

Conrad Grebel University College  
University of Waterloo  
PACS 301: The Future of War and Peace: Drones, Robots, and  
the Role of Peace Research

Winter 2021

**Class Voluntary Virtual Discussion Time:** Thursdays, 18:00-19:00

**Instructor:** Cesar Jaramillo and Branka Marijan

**Office Hours:** By appointment only.

**Email:** cmjarami@uwaterloo.ca ; b4marija@uwaterloo.ca

### Course Description:

Advances in technology and the increasing use of drones, robots, AI, and cyberwarfare has changed the landscape of war in the future. This will require a new set of responses from peace advocates, and peace research will play an increasingly important role. The multilateral arena where many of these responses will play out, as well as previous and ongoing efforts to respond to armed conflict, will be key factors that will shape peace research and advocacy going forward.

### Course Objectives/Expectations/Requirements:

At the end of this course you should be able to:

- To highlight key trends in warfare and types of responses from peace researchers and civil society.
- To have a basic understanding of multilateral policy processes related to arms control and disarmament as well as the main fora in which they unfold.
- To identify the key stakeholders involved in current arms control and disarmament efforts.
- To further develop analytical skills by examining a variety of sources of information.
- To deepen knowledge of current events as they relate to the course.

### Required Reading Materials:

All of the readings for the course are easily accessible online and/or through the University of Waterloo library.

**Web Page:** This course will make use of a WATERLOO LEARN website. This site will provide general information for the course, study guides and grades for term tests. Important announcements such as the cancellation of class due to illness will also be posted there, so please try to check the site before each class, just in case.

## Evaluations:

<i>Assignment</i>	<i>% of Grade</i>	<i>Due date</i>
<b>Analysis 1</b>	15	Feb 1
<b>Analysis 2</b>	20	February 26
<b>Analysis 3</b>	15	March 26
<b>Essay Topic Proposal</b>	10	March 16
<b>Final Essay</b>	30	April 17 by 4:00 pm
<b>Participation</b>	10	Ongoing

### Analysis 1

Write a 750 word analysis examining the role of peace researchers, humanitarians and/ or civil society groups in addressing challenges posed by new technologies and types of warfare. Please submit the analysis through LEARN.

### Analysis 2

Write a 1,200 word analysis exploring some of the key issues discussed in the course thus far. What will war look like in 2030? Which technologies will play a role? Use course material and external sources to support your arguments. Please submit the analysis through LEARN.

### Analysis 3

Write a 750 word analysis exploring the question: what aspects of contemporary warfare are truly new? Use course reading or external sources to support your arguments. Please submit the analysis through LEARN.

### Essay Topic Proposal

The essay topic proposal should be one page long (single-spaced) and outline the thesis and key arguments the student will present in their essay.

The proposal will be due on **March 16**. Please submit the proposal through LEARN.

### Final Essay

Students will write an 8-10 page final essay. The essay topic will be approved by the instructors and will be related to the course material. The essay must demonstrate evidence of research beyond the course material and be cited properly.

The final essay will be due on **April 17, by 4:00 pm**. Please submit your essay through LEARN. **No essays will be accepted after April 24.**

### Participation

Post a link on Learn to a news article related to the readings that week and 1-2 sentences why that article is relevant and interesting.

### Grading Scale:

Assigned Letter Grades	Percentage Range	Average Calculation Values
A+	90-100	95
A	85-89	89
A-	80-84	83
B+	77-79	78
B	73-76	75
B-	70-72	72
C+	67-69	68
C	63-66	65
C-	60-62	62
D+	57-59	58
D	53-56	55
D-	50-52	52
F+	42-49	46
F	35-41	38
F-	0-34	32

### Course Schedule:

Week	Topic	Reading
1	Introduction	<input type="checkbox"/> Peter L. Hickman, The Future of Warfare Will Continue to Be Human <a href="https://warontherocks.com/2020/05/the-future-of-warfare-will-continue-to-be-human/">https://warontherocks.com/2020/05/the-future-of-warfare-will-continue-to-be-human/</a>

Week	Topic	Reading
		<input type="checkbox"/> David Kampf, How COVID-19 Could Increase the Risk of War <a href="https://www.worldpoliticsreview.com/insights/28843/how-covid-19-could-increase-the-risk-of-war">https://www.worldpoliticsreview.com/insights/28843/how-covid-19-could-increase-the-risk-of-war</a>
2	Future of Peace: Global Governance, Arms Control and Disarmament	<input type="checkbox"/> António Guterres, Securing Our Common Future: An Agenda for Disarmament, United Nations (Action items 1-40) <a href="https://www.un.org/disarmament/sg-agenda/en/">https://www.un.org/disarmament/sg-agenda/en/</a> <input type="checkbox"/> Sverre Lodgaard, Arms Control and World Order, Taylor and Francis Online <a href="https://www.tandfonline.com/doi/full/10.1080/25751654.2019.1631243">https://www.tandfonline.com/doi/full/10.1080/25751654.2019.1631243</a> <input type="checkbox"/> Paul Meyer, Breakthrough and Breakdown at the Conference on Disarmament, Arms Control Association <a href="https://www.armscontrol.org/act/2009-09/breakthrough-breakdown-conference-disarmament-assessing-prospects-fmct">https://www.armscontrol.org/act/2009-09/breakthrough-breakdown-conference-disarmament-assessing-prospects-fmct</a>
3	Peace Research and International Civil Society Activism	<input type="checkbox"/> David J. Norman, Transnational civil society and informal public spheres in the nuclear non-proliferation regime, European Journal of International Relations <a href="https://journals.sagepub.com/doi/10.1177/1354066118774836">https://journals.sagepub.com/doi/10.1177/1354066118774836</a> <input type="checkbox"/> International Human Rights Clinic at Harvard Law School and Pax, Humanitarian Disarmament <a href="https://humanitariandisarmament.org/wp-content/uploads/2019/10/Humanitarian-Disarmament-English-web-15.10.19-1.pdf">https://humanitariandisarmament.org/wp-content/uploads/2019/10/Humanitarian-Disarmament-English-web-15.10.19-1.pdf</a> <input type="checkbox"/> International Campaign to Ban Landmines – Cluster Munitions Coalition: <a href="http://www.icbl.org/en-gb/about-us/who-we-are/the-icbl.aspx">http://www.icbl.org/en-gb/about-us/who-we-are/the-icbl.aspx</a> <input type="checkbox"/> Campaign to Stop Killer Robots: <a href="https://www.stopkillerrobots.org/learn/">https://www.stopkillerrobots.org/learn/</a> <input type="checkbox"/> International Campaign to Abolish Nuclear Weapons: <a href="https://www.icanw.org/the_campaign">https://www.icanw.org/the_campaign</a> <input type="checkbox"/> Control Arms: <a href="https://controlarms.org/control-arms/">https://controlarms.org/control-arms/</a> <input type="checkbox"/> International Network on Explosive Weapons: <a href="http://www.inew.org/about-inew/">http://www.inew.org/about-inew/</a>
4	Understanding the Changing Character of Warfare	<input type="checkbox"/> Waldman, T., 2018, Vicarious warfare: The counterproductive consequences of modern American military practice, Contemporary Security Policy <a href="https://www.tandfonline.com/doi/abs/10.1080/13523260.2017.1393201?journalCode=fcsp20">https://www.tandfonline.com/doi/abs/10.1080/13523260.2017.1393201?journalCode=fcsp20</a> <input type="checkbox"/> Peter W. Singer, What insurgency will look like in 2030, <a href="https://www.defenseone.com/ideas/2019/04/what-insurgency-will-look-2030/156594/">https://www.defenseone.com/ideas/2019/04/what-insurgency-will-look-2030/156594/</a> <input type="checkbox"/> Conceptualizing Remote Warfare: The Past, Present, and Future, Oxford Research Group <a href="https://www.oxfordresearchgroup.org.uk/conceptualising-remote-warfare-the-past-present-and-future">https://www.oxfordresearchgroup.org.uk/conceptualising-remote-warfare-the-past-present-and-future</a> <input type="checkbox"/> Aram Roston, A Middle East Monarchy Hired American Ex-Soldiers To Kill Its Political Enemies. This Could Be The Future Of War. BuzzFeed

Week	Topic	Reading
		News <a href="https://www.buzzfeednews.com/article/aramroston/mercenaries-assassination-us-yemen-uae-spear-golan-dahlan">https://www.buzzfeednews.com/article/aramroston/mercenaries-assassination-us-yemen-uae-spear-golan-dahlan</a>
5	Armed Drones and Remote Control Warfare	<p>☐ Michael C. Horowitz, Sarah E. Kreps, and Matthew Fuhrmann (2016). Separating Fact from Fiction in the Debate over Drone Proliferation. <i>International Security</i>, 41(2): 7-42. <a href="https://www.mitpressjournals.org/doi/pdf/10.1162/ISEC_a_00257">https://www.mitpressjournals.org/doi/pdf/10.1162/ISEC_a_00257</a></p> <p>☐ Paul Rogers (2013). Security by 'Remote Control': Can It Work?, <i>RUSI Journal</i> 158(3), 14-20. <a href="https://www.tandfonline.com/doi/full/10.1080/03071847.2013.807581">https://www.tandfonline.com/doi/full/10.1080/03071847.2013.807581</a></p> <p>☐ Andreas Krieg &amp; Jean-Marc Rickli (2018). Surrogate warfare: the art of war in the 21st century?, <i>Defence Studies</i>, 18:2, 113-130 <a href="https://www.tandfonline.com/doi/full/10.1080/14702436.2018.1429218?src=recsys">https://www.tandfonline.com/doi/full/10.1080/14702436.2018.1429218?src=recsys</a></p> <p>☐ Sébastien Roblin, How an explosion of cheap armed drones is changing the nature of warfare <a href="https://www.nbcnews.com/think/opinion/cheap-drones-china-turkey-israel-are-fueling-conflicts-armenia-azerbaijan-ncna1243246">https://www.nbcnews.com/think/opinion/cheap-drones-china-turkey-israel-are-fueling-conflicts-armenia-azerbaijan-ncna1243246</a></p>
6	Cyber, Asymmetrical Warfare	<p>☐ Andrea Gilli and Mauro Gilli (2018/2019). Why China Has Not Caught Up Yet: Military-Technological Superiority and the Limits of Imitation, Reverse Engineering, and Cyber Espionage. <i>International Security</i>, 43:3, 141-189 <a href="https://www.mitpressjournals.org/doi/pdf/10.1162/isec_a_00337">https://www.mitpressjournals.org/doi/pdf/10.1162/isec_a_00337</a></p> <p>☐ Daniel Moore (2017). "Struggling with Cyber: A Critical Look at Waging War Online," <i>War on the Rocks</i> July 5, 2017, <a href="https://warontherocks.com/2017/07/struggling-with-cyber-acritical-look-at-waging-war-online/">https://warontherocks.com/2017/07/struggling-with-cyber-acritical-look-at-waging-war-online/</a></p> <p>☐ Toni Pfanner (2005). Asymmetrical warfare from the perspective of humanitarian law and humanitarian action. <i>International Review of the Red Cross</i> 87 (857), 149-174. <a href="https://international-review.icrc.org/sites/default/files/irrc_857_8.pdf">https://international-review.icrc.org/sites/default/files/irrc_857_8.pdf</a></p>
7	AI, Autonomous Weapons	<p>☐ Louise Amoore, Rita Raley, Lauren Wilcox (2017). Embodying algorithmic war: Gender, race, and the posthuman in drone warfare. <i>Security Dialogue</i>, 48(1):11-28. <a href="https://journals.sagepub.com/doi/10.1177/0967010616657947">https://journals.sagepub.com/doi/10.1177/0967010616657947</a></p> <p>☐ Ben Tarnoff (2018). Weaponised AI is coming. Are algorithmic forever wars our future? <i>The Guardian</i>, <a href="https://www.theguardian.com/commentisfree/2018/oct/11/war-jedi-algorithmic-warfare-us-military">https://www.theguardian.com/commentisfree/2018/oct/11/war-jedi-algorithmic-warfare-us-military</a></p> <p>☐ Maaïke Verbruggen (2019). The Role of Civilian Innovation in the Development of Lethal Autonomous Weapon Systems, <i>Global Policy</i> 10(3), 338-342. <a href="https://onlinelibrary.wiley.com/doi/full/10.1111/1758-5899.12663">https://onlinelibrary.wiley.com/doi/full/10.1111/1758-5899.12663</a></p> <p>☐ Heather M. Roff (2016). Gendering a Warbot, <i>International Feminist Journal of Politics</i>, 18:1, 1-18. <a href="https://www.tandfonline.com/doi/abs/10.1080/14616742.2015.1094246">https://www.tandfonline.com/doi/abs/10.1080/14616742.2015.1094246</a></p> <p>☐ Ulrike E. Franke (2019). Not smart enough: The poverty of European military thinking on artificial intelligence. <i>EUCFR Policy Brief</i></p>

Week	Topic	Reading
		<a href="https://www.ecfr.eu/publications/summary/not_smart_enough_poverty_european_military_thinking_artificial_intelligence">https://www.ecfr.eu/publications/summary/not_smart_enough_poverty_european_military_thinking_artificial_intelligence</a>
8	New Actors and Responses	<ul style="list-style-type: none"> <li><input type="checkbox"/> Kate Conger (2018). Google Plans Not to Renew Its Contract for Project Maven, a Controversial Pentagon Drone AI Imaging Program. Gizmodo <a href="https://gizmodo.com/google-plans-not-to-renew-its-contract-for-project-mave-1826488620">https://gizmodo.com/google-plans-not-to-renew-its-contract-for-project-mave-1826488620</a></li> <li><input type="checkbox"/> Neil J. Waghorn (2016) Watching the watchmen: resisting drones and the “protester panopticon”. Geographica Helvetica 71, 99-108. <a href="https://pure.aber.ac.uk/portal/files/9672490/gh_71_99_2016.pdf">https://pure.aber.ac.uk/portal/files/9672490/gh_71_99_2016.pdf</a></li> <li><input type="checkbox"/> Elise Thomas, How to hack your face to dodge the rise of facial recognition tech <a href="https://www.wired.co.uk/article/avoid-facial-recognition-software">https://www.wired.co.uk/article/avoid-facial-recognition-software</a></li> </ul>
9	Outer Space Security	<ul style="list-style-type: none"> <li><input type="checkbox"/> Jessica West (Ed.), Space Security Index 2019 Executive Summary, Space Security Index <a href="http://spacesecurityindex.org/wp-content/uploads/2019/10/SSI2019ExecutiveSummaryCompressed.pdf">http://spacesecurityindex.org/wp-content/uploads/2019/10/SSI2019ExecutiveSummaryCompressed.pdf</a></li> <li><input type="checkbox"/> Cesar Jaramillo, The multifaceted nature of space security challenges, Space Policy <a href="https://www.sciencedirect.com/science/article/abs/pii/S0265964615000260">https://www.sciencedirect.com/science/article/abs/pii/S0265964615000260</a></li> <li><input type="checkbox"/> Brian Weeden, Victoria Samson, Enhancing Space Security: Time for Legally Binding Measures, Arms Control Association <a href="https://www.armscontrol.org/act/2020-12/features/enhancing-space-security-time-legally-binding-measures">https://www.armscontrol.org/act/2020-12/features/enhancing-space-security-time-legally-binding-measures</a></li> <li><input type="checkbox"/> Jessica West, Anti-satellite Test by Space Power India is Reckless. It’s Time to Speak Out, SpaceQ <a href="https://spaceq.ca/opinion-anti-satellite-test-by-space-power-india-is-reckless-its-time-to-speak-out/">https://spaceq.ca/opinion-anti-satellite-test-by-space-power-india-is-reckless-its-time-to-speak-out/</a></li> </ul>
10	Nuclear Disarmament	<ul style="list-style-type: none"> <li><input type="checkbox"/> Ramesh Thakur, The Problem of Nuclear Weapons, The Ploughshares Monitor <a href="https://ploughshares.ca/pl_publications/the-problem-of-nuclear-weapons/">https://ploughshares.ca/pl_publications/the-problem-of-nuclear-weapons/</a></li> <li><input type="checkbox"/> Alicia Sanders-Zakre, Five Common Mistakes On The Treaty On The Prohibition Of Nuclear Weapons, War on the Rocks <a href="https://warontherocks.com/2020/11/five-common-mistakes-on-the-treaty-on-the-prohibition-of-nuclear-weapons/">https://warontherocks.com/2020/11/five-common-mistakes-on-the-treaty-on-the-prohibition-of-nuclear-weapons/</a></li> <li><input type="checkbox"/> Sergio Duarte, Ditch the Bomb, Not the Npt, Bulletin of the Atomic Scientists <a href="https://thebulletin.org/2019/11/ditch-the-bomb-not-the-npt/">https://thebulletin.org/2019/11/ditch-the-bomb-not-the-npt/</a></li> <li><input type="checkbox"/> Rebecca Johnson, Nuclear Ban Treaty and Humanitarian Strategies to Eliminate Nuclear Threats, Acronym Institute for Disarmament Diplomacy <a href="http://www.acronym.org.uk/new-website/wp-content/uploads/2019/05/Nuclear_disarmament2019_RebJohnson_Chapter.pdf">http://www.acronym.org.uk/new-website/wp-content/uploads/2019/05/Nuclear_disarmament2019_RebJohnson_Chapter.pdf</a></li> </ul>

Week	Topic	Reading
11	Transfer and Use of Conventional Weapons	<input type="checkbox"/> Cesar Jaramillo, Collateral Damage No More: Urban Conflict, Explosive Weapons, and a Case Study in Multilateral Norm Building, Georgetown Journal of International Affairs <a href="https://gjia.georgetown.edu/2019/11/21/collateral-damage-no-more-urban-conflict/">https://gjia.georgetown.edu/2019/11/21/collateral-damage-no-more-urban-conflict/</a> <input type="checkbox"/> Explosive Violence Monitor 2019, Action on Armed Violence <a href="https://aoav.org.uk/wp-content/uploads/2020/09/Explosive-Violence-Monitor-2019-corrected-02.09.pdf">https://aoav.org.uk/wp-content/uploads/2020/09/Explosive-Violence-Monitor-2019-corrected-02.09.pdf</a> <input type="checkbox"/> Arms Trade Treaty, United Nations Office for Disarmament Affairs <a href="https://unoda-web.s3-accelerate.amazonaws.com/wp-content/uploads/2013/06/English7.pdf">https://unoda-web.s3-accelerate.amazonaws.com/wp-content/uploads/2013/06/English7.pdf</a> <input type="checkbox"/> Steven Chase, The Big Deal, The Globe and Mail <a href="https://www.theglobeandmail.com/news/politics/the-saudi-arms-deal-why-its-a-bigdeal/article28568660/">https://www.theglobeandmail.com/news/politics/the-saudi-arms-deal-why-its-a-bigdeal/article28568660/</a>
12	Course wrap-up	*Future Challenges Virtual Workshop

## UWaterloo Policies

**Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility.

Arts: [Academic Integrity website](#) University of Waterloo: [Academic Integrity Office](#)

**Discipline:** A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline.

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - [Student Petitions and Grievances](#), Section 4.

**Appeals:** A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. Read Policy 72 - Student Appeals.

## Other sources of information for students:

**Note for students with learning differences:** The [AccessAbility Services \(AAS\)](#) office, located in Needles Hall Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the ASS office at the beginning of each academic term.

**Counselling Services:** Counselling Services provides free confidential counselling, in both individual and group sessions, with qualified professionals to help registered students, faculty and staff with personal concerns,

educational career decisions, and strategies to studies and exams: [www.adm.uwaterloo.ca/infocs](http://www.adm.uwaterloo.ca/infocs), ext. 33528, NH Room 2080.

**Accommodation for Illness:** A medical certificate presented in support of an official petition for relief from normal academic requirements must provide all of the information requested on the “University of Waterloo Verification of Illness” form or it will not be accepted. More information can be obtained from Health Services and the form is available in pdf: <https://uwaterloo.ca/health-services/student-medical-clinic/services/verification-illness>

**The Writing Centre:** Writing Centre staff offer one-on-one support in planning assignments and presentations, using and documenting research, organizing and structuring papers, and revising for clarity and coherence. Make an appointment or drop in at the Library for quick questions or feedback. To book a 50-minute appointment and to see drop-in hours, visit [www.uwaterloo.ca/writing-centre](http://www.uwaterloo.ca/writing-centre)