

**MGIMO University**  
**School of Government and International Affairs**

*Syllabus approved*  
Dean, The MGIMO School of Government and International Affairs  
Mikhail Troitskiy  
«    »  
2018

**Technology and International Relations**  
Undergraduate Course Syllabus

Instructors  
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This syllabus is designed in accordance with the MGIMO Educational Standard for the Bachelor Program in International Affairs.

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**PART 1:  
INSTRUCTOR INFORMATION, COURSE DESCRIPTION  
AND TEACHING METHODS**

**1.1 General information**

*Template*

- Full course title: Technology and International Relations
- Type of course: Elective
- Level of course B.A.
- Year of study: 3<sup>rd</sup>
- Number of ECTS credits allocated: 2
- Name of lecturer(s) and office hours:
  - Dr. Vadim Kozyulin, PhD
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**1.2 Course aims and learning outcomes**

**The course is aimed at:**

- Providing students with understanding of interconnection between the emerging technologies and international relations, global legal and regulatory frameworks for governing emerging technologies;
- Introducing students to civilian and military applications of UAVs and other autonomous systems, hypersonic vehicles, outer space technologies, biotechnologies and climate-related technologies, exploring the dual-use nature of the emerging technologies;
- Introducing students to the infrastructure of the global Internet and the mechanisms of its governance, the concept of cyberspace and its security, financial technology as well as social media and its impact on international security;
- Developing ability to navigate the complex technological terrain, recognize the patterns of use of emerging technologies by nation states and international community, evaluate the state of emerging technology governance.

**Learning outcomes**

By the end of the course students should be able to:

- Analyze the key trends in development of emerging technologies and their interconnection with international relations;
- Possess the knowledge about the main emerging technologies relevant to the international relations, their civilian and military applications and the dual use of emerging technologies;
- Identify the main challenges that international community faces regarding the

- development of emerging technologies and possible solutions;
- Assess the state of global governance of emerging technologies and its evolution.

### 1.3 Course requirements and grading plan

#### Course requirements

Students are required to attend no less than 90% of classes. Students are to be prepared for all class discussions and tests. Conscientious reading of the assigned materials is compulsory. Students are required to take three tests and participate in discussions in seminars. Students are expected to check their e-mails regularly and keep track of the course timeline at the on-line page of the course at MGIMO distance learning environment (ed.mgimo.ru) in order to be prepared for seminars and tests.

#### Grading plan

- Class discussions – 50%

Students are required to attend all the lectures and seminars and participate in class discussions. Students are to prepare for each seminar having read the compulsory materials and contribute to discussions in a constructive way with the material learned from reading list. As lectures are designed to be interactive as well, students are to prepare for them reading required materials.

- In-class tests – 50%

Students are required to write three tests, aimed at assessing how students have mastered their reading, lecture and seminar materials over three sets of topics. Students are notified in advance about the dates of tests and the topics covered in the test according to the course syllabus.

## PART 2. COURSE CONTENT

### 2.1 Types of work

Types of work	Academic hours
<b>Total</b>	<b>72</b>
<b><i>Total for lectures and seminars</i></b>	<b>32</b>
Lectures	16
Seminars	16
Written tests	
<b><i>Homework</i></b>	<b>40</b>
Preparation for lectures, seminars and tests	40

## 2.2. Course content and readings by topic

### Week 1. Impact of new technologies on the dynamics of global geopolitical processes. Historical overview.

#### Aims and Content

To review appearance of new technologies during the human history and its influence on culture, economy, demography, warfare and international relations. National and international efforts to limit and control lethal and destructive technologies. Forecast for new technologies by mid of 21st century and their potential impact on international relations.

#### ESSENTIAL READINGS

- Kennedy, Paul. “The Rise and Fall of the Great Powers. Economic Changes and Military Conflict from 1500 to 2000”. *Vintage Books*, A Division of Random House, New York, 1989, Chp. 1, The “European Miracle”, pp.16-30. (*in Dropbox*)
- Weiss, Charles. “Science, Technology and International Relations.” *Technology in Society* 27, no. 3 (2005): pp. 301-304.  
[https://www.researchgate.net/publication/251513060\\_Science\\_Technology\\_and\\_International\\_Relations](https://www.researchgate.net/publication/251513060_Science_Technology_and_International_Relations)
- Technical Director at Google Ray Kurzweil. Predictions for 100 years. @kondrat.  
<https://steemit.com/life/@kondrat/technical-director-at-google-ray-kurzweil-predictions-for-100-years>
- Edited by Monika Szkarlat and Katarzyna Mojska. New Technologies as a Factor of International Relations. *Cambridge Scholars Publishing*, Lady Stephenson Library, 2016. Pp. XII-XVIII.  
<http://www.cambridgescholars.com/download/sample/63425>

#### SUPPORTING READINGS

- Malik, Mohan. “Technopolitics: How Technology Shapes Relations Among Nations”, *The Interface of Science, Technology & Security, Areas of Most Concern, Now and Ahead*, Asia-Pacific Center for Security Studies, Honolulu, Hawaii, Workshop Proceedings, 2010  
[https://www.researchgate.net/publication/251513060\\_Science\\_Technology\\_and\\_International\\_Relations](https://www.researchgate.net/publication/251513060_Science_Technology_and_International_Relations)
- von Weizsaecker, E., Wijkman, A. Come On! Capitalism, Short-termism, Population and the Destruction of the Planet. *Springer*, 2018. pp. 22-25.
- Dahlman, Carl. Technology, globalization, and international competitiveness: Challenges for developing countries, *Industrial Development for the 21st Century*, pp.30-31, 46-52.  
[http://www.un.org/esa/sustdev/publications/industrial\\_development/1\\_2.pdf](http://www.un.org/esa/sustdev/publications/industrial_development/1_2.pdf)
- Wang, Brian. Super technology will transform the world of 2020 to 2050. December 15, 2017. *NEXTBIGFUTURE.COM*,  
<https://www.nextbigfuture.com/2017/12/super-technology-will-transform-the-world-of-2020-to-2050.html>

## **Week 2. Unmanned Aerial Vehicles (UAVs) for Civil and Military Purposes. Types, Development Trends, Global Risk, Legal Aspects.**

### **Aims and Content**

To introduce mainstream trends and projects in developing UAVs in the world. Global benefits as well as risks posed by UAVs to human rights and international security. Discussion around the issue of UAVs' falling under the Intermediate Nuclear Forces Treaty (INF) and Missile Technology Control Regime (MTCR). National and international efforts to control UAVs designing, proliferation and deployment.

### **ESSENTIAL READINGS**

- Increasing Transparency, Oversight and Accountability of Armed Unmanned Aerial Vehicles. *UNIDIR Resources*, 2017 pp. 9-13. (*in Dropbox*)
- Padmanabhan, Ananth. Civilian Drones and India's Regulatory Response. Carnegie India, March 2017. Pp. 10-12. (*in Dropbox*)
- Mapping the Development of Autonomy in Weapon Systems. By Vincent Boulanin and Maaïke Verbruggen. *SIPRI*, November 2017. Chp.6, pp.113-121. (*in Dropbox*)

### **SUPPORTING READINGS**

- Unmanned Systems Integrated Roadmap, FY2013-2038. Approved by James A. Winnefeld and Frank Kendall, US Department of Defense, pp. 113-119. (*in Dropbox*)
- Mehta, Aaron. "Trump administration launches review of drone export regulations". *DefenseNews.Com*, August 3, 2017. <https://www.defensenews.com/pentagon/2017/08/03/trump-administration-launches-review-of-drone-export-regulations>
- The Pentagon's 'Terminator Conundrum': Robots That Could Kill on Their Own. The United States has put artificial intelligence at the center of its defense strategy, with weapons that can identify targets and make decisions. By Matthew Rosenberg and John Markoff. *New York Times*. October 25, 2016. <https://www.nytimes.com/2016/10/26/us/pentagon-artificial-intelligence-terminator.html>

### **Week 3. Land, Sea, and Underwater Autonomous Systems for Civil and Military Purposes. Types, Development Trends, Global Risk, Legal Aspects.**

#### Aims and Content

To introduce mainstream theoretical approaches to the study of foreign policy. Theoretical suppositions of Realism and Liberalism and their application to foreign policy cases. To introduce mainstream trends and projects in developing Land, Sea, and Underwater Autonomous Systems for Civil and Military Purposes in the world. Global benefits and risks of pilotless transportation. Threats posed by Autonomous Systems to IHL and international security. International instruments and efforts to control Autonomous Systems production, proliferation and deployment.

#### **ESSENTIAL READINGS**

- Jürgen Altmann & Frank Sauer. Autonomous Weapon Systems and Strategic Stability. *Survival*, vol. 59 no. 5, October–November 2017. pp. 128-136 (*in Dropbox*)  
<http://www.tandfonline.com/doi/pdf/10.1080/00396338.2017.1375263?needAccess=true>
- Kozyulin, B.Vadim. International and Regional Threats Posed by Lethal Autonomous Weapons Systems (LAWS): A Russian Perspective. *Federal Foreign Office*. Lethal Autonomous Weapons Systems Technology: Technology, Definition, Ethics, Law & Security. pp.217-228. (*in Dropbox*)
- Kozyulin, B.Vadim. Safety Switch for a Robot: the Debate on Lethal Autonomous Weapons Systems. *Russia Confidential*, Issue № 8 (248), vol.16. November 20, 2017. (*in Dropbox*)

#### **SUPPORTING READINGS**

- Humbling, David. The Inescapable Net Unmanned Systems in Anti-Submarine Warfare. Parliamentary Briefings on Trident Renewal Briefing No.1. *BASIC*, March 2016 [www.basicint.org](http://www.basicint.org) (*in Dropbox*)
- Kozyulin, B. Vadim. Military Robotics in the United States, China and Russia: Start of Undeclared Competition. *Russia Confidential*, Issue № 1 (229), vol.15. January 2016. (*in Dropbox*)
- Heiko Borchert, Tim Kraemer, Daniel Mahon. Waiting for Disruption?! Undersea Autonomy and the Challenging Nature of Naval Innovation, *S. Rajaratnam School of International Studies*, Working Papers № 302, February 10, 2017. Pp. 13-16. (*in Dropbox*)
- The Great Underwater Wall of Robots: Chinese Exhibit Shows off Sea Drones. By Jeffrey Lin and P.W. Singer. *Popular Science*, June 22, 2016. <http://www.popsci.com/great-underwater-wall-robots-chinese-exhibit-shows-off-sea-drones>
- Brian K. Hall, Autonomous Weapons Systems Safety, *National Defense University Press*, Quarterly 86, June 21, 2017  
<http://ndupress.ndu.edu/Media/News/Article/1223911/autonomous-weapons-systems-safety>

## **Week 4. Hypersonic Technologies. Classification of Hypersonic Aircraft Projects, Development Trends, Global Risk, Legal Aspects.**

### Aims and Content

To learn about various classes of hypersonic vehicles, cases of international cooperation in their designing and technological race of main powers for gaining the most advanced hypersonic weapons. Strategic stability concerns and legal aspects.

### **ESSENTIAL READINGS**

- Hypersonic Missile Nonproliferation: Hindering the Spread of a New Class of Weapons. Richard H. Speier, George Nacouzi, Carrie A. Lee, Richard M. Moore, *RAND Corporation*, 2017. Pp. 35-46. (in *Dropbox*)
- Wang, Brian. Space High Ground is better than Hypersonic missiles or new stealth bombers. *NextBigFuture*, October 21, 2017. <https://www.nextbigfuture.com/2017/10/space-high-ground-is-better-than-hypersonic-missiles-or-new-stealth-bombers.html>
- Szondy, David. Hypersonic flight: Threat or opportunity? *New Atlas*. September 20th, 2017. <https://newatlas.com/hypersonic-flight/50801>

### **SUPPORTING READINGS**

- Arthur Dominic Villasanta, US Outspending China and Russia in Hypersonic Weapons Research, *China Topix*, August 22, 2016. (in *Dropbox*) <http://www.chinatopix.com/articles/98936/20160822/outspending-china-russia-hypersonic-weapons-research.htm>
- Cheyenne Macdonald. Hypersonic planes are 'inevitable' and will revolutionise travel (and war), top aerospace and military bosses predict, *Daily Mail*, November 7, 2016. <http://www.dailymail.co.uk/sciencetech/article-3913916/Hypersonic-planes-inevitable-revolutionise-travel-war-aerospace-military-bosses-reveal.html>
- Osborn, Kris. Hypersonic Attack Drones by 2040? Is China In Front of the US in Developing Hypersonic Weapons? *Scout Warrior*, April 3, 2017 (in *Dropbox*) <http://go.newsfusion.com/defense-news/item/4823139>
- Gertz, Bill. Russia Tested Hypersonic Glide Vehicle in February. *The Washington Free Beacon*, June 25, 2015. <http://freebeacon.com/national-security/russia-tested-hypersonic-glide-vehicle-in-february>



## **Week 5. Technological challenges to nuclear nonproliferation and strategic stability.**

### Aims and Content

To introduce the basic concepts of nuclear nonproliferation and strategic stability in relation to the underlying technology. Explore the influence that technological progress has on the uranium enrichment and survivability of nuclear forces.

### **ESSENTIAL READINGS**

- [Third Generation Laser Uranium Enrichment Technology is likely over 5 times more energy efficient and more compact than the best centrifuges](#). Next Big Future. June 27, 2016
- 3-D Printing the Bomb? The Nuclear Nonproliferation Challenge. *The Washington Quarterly*. October 30, 2015 (Dropbox).
- [Don't Panic, No One Is 3D Printing a Nuclear Bomb](#). *Ramen IR*. December 22, 2015.
- [Why Do We Need 'Hypersonic' Strike Weapons, Exactly?](#) Defense One. September 17, 2014.
- [Downing North Korean Missiles Is Hard. So the U.S. Is Experimenting](#). The New York Times. November 16, 2017.

### **SUPPORTING READINGS**

- Hypersonic Boost-Glide Weapons. *Science & Global Security*. November 6, 2015 (Dropbox)
- [A Proliferation Assessment of Third Generation Laser Uranium Enrichment Technology](#). *Science & Global Security*. June 23, 2016
- [The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence](#). *International Security*. Spring 2017.

## **Week 6. Peaceful exploration of the Outer Space.**

### Aims and Content

To introduce the current state of peaceful outer space exploration and its regulatory framework. Outline existing and potential sources of tensions between the world powers over the space resources. Evaluate the issues arising from the possible colonization of space bodies.

### **ESSENTIAL READINGS**

- [Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies](#). 1967
- [There's a Parking Crisis in Space - And You Should Be Worried About It](#). *The Conversation*. September 29, 2017.

- [If No One Owns the Moon, Can Anyone Make Money Up There?](#) *The New York Times*, November 26, 2017.
- [Space: The Final Frontier of Environmental Disasters?](#) *Wired*. July 15, 2013.
- Private space exploration: A new way for starting a spacefaring society? *Acta Astronautica*. April 7, 2014. (Dropbox).
- [A Pragmatic Approach to Sovereignty on Mars](#). *Space Policy*. November 2016.

#### **SUPPORTING READINGS**

- [Deep Space Thinking: What Elon Musk’s Idea to Nuke Mars Teaches Us About Regulating the “Visionaries and Daredevils” of Outer Space](#). *Columbia Journal of Environmental Law*. December 10, 2016
- [United Nations Treaties and Principles on Outer Space](#). United Nations, 2002

### **Week 7. Weaponization of the Outer Space.**

#### Aims and Content

To present the concept of weaponization of outer space and analyze accompanying threats. To study how the development of new dual use technologies impacts the prospects of weaponization of space and space arms race. To analyze the legal framework of military activities in outer space, explore opportunities for preserving weapons free outer space.

#### **ESSENTIAL READINGS**

- [Space Weapon Technology and Policy](#). AIP Conference Proceedings. 2017
- Dark forces awaken: the prospects for cooperative space security. *The Nonproliferation Review*, 2017 (Dropbox).
- [Could a Chinese Space Junk Laser Double as a Weapon?](#) *Popular Mechanics*, 2018
- Regulation of Space Weapons: Ensuring Stability and Continued Use of Outer Space. *Astropolitics: The International Journal of Space Politics & Policy*, 2014 (Dropbox).

#### **SUPPORTING READINGS**

- [Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects](#). Conference on Disarmament. 2014.
- [EU proposal for an international Space Code of Conduct](#). *European External Action Service*. 2014.
- [Report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities](#). United Nations General Assembly. 2013
- Evaluating state willingness to pursue space weapons. *Defense & Security Analysis*. 2015 (Dropbox)

## Week 8. Global biotechnology governance.

### Aims and Content

To discuss the current state of biotechnology governance at global and national levels. To follow the development of biotechnology and the new risks emerging from the technological progress. To evaluate the preparedness of international community to respond to a bio emergency.

### ESSENTIAL READINGS

- [Top U.S. Intelligence Official Calls Gene Editing a WMD Threat](#). MIT technology Review. 2016
- Rethinking the Biological and Toxin Weapons Convention? Health Security. 2017 (Dropbox)
- In Good Health? The Biological Weapons Convention and the “Medicalization” of Security. The Nonproliferation Review. 2015 (Dropbox)
- Anomaly handling and the politics of gene drives. Journal of Responsible Innovation. 2017. (Dropbox)
- [Ebola and the WHO: a journey from toothless tiger to global dragon?](#) The Medical Journal of Australia. 2016

### SUPPORTING READINGS

- [Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological \(Biological\) and Toxin Weapons and on their Destruction](#). 1975.
- [CRISPR: gene editing is just the beginning](#). Nature. 2016
- [The Ebola Outbreak: Catalyzing a “Shift” in Global Health Governance?](#) BMC Infectious Diseases. 2016.

## Week 9. Addressing the climate change.

### Aims and Content

To understand the mechanisms of the climate change and the ways it affects countries of the world. To explore the scenarios of the disappearance of states due to the rising sea levels. To evaluate the potential of solar geoengineering, assess the potential difficulties of the process and explore options for its governance.

### ESSENTIAL READINGS

- [Climate Change 2014 Synthesis Report](#). Intergovernmental Panel on Climate Change. 2015. Pp. 2 – 26.
- Greenhouse gases must be scrubbed from the air. The Economist. 2017 (Dropbox).
- [Atoll Island States and Climate Change: Sovereignty Implications](#). UNU-IAS Working Paper. 2011.
- [A Cheap and Easy Plan to Stop Global Warming](#). MIT technology Review. 2013
- On the Design of an International Governance Framework for Geoengineering. Global Environmental Politics. 2014 (Dropbox)

### SUPPORTING READINGS

- [Paris Agreement under the United Nations Framework Convention on Climate Change](#). 2015.

- [Climate Change 2014 Synthesis Report](#). Intergovernmental Panel on Climate Change. 2015.

## **Week 10. Global Internet Governance. Key Mechanisms and Formats for Governing the Global Internet (Part I).**

### Aims and Content

Delivering basic knowledge on technical infrastructure of the global Internet (DNS and Number Resources, TCP/IP stack and ISO-OSI model, Internet governance ecosystem and its history from ARPANet to modern Internet. Introducing the system of organizations constituting the global technical community and participating in the global Internet governance business processes: ICANN, ISOC, IETF and IAB, W3C and others. Describing the mechanisms and formats of government's participation and contribution to Internet governance: from GAC ICANN to ITU and others. Explaining the multistakeholder approach to Internet governance, its evolution and challenges it has been facing today.

### **ESSENTIAL READINGS**

- Section 1: Introduction. Jovan Kurbalija. An Introduction to Internet Governance, 6th Edition. Published by DiploFoundation (2014). – pp. 3-32. <https://www.diplomacy.edu/sites/default/files/An%20Introduction%20to%20IG%206th%20edition.pdf>
- The History of IANA. An Extended Timeline with Citations and Commentary. Joel Snyder, Konstantinos Komaitis, Andrei Robachevsky. Internet Society. 9 May 2016. <https://www.internetsociety.org/ianatimeline/>
- Multi-stakeholderism: Anatomy of an Inchoate Global Institution. Mark Raymond and Laura DeNardis. Who Runs the Internet? The Global Multi-stakeholder Model of Internet Governance, Research Volume Two. Global Commission on Internet Governance (GCIG), 2016. <https://www.cigionline.org/sites/default/files/documents/GCIG%20Volume%202%20WEB.pdf>. – pp. 19-44.
- The Emergence of Contention in Global Internet Governance. Samantha Bradshaw, Laura DeNardis, Fen Osler Hampson. Global Commission on Internet Governance Paper Series, No. 17. 24 July 2015. 28 pages. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2634604](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2634604)

### **SUPPORTING READINGS**

- ISOC, ICANN, and Experiments in Multistakeholder Global Internet Governance. Derrick L. Cogburn. Transnational Advocacy Networks in the Information Society, pp. 93-126. [https://www.researchgate.net/publication/312336496\\_ISOC\\_ICANN\\_and\\_Experiments\\_in\\_Multistakeholder\\_Global\\_Internet\\_Governance](https://www.researchgate.net/publication/312336496_ISOC_ICANN_and_Experiments_in_Multistakeholder_Global_Internet_Governance)
- Internet governance, multi-stakeholder models, and the IANA transition: shining example or dark side? Richard Hill. Journal of Cyber Policy, Volume 1, 2016 - Issue 2. 19 Sep 2016.

<http://www.tandfonline.com/doi/abs/10.1080/23738871.2016.1227866?journalCode=rcyb20>

- Section 2: The infrastructure and standardisation basket. Jovan Kurbalija. An Introduction to Internet Governance, 6th Edition. Published by DiploFoundation (2014). – pp. 33-84.  
[https://www.diplomacy.edu/sites/default/files/An%20Introduction%20to%20IG\\_6th%20edition.pdf](https://www.diplomacy.edu/sites/default/files/An%20Introduction%20to%20IG_6th%20edition.pdf)
- Julien Nocetti, 'Contest and Conquest: Russia and Global Internet Governance, International Affairs, Volume 91, Issue 1, 1 January 2015, Pages 111–130.  
<https://academic.oup.com/ia/article-abstract/91/1/111/2326827?redirectedFrom=PDF>
- The IANA stewardship transition: what is happening? (Part I, Part II). Sorina Teleanu. DiploFoundation. 16 Sep, 2016.  
<https://www.diplomacy.edu/blog/iana-stewardship-transition-what-happening-part-i>; <https://www.diplomacy.edu/blog/iana-stewardship-transition-what-happening-part-ii>.

## **Week 11. Global Internet Governance. Key Mechanisms and Formats for Administrating and Governing the Global Internet (Part II).**

### Aims and Content

Summarizing the key changes and major transformations in the global Internet governance agenda over the last decade: IANA Stewardship Transition process and its outcomes, debates over greater role of national governments in global Internet governance. Highlighting the trend towards digital sovereignty and the risk of Internet fragmentation. Explaining the background behind major attempts to alter the multistakeholder approach and introduce new visions for global Internet governance – e.g. the calls to delegate the role of global technical community organizations to international intergovernmental organizations (the debates at the ITU World Conference on International Telecommunications 2012, etc.). Discussing the future of the Internet governance and potential alternatives to its current model.

### **ESSENTIAL READINGS**

- Future of the Internet Initiative White Paper. Internet Fragmentation: An Overview. William J. Drake Vinton G. Cerf Wolfgang Kleinwächter. World Economic Forum. January 2016. [http://www3.weforum.org/docs/WEF\\_FII\\_Internet\\_Fragmentation\\_An\\_Overview\\_2016.pdf](http://www3.weforum.org/docs/WEF_FII_Internet_Fragmentation_An_Overview_2016.pdf). Chapters I-III, pp. 10-48.
- Broeders, D. (2015) The public core of the internet: an international agenda for internet governance, WRR-Policy Brief no. 2, April 2015. The Hague: WRR. <https://english.wrr.nl/binaries/wrr-eng/documents/reports/2015/10/01/the-public-core-of-the-internet/R094e-Public-core-internet.pdf>
- Internet Fragmentation Highlighting the Major Technical, Governance and Diplomatic Challenges for U.S. Policy Makers. Jonah Force Hill. John F. Kennedy School of Government, Harvard University Spring 2012. [https://www.belfercenter.org/sites/default/files/legacy/files/internet\\_fragmentation\\_jonah\\_hill.pdf](https://www.belfercenter.org/sites/default/files/legacy/files/internet_fragmentation_jonah_hill.pdf)
- Power Plays in Global Internet Governance. Madeline Carr, Aberystwyth University, UK. Millennium: Journal of International Studies 2015, Vol. 43(2) 640–659. <https://we.riseup.net/assets/252082/Power+Plays+in+Global+Internet+Governance.pdf>

### **SUPPORTING READINGS**

- New World Order: is the UN about to take control of the internet? Is there a war on for the web? Adi Robertson. The Verge. Nov 29, 2012. <https://www.theverge.com/2012/11/29/3706352/un-itu-talks-dubai-guide>
- States, Governance, and Internet Fragmentation (Review of Mueller, Will the Internet Fragment?). Richard Hill. Boundary2, September 8, 2017. <https://www.boundary2.org/2017/09/richard-hill-states-governance-and-internet-fragmentation-review-of-mueller-will-the-internet-fragment/>

- Converging on the Future of Global Internet Governance The United States and Brazil Harold Trinkunas, Ian Wallace. Brookings Institution, July 2015. <https://www.brookings.edu/wp-content/uploads/2016/06/USBrazil-Global-Internet-Governance-web-final.pdf>
- Multi-stakeholderism in Internet governance: putting a fiction into practice. Jeanette Hofmann. Journal of Cyber Policy Vol. 1, Iss. 1, 2016. <http://www.tandfonline.com/action/showCitFormats?doi=10.1080%2F23738871.2016.1158303>
- Is Multi-Stakeholder Internet Governance Dying? Jeremy Malcolm. Electronic Frontier Foundation. December 20, 2017. <https://www.eff.org/deeplinks/2017/12/multi-stakeholder-internet-governance-dying>

## **Week 12. The Impact of ICTs and Emerging FinTech on Global Financial Infrastructure**

### **Aims and Content**

Delivering the understanding of FinTech as a new interdisciplinary industry/market and its major technologies: distributed ledgers and seamless electronic transactions. Describing the challenges to “traditional” global financial architecture emerging as a result of skyrocketing ecosystem and industry of cryptocurrencies. Analyzing decentralization as a key infrastructure trend defining the future evolution of global online financial services and transactions.

Explaining prospects and risks of cryptocurrency-based financial systems and deployment of blockchain-based services in financial sector. Highlighting key facts about blockchain technology and its potential applications beyond cryptocurrency function (smart contracts, Ethereum, etc.)

### **ESSENTIAL READINGS**

- FATF REPORT. Virtual Currencies: Key Definitions and Potential AML/CFT Risks, June 2014, <http://pircenter.org/www.fatf-gafi.org/media/fatf/documents/reports/virtual-currency-key-definitions-andpotential-aml-cft-risks.pdf>
- The future of financial infrastructure. An ambitious look at how blockchain can reshape financial services. World Economic Forum, August 2016. [http://www3.weforum.org/docs/WEF\\_The\\_future\\_of\\_financial\\_infrastructure.pdf](http://www3.weforum.org/docs/WEF_The_future_of_financial_infrastructure.pdf). Executive Summary: Context and Approach, Key Findings. – pp. 13-31.
- The macroeconomics of central bank issued digital currencies. John Barrdear and Michael Kumhof. Bank of England, Staff Working Paper No. 605. July 2016. <https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2016/the-macroeconomics-of-central-bank-issued-digital-currencies.pdf?la=en&hash=341B602838707E5D6FC26884588C912A721B1DC1>. Chapter IV. The Model. – pp. 17-42.

### **SUPPORTING READINGS**

- The great chain of being sure about things. Economist, Oct 31st 2015. <https://www.economist.com/news/briefing/21677228-technology-behind-bitcoin-lets-people-who-do-not-know-or-trust-each-other-build-dependable>
- The Blockchain Will Do to the Financial System What the Internet Did to Media. Joichi Ito, Neha Narula, Robleh Ali. March 08, 2017 Updated March 09, 2017. Harvard Business Review. <https://hbr.org/2017/03/the-blockchain-will-do-to-banks-and-law-firms-what-the-internet-did-to-media>
- The Future of Global Financial Regulation. Emily Jones&Peter Knaack. The Global Economic Governance Programme, University of Oxford. April 2017. – 21 pages.



<https://www.geg.ox.ac.uk/sites/geg/files/GEG%20WP%20127%20-%20The%20Future%20of%20Global%20Financial%20Regulation%20-%20Jones%20and%20Knaack.pdf>

- Distributed Ledger Technology: beyond block chain. A report by the UK Government Chief Scientific Adviser. UK Government Office for Science. January 2016. <https://block.academy/researches/gs-16-1-distributed-ledger-technology.pdf>
- ‘Device democracy: Saving the future of the Internet of Things’. IBM Institute for Business Value, 2015. <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=GBE03620USEN>

## **Week 13. Social Media and International Security**

### Aims and Content

To learn about how the growth of social media impacts international security. To see how various actors, state and non-state, adapt to the changing media environment. To discuss the role of social media in modern conflict.

### **ESSENTIAL READINGS**

- Sarah Joseph, Social Media, Political Change, and Human Rights, Boston College International and Comparative Law Review, Vol. 35, Issue 1, 2012, <http://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1667&context=iclr>
- Brendan I. Koerner, Why ISIS Is Winning the Social Media War, WIRED, April 2016, <https://www.wired.com/2016/03/isis-winning-social-media-war-heres-beat/>
- Natasha Lomas, Tech giants told to remove extremist content much faster, TechCrunch, September 2017, <https://techcrunch.com/2017/09/20/tech-giants-told-to-remove-extremist-content-much-faster/>
- William Marcellino, Meagan L. Smith, Christopher Paul, Lauren Skrabala, Monitoring Social Media Lessons for Future Department of Defense Social Media Analysis in Support of Information Operations, RAND Corporation, 2017, [https://www.rand.org/content/dam/rand/pubs/research\\_reports/RR1700/RR1742/RAND\\_RR1742.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RR1700/RR1742/RAND_RR1742.pdf)
- Thomas Zeitzoff, How Social Media Is Changing Conflict, Journal of Conflict Resolution, Vol 61, Issue 9, 2017, [https://www.zeitzoff.com/uploads/2/2/4/1/22413724/zeitzoff\\_how\\_social\\_media\\_jcr.pdf](https://www.zeitzoff.com/uploads/2/2/4/1/22413724/zeitzoff_how_social_media_jcr.pdf)

### **SUPPORTING READINGS**

- Access and Authority: Is the Internet a Democratizing Technology?, Brown University, 2010, [https://www.youtube.com/watch?v=w0r\\_4LSadmw](https://www.youtube.com/watch?v=w0r_4LSadmw)
- Evgeny Morozov, Steven Johnson, Up for Debate: Can Social Media Solve Real-World Problems?, New Republic, February 6, 2013, <https://newrepublic.com/article/112336/future-perfects-steven-johnson-evgeny-morozov-debate-social-media>
- Emerson T. Brooking, P. W. Singer, War Goes Viral, The Atlantic, November 2016, <https://www.theatlantic.com/magazine/archive/2016/11/war-goes-viral/501125/>
- Countering The Use of the Internet For Terrorist Purposes, OSCE e-learning course, <https://polis-learn.osce.org/courses/course-v1:OSCE+CTUITP+201709/about>

## **Week 14. Cyber Security and Critical Information Infrastructure (Part I).**

### **Aims and Content**

Introducing the terminology of cyberspace, international agenda of cyber governance and major challenges to global security and stability stemming from cyberspace and its increasing use by governments, military services and proxy actors. Highlighting the legal and conceptual issues of cyberspace regulation, prevention of cyber conflicts and international cooperation in this area. Introducing the concept of critical information infrastructure (CII) and the efforts of the international community aimed at reducing risks of cyber incidents with CII objects. Describing the ecosystem of multilateral, regional and bilateral frameworks for designing and implementing cyber norms (UN GGE, OSCE, ARF, SCO, etc.). Describing the role of private industry and technical organizations in mitigating and managing global cybersecurity risks (CSIRTs/CERTs, international PPPs and others).

### **ESSENTIAL READINGS:**

- The Regime Complex for Managing Global Cyber Activities. Joseph S. Nye, Jr. Who Runs the Internet? The Global Multi-stakeholder Model of Internet Governance, Research Volume Two. Global Commission on Internet Governance (GCIG), 2016.  
<https://www.cigionline.org/sites/default/files/documents/GCIG%20Volume%202%20WEB.pdf>. – pp. 5-18.
- Towards A Secure Cyberspace Via Regional Co-Operation Overview of the main diplomatic instruments. Vladimir Radunovic and the DiploFoundation team. DiploFoundation, 2017. – 20 pages.  
<https://www.diplomacy.edu/sites/default/files/Diplo%20-%20Towards%20a%20secure%20cyberspace%20-%20GGE.pdf>
- International Law and the Problem of International Information Security A. Krutskikh, A. Streltsov. International Affairs, No. 6 (2014). – pp. 64-77.  
[https://ccdcoe.org/sites/default/files/multimedia/pdf/International\\_Affairs\\_No6\\_2014\\_International\\_Law.pdf](https://ccdcoe.org/sites/default/files/multimedia/pdf/International_Affairs_No6_2014_International_Law.pdf)
- International Law and International Information Security: A Response To Krutskikh And Streltsov. Wolff Heintschel Von Heinegg. Tallinn Paper No. 9 2015. NATO Cooperative Cyber Defence Centre of Excellence.  
[https://ccdcoe.org/sites/default/files/multimedia/pdf/TP\\_09\\_2015.pdf](https://ccdcoe.org/sites/default/files/multimedia/pdf/TP_09_2015.pdf)
- Microsoft on Issues. The need for a Digital Geneva Convention, February 14, 2017, Brad Smith - President and Chief Legal Officer,  
<https://blogs.microsoft.com/on-the-issues/2017/02/14/need-digital-geneva-convention/>

### **SUPPORTING READINGS**

- Global Cyber Governance in 2017: Information Integrity. Patricia M. Lewis, Chatham House. Council of Councils. Apr 4, 2017. [https://www.cfr.org/councilofcouncils/global\\_memos/p39008](https://www.cfr.org/councilofcouncils/global_memos/p39008)
- Global Cooperation in Cyberspace Initiative 2016-2017 Action Agenda. The EastWest Institute, January 2016. [https://www.sbs.ox.ac.uk/cybersecurity-capacity/system/files/EWI\\_cyber2016-2017.pdf](https://www.sbs.ox.ac.uk/cybersecurity-capacity/system/files/EWI_cyber2016-2017.pdf)
- The Nature Of International Law Cyber Norms. Michael N. Schmitt and Liis Vihul. Tallinn Paper No. 5 Special Expanded Issue 2014. NATO Cooperative Cyber Defence Centre of Excellence. <https://ccdcoe.org/sites/default/files/multimedia/pdf/Tallinn%20Paper%20No%20%205%20Schmitt%20and%20Vihul.pdf>
- Doing Battle in Cyberspace: How an Attack on Estonia Changed the Rules of the Game. Stephanie Maclellan, Naomi O'leary. CigiOnline. October 26, 2017. <https://www.cigionline.org/articles/doing-battle-cyberspace-how-attack-estonia-changed-rules-game>
- The United Nations, Cyberspace and International Peace and Security Responding to Complexity in the 21st Century. UNIDIR, 2017. – 75 pages. <http://www.unidir.org/files/publications/pdfs/the-united-nations-cyberspace-and-international-peace-and-security-en-691.pdf>

## Week 15. Cyber Security and Critical Information Infrastructure (Part II).

### Aims and Content

Introducing the concept of cyberspace as operation domain for military operations and increasing role of national cyber capabilities in the global strategic stability context. Highlighting major legal, political and terminological challenges to interpreting actions in cyberspace within the context of the international law and the UN Charter (use of force, aggression, armed attack, etc.) and international humanitarian law (IHL). Describing cyber crisis management and cyber conflict prevention mechanisms designed and deployed by different nations (US-Russia, US-China, China-Russia, etc.).

Delivering basic facts on cyber conflict risks to certain CII sectors – and highlighting the international efforts and initiatives aimed at their mitigation. Providing basic facts on national military cyber capabilities and concepts for conducting military operations in cyberspace.

### **ESSENTIAL READINGS:**

- Kodar, Erki. Applying the Law of Armed Conflict to Cyber Attacks: from the Martens Clause to Additional Protocol I' ENDC Proceedings, Volume 15, 2012, pp. 107–132. [http://www.ksk.edu.ee/wp-content/uploads/2012/12/KVUOA\\_Toimetised\\_15\\_5\\_Kodar.pdf](http://www.ksk.edu.ee/wp-content/uploads/2012/12/KVUOA_Toimetised_15_5_Kodar.pdf)
- Schmitt, Michael N. "Rewired Warfare: Rethinking the Law of Cyber Attack." In International Review of the Red Cross 96, no. 893 (2014): 189–206. <https://www.icrc.org/en/international-review/article/rewired-warfare-rethinking-law-cyber-attack>
- Toward U.S.-Russia Bilateral Cooperation in the Sphere of Cybersecurity. Thomas Remington, Chris Spirito, Elena Chernenko, Oleg Demidov & Vitaly Kabernik. Working Group on the Future of U.S.- Russia Relations. Working Group Paper, 7 May 2016. [https://futureofusrussiarelations.files.wordpress.com/2016/06/wg\\_working\\_paper7\\_cybersecurity\\_final.pdf](https://futureofusrussiarelations.files.wordpress.com/2016/06/wg_working_paper7_cybersecurity_final.pdf)
- Yoo, Christopher S., "Cyber Espionage or Cyberwar?: International Law, Domestic Law, and Self-Protective Measures" (2015). Faculty Scholarship. Paper 1540. – 33 pages. [http://scholarship.law.upenn.edu/faculty\\_scholarship/1540](http://scholarship.law.upenn.edu/faculty_scholarship/1540) .

### **SUPPORTING READINGS:**

- Report of the Group of Governmental Experts on Developments in the Field of Information and Telecommunications in the Context of International Security, A/70/174, United Nations General Assembly, 22 July 2015, <http://undocs.org/A/70/174>
- Wassenaar: Turning arms control into software control. James Gannon, Director and Principal of Cyber Invasion, Ltd. Internet Governance Project. May 25, 2015. <https://www.internetgovernance.org/2015/05/25/wassenaar-turning-arms-control-into-software-control/>
- U.S.–Russian CBMs in the Use of ICTS: A Breakthrough with an Unclear Future. Oleg Demidov. Security Index: A Russian Journal on International Security Vol. 20 , Iss. 3-4, 2014. <http://www.tandfonline.com/doi/abs/10.1080/19934270.2014.986365>
- Nye, Jr., Joseph S. 2011. Nuclear Lessons for Cyber Security, Strategic Studies Quarterly 5(4): 18-38. <https://dash.harvard.edu/bitstream/handle/1/8052146/Nye-NuclearLessons.pdf>
- Cybersecurity of Civil Nuclear Facilities: Assessing the Threat, Mapping the Path Forward A Policy Memo Prepared. PIR Center. June 2016. <http://pircenter.org/media/content/files/13/14664952850.pdf>; <http://pircenter.org/media/content/files/13/14664952851.pdf>

## Week 16. Legal Regulation of New Technologies and International Humanitarian Law.

### Aims and Content

To learn about global efforts to control new types of weapons and to make them correspond to principles of IHL, the Arms Trade Treaty, the Convention on Certain Conventional Weapons (CCW), the UN Security Council Resolution 1540, the Wassenaar Arrangement, UN Register of Conventional Arms. LAWS transparency and accounting, ethical issues. Best international practices in regulating LAWS and recommendations.

### ESSENTIAL READINGS

- Increasing Transparency, Oversight and Accountability of Armed Unmanned Aerial Vehicles. *UNIDIR Resources*, 2017. Pp. 13-22. (in *Dropbox*)
- Autonomous Weapon Systems: Implications of Increasing Autonomy in the Critical Functions of Weapons ICRC Report, Vessoix, Switzerland, 15-16 March 2016. Pp. 26-29. (in *Dropbox*) <https://shop.icrc.org/autonomous-weapon-systems.html?store=default>

### SUPPORTING READINGS

- Humbling, David. Letting robots kill without human supervision could save lives, *New Scientist*, November 8, 2017. (in *Dropbox*) <https://www.newscientist.com/article/mg23631512-900-letting-robots-kill-without-human-supervision-could-save-lives/>
- Gibbs, Samuel. Elon Musk leads 116 experts calling for outright ban of killer robots. *The Guardian*, August 20, 2017. <https://www.theguardian.com/technology/2017/aug/20/elon-musk-killer-robots-experts-outright-ban-lethal-autonomous-weapons-war>