PAPM 4000A
International Studies Capstone Seminar: Strategic Foresight

Fall 2020

Class Time: Tuesday, 11:35 to 2:25
First Class: September 15, 2020
Location: Online only

Instructor: Professor Alex S. Wilner (https://alexwilner.com/)
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1. Bio – Prof Wilner

Dr. Alex S. Wilner is an Assistant Professor of International Affairs at the Norman Paterson School of International Affairs (NPSIA), Carleton University, Ottawa. He teaches graduate classes on terrorism and radicalization, intelligence studies, national and cybersecurity, and a capstone course on Canadian security policy. Capstone partners have included FINTRAC, Public Safety Canada, Global Affairs Canada, Bank of Canada, Policy Horizons Canada (Horizons), Transport Canada, Public Safety, and Ontario's Office of the Provincial Security Advisor. Prof Wilner also developed and teaches a course on strategic foresight in international security, in which graduate students explore the future of weaponry, state conflict, terrorism, criminality, cybersecurity, and other contemporary issues. Prof Wilner's academic research focuses on the application of deterrence theory to contemporary security issues, like terrorism, radicalization, organized crime, cyber threats, and proliferation. His current research is funded by DND IDEaS (2019-2021) and MINDS (2018-2021); SSHRC Insight Grant (2020-2025); TSAS (2018-2021); and Mitacs (2020-2022). His books include *Deterring Rational Fanatics* (University of Pennsylvania Press, 2015) *Deterring Terrorism: Theory and Practice* (eds., Stanford University Press, 2012), and *Deterrence by Denial: Theory and Practice* (eds., Cambria Press, forthcoming 2020)

In November 2017, with support from DND, Horizons, and CSIS, he organized a workshop – *The Ottawa Workshop on Strategic Foresight: Charting the Future of Technology and National Security and Defence Priorities* – on exploring the utility of using strategic foresight in intelligence, national security and foreign policy planning, and academic

research. Over 50 Canadian public servants and invited guests from the US and Europe active in foresight attended. Prof Wilner has likewise provided foresight and academic services to a number of government departments and agencies. He advises the Canadian Forest Service at Natural Resources Canada (NRCan) on developing their foresight capacity, and has led foresight training workshops at Economic and Social Development Canada, the Centre for Intercultural Learning and the Canadian Foreign Service Institute (both at Global Affairs Canada), Immigration, Refugees, and Citizenship Canada, Canadian Heritage, Department of National Defence, CANSOFCOM, and the Standard Council of Canada. Prior to joining NPSIA, Prof Wilner was recruited into public service through the Recruitment of Policy Leaders (RPL) program; he worked at Horizons, the Government of Canada's foresight centre, where he gained invaluable experience applying foresight to public policy. He was one of the principle authors of Horizons' "Geostrategic Cluster Findings – The Future of Asia", and contributed to *MetaScan 4: The Future of Asia*, a Horizons flagship publication.

2. Course Description

The objective of this seminar is to introduce students to the methods and approaches used to explore, assess, and contemplate emerging and future trends in international security. *Strategic foresight* is not an attempt to predict the future. Rather, it provides tools that allow us to better appreciate the range of possible and plausible future scenarios and security environments Canadians might eventually face. Strategic foresight allows decision-makers to systematically contemplate a plethora of future challenges and opportunities while improving their appreciation for how complex political and strategic issues might evolve. The course will explore, examine, and make use of a variety of tools and methods for thinking creatively about the future of terrorism and crime, domestic and international security, and intelligence and espionage. On completing this seminar, students will have broadened their understanding of how to use and engage strategic foresight, horizons scanning, influence diagrams, systems mapping, scenario planning, and red teaming for exploring emerging security dynamics. Success in this seminar will be largely dependent on active student participation during in-class training and exercise sessions. Prior knowledge of strategic foresight or national security issues is not required.

Due to physical distancing requirements, the course will be taught using a combination of pre-recorded 1-1.5hr lectures (which you can access and watch any time via cuLearn), 1.5-3hr weekly seminars and live exercises (which you can access via Big Blue Button through cuLearn), guest lectures, and student led presentations. Students will need an internet-connected device (desktop or laptop computer, tablet, or smartphone) with a functioning microphone and camera to fully take part in this class. Please contact the PAPM program administrator if you need assistance in securing a device/internet connection from Carleton University.

Learning Outcomes

At the end of this course, students will:

- Understand how strategic foresight relates to security studies, strategic surprise, and policy development in Canada and abroad;
- Be able to conduct independent and group-based foresight exercises using a variety of different tools and approaches;
- Have sharpened their written, oral, research, analytical, and presentation skills in individual and team settings.

Expectations

Students are expected to:

- Have read the required readings and be prepared to discuss their contents in class;
- Have watched the pre-recorded lectures in advance of each class exercise;
- Keep abreast of national and international security developments on a daily basis;
- Participate fully in the breakout and in-class training and exercise sessions; and
- Follow normal class etiquette (i.e. cellphone use, side-bar conversations, *etc.*).

3. Course Structure and Class Format

This is an academic course at the undergraduate level, but taught in the style of a graduate course. Students should expect to participate in seminar-style discussions, lead group and individual presentations, and actively participate in professor-guided training exercises. Students are also expected to participate in group research, meetings, and presentations. A typical class will incorporate different learning strategies, including:

- Several classes (see "Video Lecture" schedule below) will be introduced via pre-recorded lectures. Please download and watch these lectures at your leisure in preparation for class.
- Classes will begin with a brief *Weekly Update* – an informal discussion of national and international security developments that took place over the previous week. The *Weekly Update* will give students an opportunity to share news stories with the class and relate the content to class materials, exercises, and foresight projects.
- Short live lectures and occasional guest lecture. Introductory lectures will provide a framework for understanding the issue under discussion and for participating in subsequent in-class training exercises. Guest lectures will be provided by federal practitioners of foresight from the Government of Canada. **Jennifer O'Rourke**, Senior Research Advisor + Futurist, Human Resources Business Innovation, Employment and Social Development Canada, will join us on Nov. 17. Other guests are TBD.
- Oral presentations by students, live class exercises, and class discussion. Student-driven content will provide peer review and comment.

The course will follow this approximate program of activities:

Class	Date	Topic or Activity	Video Lecture	Assignments
W1	Sept. 15	Introduction to Strategic Foresight & Assumptions Exercise	Yes (Video 1)	
W2	Sept. 22	Domain Mapping Exercise	Yes (Video 1)	
W3	Sept. 29	Scanning & Weak Signals	Yes (Video 2)	
W4	Oct. 6	*Scanning Roundtable (oral presentations)*		*Scanning Submission*
W5	Oct. 13	Influence Diagrams, Cascades, and Futures Wheel: Part 1 Exercise	Yes (Video 3)	
W6	Oct. 20	Influence Diagrams, Cascades, and Futures Wheel: Part 2 Exercise	Yes (Video 3)	
	Oct. 27	Reading Week ~ No Class		*Book Reviews*
W7	Nov. 3	*Cluster Prep Session (Digital Meetings with Prof Wilner with each Cluster)*		
W8	Nov. 10	Scenario Planning: Part 1	Yes (Video 4)	
W9	Nov. 17	Guest Lectures: **Jen O'Rourke**		
W10	Nov. 24	Scenario Planning Exercise	Yes (Video 4)	
W11	Dec. 1	Wrap up discussion & *Cluster Prep Session (Digital Meetings with Prof Wilner with each Cluster)*		
W12	Dec. 8	*Strategic Foresight Studio (Oral Presentations)*		*Cluster Presentations & Final Reports*

4. Evaluation and Assignments

I. Scanning Roundtable 20%: Oral 10% and Written 10%

Due Date: WEEK 4, Oct. 6

Each student will orally present one (1) *weak signal* – understood as events, developments, issues, or facts that might signify or represent "symptoms of change" – concerning their Cluster's *future of security* topic. Scanning for weak signals helps analysts uncover potential indicators of future change. Students will describe their weak signal and discuss its potential importance in a **5 minute presentation**. [Marks will take into account whether students remain on time.] A short Q/A may follow the presentation. Students should present their findings using **one (1) PowerPoint slide**.

The presentation will be assessed for the way in which it: (a) summarizes the weak signal; (b) creatively identifies the weak signal's relationship with current and future security environments; and (c) meets timing and delivery requirements (the quality of your presentation, including remaining on time, the slide, clear delivery, audible voice, etc.)

The purpose of this assignment is to:
(1) develop and test students' ability to identify, explore, and present weak signals;
(2) offer the class a preliminary *scan* of the *future of security*;

(3) generate class discussions, insights, and questions concerning the cluster foresight projects (see below for details).

The mark will be allocated by the instructor based on the following criteria:

Oral Evaluation – 10%		
/5.0	PRESENTATION	The quality of your presentation, including remaining on time, clear and logical delivery, audible voice, etc. Presentation offers an effective summary of the weak signal. Quality and usefulness of visual information (i.e. slide) provided.
/5.0	ORIGINALITY	Presentation offers an effective summary of how the weak signal relates to expected and alternative futures (i.e. what is changing; why is the change important?). Weak signal is informative and original.

Each student will likewise submit a **one-page (single spaced) written assessment** of their Weak Signal. The report will be assessed for the way in which it: (a) summarizes the weak signal; (b) creatively identifies the weak signal's relationship with current and future security environments; and (c) meets delivery requirements (the quality of your prose, etc. Tell me: what is changing; and why is that change important?

The mark will be allocated by the instructor based on the following criteria:

Written Evaluation – 10%		
/5.0	QUALITY	The quality of your report, clear and logical structure, effective summary of the weak signal, free of mistakes, jargon, etc.
/5.0	ORIGINALITY	Report offers an effective summary of how the weak signal relates to expected and alternative futures (i.e. what is changing; why is the change important?). Weak signal is informative and original.

II. Book Series (20%)

Due Date: Reading Week (Oct. 27)

Students will write a 1,500 word book review. Students will select a book from the list provided below during **Week 2 (September 22)**. Books can only be selected once.

The purpose of this assignment is to:
(1) test students' analytical capabilities;
(2) ensure students immerse themselves in at least one approach, genre, or subtheme within strategic foresight;
(3) hone student writing skills.

The mark will be allocated by the instructor based on the following criteria:

Evaluation		
/4	PRESENTATION	The extent to which the review tells a cohesive story; the title, introduction and conclusion accurately reflect the major points in the review; structure of the paper is logical; graphs, figures, photos, tables, etc. (if used) are clear, appropriately formatted and necessary to the argument or discussion
/12	COMPLETENESS	The extent to which the review is supported by arguments and facts; clear line of logic and solid reasoning. The extent to which the book's suggestions, findings, or narrative are dealt with in a complete fashion; entirety of book is reviewed
/4	QUALITY OF EXPRESSION	Precise language; avoids ambiguous terms and jargon; free of grammatical errors, typos, and misspellings

Students are to pick one book. While most of these books are available through CU library services, those that are not available may need to be purchased or otherwise personally acquired by students.

Books on *Studying and Thinking about the Future*

- Gary Klein, *Seeing What Others Don't: The Remarkable Ways We Gain Insights*, (Public Affairs, 2013).
- Peter Schwartz, *The Art of the Long View*, (Doublday, 1991/1996).
- Peter Berger and Thomas Luckmann, *The Social Construction of Reality*, (Doublday1967).
- Bertrand de Jouvenal, *The Art of Conjecture* (Basic Books, 1967)
- Mats Lindgren and Hans Bandhold, *Scenario planning: The link between future and strategy*, (Palgrave 2003).
- Jay Ogilvy, *Creating Better Futures: Scenario planning as a tool for a better tomorrow*, (Oxford 2002).
- Philip Tetlock and Dan Gardner, *Superforecasting: The Art and Science of Prediction*, (Crown 2015).
- Fred Polak, *The Image of the Future*, (Jossey-Bass, 1973).
- Nate Silver, *The Signal and the Noise: Why So Many Predictions Fail—But Some Don't*, (Penguin, 2012)
- Pero Micic *The Five Futures Glasses* (Palgrave Macmillan, 2010).
- Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable* (Random House, 2010).
- Willis Harman, *An Incomplete Guide to the Future* (WW Norton, 1979).
- Ken Wilber, *A Theory of Everything* (Shambhala, 2001).
- Amy Webb, *The Signals are Talking: Why Today's Fringe is Tomorrow's Mainstream* (PublicAffairs 2016).
- Jennifer Gidley, *The Future: A Very Short Introduction* (Oxford University, 2017).

Books on *Charting and Planning for the Future*

The Optimists

- Thomas Friedman, *Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations* (Farrar, Straus, Giroux, 2016).
- Christopher Coker, *Future War*, (Polity, 2015).
- Ray Kurzweil, *The Singularity is Near: When Humans Transcend Biology*, (Viking, 2005).
- Andrew McAfee and Erik Brynjolfsson, *Machine, Platform, Crowd: Harnessing our Digital Future* (WW Norton, 2017)
- Eric Schmidt and Jared Cohen, *The New Digital Age: Reshaping the Future of People, Nations and Business*, (Knopf, 2013).
- Robin Hanson, *The Age of Em: Work, Love, and Life when Robots Rule the World*, (Oxford University Press, 2016).
- Michio Kaku, *The Future of Humanity: Terraforming Mars, Interstellar Travel, Immortality, and our Destiny Beyond Earth* (Doubleday 2018).
- Peter Diamandis and Steven Kotler, *Abundance: The Future is Better than You Think*, (Free Press, 2012).
- James Lovelock (with Bryan Appleyard*), Novacene: The Coming Age of Hyperintelligence*, (Penguin, 2019).
- Darrel West and John Allen, Turning Point: Policymaking in the Era of AI (Brookings, 2020).
- Thomas Kostigen, *Hacking Planet Earth: How Bioengineering Can Help Us Reimagine the Future*, (Penguin, 2020).

The Pessimists

- Benjamin Wittes and Gabriella Blum, *The Future of Violence: Confronting a New Age of Threat*, (Basic Books, 2015).
- Christian Bros, *The Kill Chain: Defending America in the Future of High-Tech Warfare* (Hachette, 2020)
- Marc Goodman, *Future Crimes: Inside the Digital Underground and the Battle for our Connected World* (Penguin, 2015)
- Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford, 2014).
- Illah Reza Nourbakhsh, *Robot Futures*, (MIT Press, 2013).
- Martin Ford, *Rise of the Robots: Technology and the Threat of a Jobless Future*, (Basic Books, 2015).
- Amir Husain, *The Sentient Machine*, (Simon & Schuster, 2017).
- James Barratt, *Our Final Invention: AI and the End of the Human Era* (St. Martin's Press 2013).
- Cathy O'Neil, *Weapons of Math Destruction*, (Crown, 2016).
- David Biello, *The Unnatural World: The Race to Remake Civilization in Earth's Newest Age*, (Simon & Schuster, 2016).
- Kai-Fu Lee, *AI Superpowers: China, Silicon Valley, and the New World Order* (Houghton Mifflin Harcourt, 2019).

- David Wallace-Wells, *The Uninhabitable Earth: Life after Warming* (Tim Duggan, 2019).
- Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (Henry Hold, 2014).

The In-betweeners

- Max Tegmark, *Life 3.0: Being Human in the Age of Artificial Intelligence* (Knopf, 2017).
- Trond Undheim, *Pandemic Aftermath: How Coronavirus Changes Global Society* (Atmosphere Press, 2020).
- Alec Ross, *The Industries of the Future*, (Simon & Schuster, 2016).
- Yuval Noah Harari, *Homo Deus: A Brief History of Tomorrow* (Signal Books, 2016).
- Paul Scharre, *Army of None: Autonomous Weapons and the Future of War* (WW Norton 2018).
- Matthew Burros, *The Future, Declassified* (St. Martin's Press, 2014).

Books that *Fictionalize the Future*

- Aldous Huxley, *Brave New World*, (Harper & Row, 1933).
- Kim Stanley Robinson, *Red Mars*, (Spectra, 1993).
- P.W. Singer and August Cole, *Ghost Fleet: A Novel of the next World War*, (Harcourt, 2015).
- P.W. Singer and August Cole, *Burn-In: A Novel of the Real Robotic Revolution*, (Harcourt, 2020).
- Omar El Akkad, *American War* (McClelland & Stewart, 2017). Sara
- Margaret Atwood, *The Year of the Flood* or *MaddAddam*, (McClelland & Stewart, 2009; 2013).
- Alexander Weinstein, *Children of the New World* (Picador 2016).
- Paolo Bacigalupi, *The Windup Girl*, (Night Shade Books, 2012).
- Maggie Shen King, *An Excess Male* (HarperCollins, 2017).

III. Foresight Report (25%) & Studio Presentation (15%)

Due Date: WEEK 12, December 8 (Presentation & Written submission).

Using the tools and methods discussed, taught, and practiced during the semester, students will conduct an in-depth, group-based strategic foresight project. Four research clusters of 4-5 students will be selected by Professor Wilner and identified in Week two. Each cluster will be assigned a specific topic to explore:

- Future of Crime
- Future of Weaponry
- Future of Cyber Security
- Future of Intelligence & Espionage

The objective of the cluster is to uncover "What is surprising?" about their collective topic. The challenge is to present that surprise to high level Canadian decision makers. If you had the Prime Minister's ear, what would you tell him about your topic and findings?

Clusters will be provided with two "sessions" – November 3 (3 hrs) and December 1 (2 hrs) – to meet virtually during class time to discuss the project, division of labour, etc. **Students will have to meet (virtually) beyond these two in-class sessions to successfully manage and complete their project. How and when you do so, and using what platform (BBB, Zoom, WebX, FaceTime, etc.) is up to you.**

Students within each cluster will share one collective grade.

Clusters will submit a written report (4000 words, not including sources) and present their findings to the class in a detailed 20-minute presentation (using PowerPoint or Prezi). Research teams will likewise be expected to help direct the subsequent Q&A session and class discussion.

Research clusters will be expected to complete a number of strategic foresight exercises and steps. Written reports and oral presentations must include:

- Domain Map (i.e. binding the project's scope)
- Comparison of Current/Credible Assumptions
- Horizons Scan (i.e. identify a series of relevant weak signals)
- Insights section that describes 4-6 Change Drivers (i.e. clusters of weak signals)
- At least one Influence Cascade, Influence Diagram, or Futures Wheel (i.e. identifying second and third order consequences)
- Three (3) short Scenarios (i.e. fictional accounts of future environments used to explore current policy and planning assumptions)
- Policy section that describes at least four (4) future challenges or opportunities for Canada stemming from your domain

Reports must include a detailed reference list of all materials and sources used (not included in word count). Likewise, graphics, visual representations of exercises (i.e. the Influence Diagram), and hyperlinked video/digital material must be included (graphics not included in word count).

For an example of how you might structure your cluster report, see Policy Horizons Canada, "Metascan 3: Emerging Technologies" (2014), and Metaascan 4: Future of Asia (2016).

The purpose of this assignment is to:

(1) improve students' collaborative research skills;
(2) improve students' analytical and written/presentation skills;
(3) develop students' ability to synthesise and present complex information in a clear and concise manner;
(4) test students' ability to organize and produce an in-depth strategic foresight project

The mark will be *shared* by all members of the cluster, and will be allocated by the instructor based on the following criteria:

Evaluation		
Oral Presentation (15%)		
/7	PRESENTATION	The overall quality of your presentation, including remaining on time, clear delivery, audible voice, organization, charisma, etc.
/8	SLIDES	Quality, clarity, and usefulness of slides
Written Report (25%)		
/5	COMPLETENESS	The extent to which the presentation/paper covers each of the required foresight exercises – adequacy, quality, accuracy and completeness of coverage
/5	INFORMATION SEARCH & VALIDATION	The depth and breadth of the search process used in identifying signals and change drivers; the level to which information and sources are corroborated and validated; quality of sources
/4	CREATIVITY	The nature, novelty, and utility of the scenarios; scope, accuracy, and breadth of influence diagram/futures wheel
/4	POLICY EXPLORATION	The quality, accuracy, and completeness of policy discussion
/4	PRODUCT DESIGN	The nature and quality of graphics, visual representations, and web video content
/3	QUALITY OF EXPRESSION, and STYLE	Precise language; ambiguous terms and jargons avoided; free of grammatical errors, typos & misspellings; structure and style; accessibility and readability

IV. Participation in class: 20%

Students are expected to: virtually join every class having done all the required readings and having watched the pre-recorded lectures; actively contribute to class discussions; and eagerly participate during in-class exercises and guest lectures. The participation mark will be based on regular attendance and the quality of your interventions and leadership in class.

5. Procedures for Submitting your Work

Accepted word processing formats: Word 2010 or WordPerfectX7. Any other format to be pre-approved by the instructor. Written assessments and work must be submitted via CULearn by the stated deadline. Assignments must include this cover sheet:

Assignment cover sheet (Mandatory)

COURSE: INAF 5469 – Strategic Foresight in International Security
YEAR: 2019

ASSIGNMENT #: insert the assignment number
TITLE: insert title of the assignment
NAME: insert your name
STUDENT #: insert your student number
WORD COUNT: insert total word count here …
insert word count minus references here …
DATE: insert date of submission here

Late submission penalties
The date and time of your submission will be recorded by CULearn. Deadlines for the submission of written work and presentations are strictly adhered to and are not negotiable. Failure to submit a piece of written work or make a presentation by the stated deadline results in the following penalties being applied to that piece of work:

- Failure to make the presentation in class on the stated day will result in a mark of zero (0)
- Late submission of work within 24 hours of deadline = 15% reduction in the final mark for that assignment
- Late submission of work within 48 hours of the deadline = 30% reduction in the final mark for that assignment
- Late submission of work 96 hours after the deadline = 50% reduction in the final mark for that paper
- Work received more than one week after the deadline will not be marked and will result in a zero mark for that assignment.

By the end of the first class of this course you will know when ALL the deadlines and dates for presentations are. Plan your workload on this and other courses according to these deadlines.

6. Communications

Please use your Carleton email account for all course-related correspondence.

7. Plagiarism and Complementarity

The University Senate defines plagiarism as "presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own." This can include:

- reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source;
- submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
- using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another's data or research findings;

- failing to acknowledge sources through the use of proper citations when using another's works and/or failing to use quotation marks;
- handing in substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs.

Plagiarism is a serious offence that cannot be resolved directly with the course's instructor. The Associate Deans of the Faculty conduct a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They include a mark of zero for the plagiarized work or a final grade of "F" for the course. The Academic integrity policy can be accessed at http://www2.carleton.ca/studentaffairs/academic-integrity.

Complementarity: students are encouraged to build up expertise in areas that may cross multiple courses. It is acceptable to write assignments on related topics. However you may not simply cut and paste your work from one assignment to another, or essentially submit the same work for two or more assignments in the same or different courses. If you plan on writing on related topics in different courses, you must inform the instructors and discuss what will be acceptable in terms of overlap, and what is not. Failure to notify the faculty members will be viewed unfavourably should there be a suspicion of misconduct

8. Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: http://www2.carleton.ca/equity/

Religious obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: http://www2.carleton.ca/equity/

Academic Accommodations for Students with Disabilities: The **Paul Menton Centre** for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your ***Letter of Accommodation*** at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (*if applicable*). After requesting accommodation from PMC, meet with me

to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (*if applicable*) at http://www2.carleton.ca/pmc/new-and-current-students/dates-and-deadlines/

You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at http://www2.carleton.ca/equity/

9. CULearn

This course uses cuLearn, Carleton's learning management system. To access your course on cuLearn go to http://carleton.ca/culearn. For help and support, go to http://carleton.ca/culearnsupport/students. Any unresolved questions can be directed to Computing and Communication Services (CCS) by phone at 613-520-3700 or via email at ccs_service_desk@carleton.ca.

10. Required Readings

Four or five *required readings* accompany each week's class. Students should expect between 40 and 60 pages of reading a week. Most of these readings are short (between 8-12 pages). You will be expected to read them before class and consider the arguments, ideas, and processes put forward. The syllabus also includes video content. These readings and videos form an important part of the class discussion and in-class exercises. The readings as a whole are intended to provide you with a useful introduction to various topics and techniques covered in the course. Most are available freely online, and/or via CU library services and CULearn. Each class also includes an optional *Fun Read* section. This material is meant to provide students with a taste of the lighter side of futures study, strategic foresight, and forecasting, and to highlight some possible leads in identifying weak signals and developing insights. Some of this material will prove useful to your cluster reports and scanning efforts.

COURSE CONTENT & READING LIST

Week 1 – September 15
Introduction to Strategic Foresight: What, Where, When?
Video 1

- Peter Bishop and Kay Strong, "Why teach the future?" *Journal of Futures Studies* 14:4 (2010).
- Jim Dator, "What Futures Studies is, and is Not," Hawaii Research Center for Futures Studies 1995.
    - *Watch:* Policy Horizons Canada's, "What is Foresight?"
- Policy Horizons Canada, "Module 4: System Mapping in the Horizons Foresight Method", 2016.

- Joseph Voros, "A Primer on Futures Studies, Foresight and the Use of Scenarios," *Prospect* 6 (2001).
- Peter Bishop, "A yardstick too far?" *Foresight*, 3:3 (2001).
- Skim a few of the short commentaries in *The Economist*, The World In, series.

FUN READ

- The Institute for the Future, Who we are and what we do, 2012 [Video].
- The Future of Humanity Institute, UK [Peruse the site].
- Center for a New American Security, Artificial Intelligence and Global Security Initiative Research Agenda, and Future of Warfare [Peruse the site].
- Jennifer Ditchburn, "The Coolest Government Org you've Never Heard of," *Policy Options*, December 2017.
- Aaron Wudrick, "Why the Sun Needs to Set on this Taxpayer-funded Think-tank," *Ottawa Citizen*, September 2018.

Week 2 – September 22
Domain Mapping Exercise
Video 1

- Andy Hines and Peter Bishop, "Framework Foresight: Exploring Futures the Houston Way," *Futures* 51 (2013).
- Andy Hines and Peter Bishop, *Thinking about the Future: Guidelines for Strategic Foresight*, (Washington, DC: Social Technologies 2006), Chapter One on Framing, **pp 13-24**
- Averil Horton, "A Simple Guide to Successful Foresight", *Foresight* 1:1 (1999).
- Peter Gizewski, "Canada's Future Army: Alternative Futures and Implications," Defence Research and Development Canada, Sept 2017.

FUN READ

- Play with this: https://thispersondoesnotexist.com/.
- Peruse: New York Times' "Op-eds From the Future," 2019.
- Peruse: Mad Scientist Laboratory, "Table of Future Technologies," 2020.
- Combating Terrorism Center, *CTC Sentinel*, "Engineered Pathogens and Unnatural Biological Weapons: The Future Threat of Synthetic Biology, 13:8 (Aug 2020).

Week 3 – September 29
Scanning and Weak Signals
Video 2

- Andy Hines and Peter Bishop, *Thinking about the Future: Guidelines for Strategic Foresight*, (Washington, DC: Social Technologies 2006), Chapter Two on Scanning, **pp 64-75.**
- Elina Hiltunen, "Good Sources of Weak Signals: A Global Study of Where Futurists Look for Weak Signals," *Journal of Futures Studies* 12:4 (2008).
- Dyer Harris and Steven Zeisler, "Weak Signals: Detecting the Next Big Thing," *Futurist* 36:6 (2002).

FUN READ

- Watch: YouTube, "A compilation of Robots Falling down at the DARPA Robotics Challenge", June **2015**, *versus* "9 Most Advanced AI Robots" (YouTube), March **2020**.
- Peruse: RAND, Security 2040 project website.
- *The Guardian*, "A Robot Wrote this Entire Article. Are you Scared yet, Human?" GPT-3, September 8, 2020.
- Lauren Golembiewski, "How Wearable AI Will Amplify Human Intelligence," Harvard Business Review, April 30, 2019.

Week 4 – October 6
Scanning Roundtable

Come to class prepared to pitch your weak signal

FUN READ

[*The Economist* Tech Quarterly Edition]

- *The Economist*, Technology Quarterly Quantum Technology, March 2017.
- *The Economist*, Technology Quarterly Brain-Computer Interfaces, January 2018.
- *The Economist*, Special Report: "GrAIt Expectations: AI in Business", March 2018.
- *The Economist*, Technology Quarterly Avionics: Future of Flight, May 2019.
- *The Economist*, Technology Quarterly Synthetic Biology, April 2019.
- *The Economist*, Technology Quarterly, "The Internet of Things: Chips with Everything," September 2019.
- *The Economist*, Technology Quarterly, "Technology in China: A New Revolution," January 4, 2020.
- *The Economist*, Technology Quarterly, "Artificial Intelligence and its Limits," June 11, 2020.

Week 5 – October 13
Influence Diagrams, Cascades and Futures Wheel: Part 1 (Influence Diagram)
Video 3

- Peter Bishop and Andy Hines, *Teaching about the Future*, Palgrave Macmillan: 2012), chapter 2 "Systems Thinking", **pp.63-96**.
- Policy Horizons Canada, "Module 5: Change Drivers", 2016.
- Ross Shachter, "Evaluating Influence Diagrams," *Operations Research* 34:6 (1986).
- Geoff Coyle, "The nature and value of futures studies or do futures have a future?" *Futures* 29:1 (1997).

FUN READ

- Peruse: Centre for the Study of Existential Risk, UK, http://cser.org/research/areas/artificial-intelligence/
- Nicole Wetsman, "Elon Musk Trots out Pigs in Demo of Neuralink Brain Implants," The Verge, August 28, 2020.
- Rachel Lovell, "Nanoclay: The Liquid Turning Desert to Farmland," BBC Futures, 2020.
- David Wallace-Wells, "The Uninhabitable Earth," *New York Magazine* Intelligencer, July 2017
- Yasmin Gagne and Ainsley Harris, "How COVID-19 has Changed the way we Eat, According to Five Experts," *Fast Company*, July 2020.

Week 6 – October 20
Influence Diagrams, Cascades and Futures Wheel: Part 2 (Influence Cascades and Futures Wheel)
Video 3

- Check out Coggle, free mind-mapping software …
- Jerome Glenn, "Futures Wheel", in *Futures research methodology—version 3.0* (CD-ROM), Glenn and Gordon (eds.) (Millennium Project, Washington, 2009), **Chapter Six**.
- David Bengston, "The Futures Wheel: A Method for Exploring the Implications of Social-Ecological Change," *Society & Natural Resources* 0 (2015).
- Joel Barker and Christopher Kenny, "Leading in Uncertain Times," *Innovation*, 2010.
    - *WATCH*: Joel Barker's "Scouting the Future with the Implications Wheel".

FUN READ

- Peruse the Data: Pandemics Explained, "How Severe is the Pandemic Where you Live.?" 2020.
- Watch: McKinsey & Company, "Focused on Foresight: An interview with the US's National Intelligence Officer for Warning," 2009.
- Andy Greenberg, "The WIRED Guide to Cyberwar," Wired, August 2019.
- New York Times, "One Nation, Tracked," Dec. 19, 2019 [Stuart Thompson and Charlie Warzel, "Twelve Million Phones, One Dataset, Zero Privacy"]

October 27 – Reading Week
NO CLASS

Week 7 – November 3
Cluster Prep Sessions with Prof Wilner
Time/Digital Location TBD

Week 8 – November 10
Scenario Planning: Part 1
Video 4

- Mats Lindgren and Hans Bandhold, *Scenario Planning: The Link between Future and Strategy* (Palgrave: 2003), Chapter 2: "Scenario Planning: An Introductory Overview", pp. 21-46.
- Peter Bishop, Andy Hines, and Terry Collins, "The current state of scenario development: an overview of techniques", *Foresight* 9:1 (2007).
- Dylan Monks, "China/Russia 2035," *Comparative Strategy* 38:4 (2019).
- *The Economist*, "The World If", 2018 (or 2019 if you can get it). [Peruse the various Scenarios].

FUN READ

[*The Economist* Edition, Part II]

- *The Economist*, "NATO at 100: The Next Three Decades," March 2019.
- *The Economist*, "Hypersonic Boom," April 2019.
- *The Economist*, "Policing and Technology: Files, not Faces" May 2019.
- *The Economist*, "Clandestine Warfare: Special Drone Service," June 2019.
- *The Economist*, "Walking with Robots," September 2020.
- *The Economist*, "Bit-Lit," August 2020.

Week 9 – November 17
Guest Lecture - Jen O'Rourke

- Alex Wilner and Martin Roy, "Canada's Emerging Foresight Landscape," *Foresight* (Pre-print 2020).
- Philip Tetlock, Barbara Mellers, J. Peter Scoblic, "Bringing Probability Judgments into Policy Debates via Forecasting Tournaments," *Science* 355 (2017).
- Florence Gaub, "Global Trends to 2030: Challenges and Choices for Europe," European Strategy and Policy Analysis System, April 2019.
- Sarah Grand-Clement, "How Horizons Scanning can give the Military a Technological Edge," RAND Blog, Feb 2019.

FUN READ

- Malcolm Harris, "Shell is Looking Forward," New York Magazine *Intelligencer*, March 3, 2020.
- Elizabeth Pennisi, "Controversial 'gene drive' Could Disarm Deadly Wheat Pathogen," *Science*, April 17, 2020.
- Sigal Samuel, "How Biohackers are Trying to Upgrade their Brains, Their Bodies, and Human Nature, " Vox, November 15, 2019.
- Patrick Tucker, "An AI just beat a Human F-16 Pilot in a Dogfight – Again," Defense One, August 20, 2020.

Week 10 – November 24
Scenario Planning: Part 2
Video 4

- Richards Heuer Jr. and Randolph Pherson, *Structured Analytic Techniques for Intelligence Analysis* (Washington: CQ Press, 2011), Chapter 6 (Scenarios and Indicators).
- Lena Borjeson, et. al., "Scenario Types and Techniques: Towards a User's Guide", *Futures* 38 (2006).
- Andy Hines & Peter Bishop, *Thinking about the Future: Guidelines for Strategic Foresight*, (Washington, DC: Social Technologies 2006), parts of Chapter Five on Planning, **pp 181-187**; parts of Chapter Six on Acting, **pp 211-219**.

FUN READ

- Margaret Atwood, "A Survival Story: How to Influence the Final Chapter", *The Economist*, Minds on the Future edition, Nov. 2, 2015.
- Jasper Jeffers, "AN41: A Futuristic Fiction Story about War, People, and Robots," *MIT Technology Review*, October 24, 2019.
- Thomas Pierce, "This is an Alert", *New Yorker*, March 30, 2015. [Chem Warfare Drone Fiction]

- *The Economist* "Data Detectives", (Technology Quarterly) June 2, 2018. [Graphic Novel]
- Joshua Rothman, "Afterimage: Now that everything can be faked, how will we know what's real?", *New Yorker*, November 2018.

Week 11 – December 1
Wrap up Discussion & Cluster Prep Sessions

- Policy Horizons Canada, "Module 2: Assumptions", 2016.
- Peruse: NATO Science & Technology Organization, *Science & Technology Trends 2020-2040*, March 2020.

FUN READ

- Tad Friend, "Silicon Valley's Quest to Live Forever", *New Yorker*, April 3, 2017.
- Kristin Houser, "Amazon Claims Rekognition can Now Detect Fear," Futurism, August 2019.
- J. Peter Scoblic, "Learning from the Future," *Harvard Business Review*, July/August 2020.
- Edd Gent, "Artificial Intelligence is Evolving all by Itself," *Science*, April 13, 2020.

Week 12 – December 8
Strategic Foresight Studio

Come to class prepared to present your cluster's strategic foresight project