patent, and (iii) a piece of legislation. We will allocate the groups early on in the course so that you have plenty of time to read beforehand (though none of the texts is long). The task does not require in depth knowledge of the documents or the contexts surrounding them, and you will not be required to do any additional research.

**Essential readings**

**a) Computer vision**

- Xiaolin Wu and Xi Zhang, 'Automated Inference on Criminality using Face Images' *ARXIV*, November 2016; and 'Wu and Zhang, 'Responses to Critiques on Machine Learning of Criminality Perceptions,' *ARXIV*, May 2017 **[PM]**

**b) Algorithmic listening**

- *Jones et al,* United States Patent No. US 10,020,004 B2 (July 10, 2018) **[PM]**

**c) Biometric governance**

- *The Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act* (2016) **[PM]**

## SESSION 16

**CLASS PRESENTATIONS 1**

In this session, and the first session on Tuesday, you will work in 4-6 small groups. Each group will have 20-30 minutes in which to present to the class (I will clarify this when the course begins, and we know exactly how many students are enrolled). The objectives of this assignment are both skills based and substantive. This assignment will encourage you to:

- Work as part of a team on a collaborative intellectual endeavour;
- Engage substantively with a book relevant to the subject matter of the course; and
- Read a whole book in order to be able to:
    - **Synthesise** its argument;
    - **Understand and critique** its premises;
    - **Present in a group** your understanding of the book orally to an audience who have not necessarily read it;
    - **Write individually** a book review which is both short and critically engaged.

These are important skills to acquire during the course of your graduate studies, which can sometimes be neglected. Additionally, you may wish to try and publish the book review you write for this course, especially where the book is very new (which several area).

Each group must read a different book from the following list. They are all available through the usual online retailers. You may like to use www.booko.com.au to find the best retailer and price. Many of the books are also available as ebooks and from the library. I have tried to select books which are provocative, relevant and not too expensive.

- Angela Saini, Inferior: *How Science Got Women Wrong and the New Research That's Rewriting the Story* (2017)
- Raj Patel and Jason W Moore, *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature and the Future of the Planet* (2017)
- Siva Vaidhyanathan, *Anti-Social Media: How Facebook Disconnects Us and Undermines Democracy* (2018)
- Juliette Volcler, *Extremely Loud: Sound as a Weapon* (2013)
- Glenn Greenwald, *No Place to Hide: Edward Snowden, the NSA and the Surveillance State* (2014)

  (As a companion to this book, I highly recommend watching *Citizen Four*, directed by Laura Poitras, and currently available online on iTunes and via dailymotion.com)

**Note:** When you get this reading guide, please decide on the book you would prefer to read **as soon as you can** (along with a second book just in case) and email your preferences to me (*parker@unimelb.edu.au*). I will then coordinate to make sure there is an even distribution of people to books while doing my best to give everyone their first preference.

You may structure your class presentation as you wish. But please do not exceed the time allotted to your group. Possible formats include:

- one or two members of the group pretending to be the author/s (you can pretend a single author book is multi-authored if you like) and being interviewed by the other members of the group. You could decide that some questions will be hostile to the approach taken by the author and some friendly;
- a panel discussion on the book in the manner of 'book chat'. Again, you could adopt the personalities of those likely to have a certain attitude to the book;
- a closing submission to a jury on whether or not the book ought to be published and why;
- another presentation style of your group's own design.

**Questions to inform your presentation might include:**

- What is the central argument of the book? (This is a pretty much mandatory question to be able to answer).
- Who is the book for and how does this inform the book's style and argument?
- What kind of methodology does the author adopt?

- Why might that kind of methodology be suitable/unsuitable for the task?
- How successful do you think the author has been in making the argument?
- What conception of science and technology and their relations does the author have?
- What conception of law and institutions does the author have?
- How do law, science and technology relate in the author's thesis?
- What tensions might exist in the book between what it presents itself as doing and what you, as a reader, think it does?
- Is the author being normative (presenting an argument about the way the world should be) or descriptive (presenting a picture of the world as they see it)? Can these two orientations be separated?
- Do the implications of the author's argument extend beyond the confines of the book? How might the author's argument apply to other (specific) situations/questions?

**The Assessment** (worth 25% of your total marks in this subject) comprises:

- 10% for the class presentation. Everyone in your group will receive the same mark for this. We will expect you to try and come up with some equitable division of labour in this task; and
- 15% for a 1,000 - 1,500 word book review.

**Book Review Assessment Guidelines**

- The Book Review is NOT a research essay. You may include footnotes to other texts if you wish but you are not expected to have read beyond the required reading for this piece of assessment. We will assess your review on how thoughtfully you have engaged with the book's content.
- BUT you will not achieve a high mark if you do not critically analyse the content of the book. We expect you to form considered opinions about the book's content, its method and its objective. This means you will be expected to do more than merely describe the book's content.
- Examples of the kind of scholarly review we are looking for can be found in the Modern Law Review. Longer reviews in a similar style can be found in Human Rights and Human Welfare, an online, refereed journal of review essays at http://www.du.edu/gsis/hrhw/. Other famous sources of book reviews include the London Review of Books (http://www.lrb.co.uk/), the New York Review of Books (http://www.nybooks.com/), and their various imitators in other major cities (LA, Paris etc). If you have not read a book review or review essay for a while, it would be wise to read a few good quality book reviews to familiarise yourself with a scholarly book review.

- You might wish to check if there have been other reviews of the book in scholarly journals or literary reviews.
- Do not include footnotes/endnotes in your word count.
- If you exceed 1500 words you will be penalised by 5% of 15 for every 500 words (or part) by which you exceed that limit. So for example, if you submit a review which is 1600 words, you will lose 0.75 marks from your grade. (We will give you 75 words grace before we start penalising you, in other words, if you come in under 1575, there will be no penalty, but if you are over 1575, you will be penalised for all words over 1500).
- If you do include footnotes/endnotes, use a consistent citation style.
- We have included a sample feedback form for the book review in the appendix to this reading guide which sets out the criteria upon which you will be assessed.

**How to Submit**

Please submit the review electronically to the Melbourne Law Masters office.

# TUESDAY 20th (Day 5)

## SESSION 17

### CLASS PRESENTATIONS 2

See explanation for session 16.

## SESSION 18

### HOW TO ASK RESEARCH QUESTIONS ABOUT LAW, SCIENCE AND TECHNOLOGY

In this session, we will spend some time thinking about the assessment and how to construct research questions for your essays.

## SESSIONS 19 & 20

### HUMAN RIGHTS AND TECHNOLOGY: WHAT IS TO BE DONE?

In July 2018, the Australian Human Rights Commissioner issued a call for responses from the 'public and key stakeholders' to its *Human Rights and Technology Issues Paper*. Written submissions were due by 2 October, with a view to producing a discussion paper in early 2019 and a final report and recommendations to the government by the end of the year. As a way of rounding out the course and bringing our thinking from the three case studies, we will consider how we might have responded: both critically – how are law, science and technology understood in this document? – and according to the paper's own terms.

**Essential readings**

- *Human Rights and Technology Issues Paper*, July 2018. **[PM]**
- Bruno Latour, 'Love your Monsters: Why we Must Care for Our Technologies as we do our Children', *Breakthrough Journal* (2012) **[online resource]** https://thebreakthrough.org/index.php/journal/past-issues/issue-2/love-your-monsters
- Sheila Jasanoff, 'Technologies of Humility: Citizen Participation in Governing Science' 41 *Minerva* (2003), 223-244. **[PM]**