

BLOCKCHAIN GOVERNANCE

This course explores the potential challenges and opportunities of blockchain governance. In the early days, key proponents of blockchain technology have proclaimed that it would redefine legal and political governance. Satoshi Nakamoto, the mysterious inventor of Bitcoin, argued that blockchain technology would make *trust* in government redundant, and perhaps even make government obsolete. Gavin Wood, a co-founder of Ethereum, claimed that blockchain-based systems are fundamentally *alegal*; they are akin to a force of nature that facilitates a radically new social contract, a new form of governance that subsists beyond the reach of the law. Are these realistic predictions or mere fantasies and speculations?

Over the years, the rapid development and proliferation of blockchain technologies has spurred debates in the humanities and social sciences concerning the legal, social, political, and ethical impacts of these technologies. How will blockchain technology reshape trust, legitimacy, legality, and politics? Can it provide an answer to some of the age-old problems in legal and political theory, or will it simply replicate and perpetuate politics as usual?

These questions are difficult to answer in a definite manner. Yet, what seems certain is that blockchain technologies and the communities surrounding them have caused a Cambrian explosion of governance experiments. Some have been spectacular failures, while others still hold interesting promises.

This course provides a detailed overview of existing blockchain governance practices to investigate the impact of blockchain-based systems on a variety of domains, including law and public policy, economics and politics, as well as ethical and environmental issues. With the recent deployment and growing adoption of blockchain-based systems, it has now become urgent to establish a constructive debate around what constitutes ‘sound’ governance *of* and *by* blockchain technology, before the current forms of blockchain governance become entrenched.

This course offers:

- A summary of the main governance issues related to blockchain technologies, offering new insights and expert knowledge on the governance *of* and *by* these technologies;
- An exposition of innovative governance solutions offered by blockchain technologies, such as Decentralized Autonomous Organizations and decentralized arbitration, and how they challenge traditional legal and political concepts and theories;
- An overview of the main policy initiatives intended to regulate and/or accommodate blockchain technology from across the globe;
- A broader contextualisation of blockchain governance anchored into historical examples, political and legal theory literature (e.g., Hobbes, Schmitt, Lessig), and practical case studies—such as the ‘Bitcoin block size controversy’ (2013), ‘TheDAO attack’ (2016), the ‘Parity bug’ (2017), and the ‘SushiSwap fork’ (2020).
- A series of ethical, legal, and socio-political questions that challenge established assumptions around blockchain governance.

Teacher

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Assessment

- 25% of the grade will reflect your attendance. If you attend all the sessions, you will get the full grade for this part.
- 25% of the grade will consist of a presentation of one of the readings, which you will have to prepare with a fellow student. You get the full grade for this part if you:
 - Summarize the text in a structured and comprehensive manner.
 - Raise at least three well-informed critical points for in-class discussion.
- 25% of the grade will consist of half-term essay on a topic of your choosing. This essay will be max. 2000 words in length, and you get the full grade for this part if you:
 - Come up with an original and clear argument to defend.
 - Structure the essay in the proper way (with an abstract, introduction, core, and conclusion).
 - Use the readings in a convincing way to illustrate or strengthen your argument.
 - Find 2-4 additional readings that illuminate parts of your argument.
 - Apply proper referencing, with in-line citations and a correctly formatted bibliography.
- 25% of the grade will consist of an end of term essay on a topic of your choosing. This essay will be max. 2000 words, and the criteria for getting the full grade for this part are the same as for the first essay.

Minimum requirements

- You will need to attend at least 4 out of the 6 sessions.
- You will need to do the presentation of one of the readings.
- You will need to hand in the two essays.

Examination topics

- The basics of blockchain technology
- The rule by code and rule of code
- Trust and confidence
- Sovereignty and states of exception
- Alegality and unregulability
- Polycentric and commons governance
- Legitimacy in code-based environments

Reading list:

The following list is a selection of the readings:

- Nakamoto, S. (2008). *Bitcoin : A Peer-to-Peer Electronic Cash System (White paper)*.
- Wright, A., & de Filippi, P. (2015). Decentralized Blockchain Technology and the Rise of Lex Cryptographia. Available at SSRN 2580664. <http://papers.ssrn.com/abstract=2580664>
- de Filippi, P., Mannan, M., & Reijers, W. (2020). Blockchain as a confidence machine: The problem of trust & challenges of governance. *Technology in Society*, 62(June), 101284. <https://doi.org/10.1016/j.techsoc.2020.101284>
- Hildebrandt, M. (2016). Law as Information in the Era of Data-Driven Agency. *Modern Law Review*, 79(1), 1–30. <https://doi.org/10.1111/1468-2230.12165>

- Yeung, K. (2019). Regulation by blockchain: The emerging battle for supremacy between the code of law and code as law. *Modern Law Review*, 82(2), 207–239. <https://doi.org/10.1111/1468-2230.12399>
- Werbach, K., & Cornell, N. (2017). Contracts Ex Machina. *Duke Law Journal*, 67, 243–258. <https://doi.org/10.3366/ajicl.2011.0005>
- Reijers, W., Brolcháin, F. O., & Haynes, P. (2016). Governance in Blockchain Technologies & Social Contract Theories. *Ledger Journal*, 1(1), 134–151. <https://doi.org/10.5915/LEDGER.2016.62>

<h2>Sessions</h2>	
<p>Session #0</p> <p>11.10.2022</p> <p>12:15-13:15</p>	<p>Topic: Introduction and preparation</p> <p>Location: Online (Zoom link)</p> <p>Description: This session is <i>optional</i> to attend, and a recording will be shared online, yet it is <i>essential</i> that you pay attention to the content of this session. We will use the time to get to know each other and discuss the theme of the Blockchain Governance seminars. Additionally, and this is important, we will discuss how each session needs to be <i>prepared</i>, especially the student presentations. To this end, I will introduce the student groups and what you are expected, as a group, to prepare for the session that is assigned to you. If you fail to pay attention to this information, and therefore fail to prepare the presentation assigned to you, you will <i>not</i> get the points for this part of the assessment.</p>
<p>Session # 1</p> <p>19.10.2022</p> <p>13:15-17:15</p>	<p>Topic: Blockchain Technology and the Rule of Code</p> <p>Location: Hörsaal 1, alte WU, Augasse 2-6, EG Kern A H0.1</p> <p>Description: In this session, we will discuss the basics of blockchain technology. We will look at the origins of the technology and the essential technological innovations it offers. Additionally, we will survey the different (potential) applications of blockchain technology, from cryptocurrencies to decentralized autonomous organizations (DAOs). From there, we ask what type of new regulatory mode – if any – is offered by blockchain architectures. Departing from work on internet governance (Lessig, <i>Code is Law</i>), we investigate how blockchain technology might, instead, offer a mode of regulation called the <i>Rule of Code</i>. To contextualize this idea, we offer some essential concepts that will guide our discussion throughout this course, such as the distinction between ‘on-chain’ and ‘off-chain’ governance.</p> <p>Readings:</p> <ul style="list-style-type: none"> • Blockchain Governance: Chapters 2 and 3 • Diver, L. (2021). Digisprudence: the design of legitimate code. <i>Law, Innovation and Technology</i>, 13(2). https://doi.org/10.31228/osf.io/nechu • Hildebrandt, M. (2018). Algorithmic regulation and the rule of law. <i>Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences</i>, 376(2128). https://doi.org/10.1098/rsta.2017.0355 <p>Optional readings:</p> <ul style="list-style-type: none"> • Nakamoto, S. (2008). <i>Bitcoin: A Peer-to-Peer Electronic Cash System (White paper)</i>. • Wright, A., & de Filippi, P. (2015). Decentralized Blockchain Technology and the Rise of Lex Cryptographia. Available at SSRN 2580664. http://papers.ssrn.com/abstract=2580664
<p>Session # 2</p> <p>10.11.2022</p>	<p>Topic: The Problem of Trust</p> <p>Location: Hörsaal 1, alte WU, Augasse 2-6, EG Kern A H0.1</p>

13:15-17:15	<p>Description: In this session, we focus on the claim of blockchain proponents that the technology would offer something like a ‘trustless’ system. We start by investigating and debating some conceptions of trust and their relation to the governance of human societies. We then turn to the distinction between trust and confidence, looking at the claim that blockchain technologies might be a ‘confidence machine.’ Subsequently, we turn to the dynamic between trust and confidence, asking how trust might be brought back in by means of governance innovations. We also look at some typical examples of confidence breaking down, which surfaced the need for building trust in blockchain-based systems.</p> <p>Readings:</p> <ul style="list-style-type: none"> • Blockchain Governance: Chapter 4 • Gambetta, D. (2000). Can we trust trust? In D. Gambetta (Ed.), <i>Trust: Making and Breaking Cooperative Relations</i>. University of Oxford Press. https://doi.org/10.1.1.24.5695 • Pettit, P. (1995). The Cunning of Trust. <i>Philosophy & Public Affairs</i>, 24(3), 202–225. https://doi.org/10.1111/j.1088-4963.1995.tb00029.x <p>Optional readings:</p> <ul style="list-style-type: none"> • de Filippi, P., Mannan, M., & Reijers, W. (2020). Blockchain as a confidence machine: The problem of trust & challenges of governance. <i>Technology in Society</i>, 62(June), 101284. https://doi.org/10.1016/j.techsoc.2020.101284 • Luhmann, N. (2000). Familiarity, Confidence, Trust: Problems and Alternatives. In D. Gambetta (Ed.), <i>Trust: Making and Breaking Cooperative Relations</i>. Oxford University Press. <p>Assignment (submit on Moodle):</p> <ul style="list-style-type: none"> • Pitch mid-term essay. Write a 250 words ‘pitch’ for your mid-term essay (see below). This pitch should describe (1) the topic of your essay, (2) the relevance of this topic, (3) the example or case you want to focus on. This might need some online research – though you can also take a case from the course materials, (4) the argument you intend to make in your essay, and (5) the expected structure of your essay.
<p>Session # 3</p> <p>24.11.2022</p> <p>13:15-17:15</p>	<p>Topic: States of Exception</p> <p>Location: Hörsaal 1, alte WU, Augasse 2-6, EG Kern A H0.1</p> <p>Description: In this session, we look at the relation between blockchain ecosystems and the sovereignty exercised through those ecosystems. We depart from a debate in legal philosophy between Kelsen and Schmitt, concerning the vulnerability of legal positivist orders to states of exception, on which a sovereign power must act. Schmitt argued that the coalescence of private interests can undermine the integrity of legal orders, as happened with the Weimar Republic. We investigate the seminal event of the ‘DAO Attack’ to consider how it triggered a state of exception and a subsequent focal point of sovereignty that had to push for a hard fork. This underlines a vulnerability of blockchain-based systems, which can be addressed through constitutional design.</p> <p>Readings:</p> <ul style="list-style-type: none"> • Blockchain Governance: Chapter 6

	<ul style="list-style-type: none"> • Dyzenhaus, D. (1994). Now the machines runs itself. <i>Cardozo L. Rev.</i>, 16(1), 1–19. • Howse, R. (1997). From Legitimacy to Dictatorship-and Back Again: Leo Strauss’s Critique of the Anti-Liberalism of Carl Schmitt. <i>J. L. & Jurisprudence</i>, 77(1), 77–103. <p>Optional readings:</p> <ul style="list-style-type: none"> • Reijers, W., Wuisman, I., Mannan, M., de Filippi, P., Wray, C., Rae-Looi, V., Cubillos Vélez, A., & Orgad, L. (2018). Now the Code Runs Itself: On-Chain and Off-Chain Governance of Blockchain Technologies. <i>Topoi</i>. https://doi.org/10.1007/s11245-018-9626-5 • Dupont, Q. (2017). Experiments in Algorithmic Governance: A history and ethnography of “ The DAO ,” a failed Decentralized Autonomous Organization. In <i>Bitcoin and Beyond</i>. Routledge. <p>Assignment (submit on Moodle):</p> <ul style="list-style-type: none"> • Draft mid-term essay ready. Submit an anonymized (no name in the document, nor in the file) max. 2000-word draft of your mid-term essay. See below for more instructions on the writing. Save your draft as a PDF in the following format: ‘studentnr._BG_Midterm_draft.pdf’
<p>Sessions # 4</p> <p>15.12.2022</p> <p>13:15-17:15</p>	<p>Topic: Alegality</p> <p>Location: Hörsaal 1, alte WU, Augasse 2-6, EG Kern A H0.1</p> <p>Description:</p> <p>In this session, we investigate the relation between blockchain technology and the legal system in which it operates by considering the claim of proponents that it is an ‘alegal’ technology. We start by surveying the work by Lindahl on alegality, considering what it means for a legal system to have boundaries and what modes of boundaries it might have. Subsequently, we ask the question: could blockchain technologies be said to transgress these boundaries, and if so, to what extent? Considering possible answers to this question, we investigate ways for regulators to respond to the ‘alegality’ of blockchain technologies.</p> <p>Readings:</p> <ul style="list-style-type: none"> • Blockchain Governance: Chapter 7 • Lindahl, H. (2008). Border crossings by immigrants: Legality, illegality, and alegality. <i>Res Publica</i>, 14(2), 117–135. https://doi.org/10.1007/s11158-008-9051-5 • Hamzic, V. (2020). Alegality: Outside and Beyond the Legal Logic of Late Capitalism. In <i>Neoliberal Legality: Understanding the Role of Law in the Neoliberal Project</i> (pp. 1–8). https://doi.org/10.1108/978-1-83982-790-720201005 <p>Optional readings:</p> <ul style="list-style-type: none"> • de Filippi, P., Mannan, M., & Reijers, W. (2022). The alegality of blockchain technology. <i>Policy and Society</i>, 00(0), 1–15. https://doi.org/10.1093/polsoc/puac006 • Mangano, R. (2018). Blockchain securities, insolvency law and the sandbox approach. <i>European Business Organization Law Review</i>, 19(4), 715–735. https://doi.org/10.1007/s40804-018-0123-5. <p>Assignments (submit on Moodle):</p>

	<ul style="list-style-type: none"> • Review mid-term essay. You will receive an email with an anonymized draft of a fellow student. Use the attached review document to prepare your review. Make sure that your review is both critical (i.e., do not only celebrate how good the essay is, but also indicate points of improvement) and constructive (i.e., on those points of improvement, offer <i>concrete</i> advice on how to do better). • Pitch end-of-term essay. Write a 250 words ‘pitch’ for your end-of-term essay. This pitch should describe (1) the topic of your essay, (2) the relevance of this topic, (3) the example or case you want to focus on. This might need some online research – though you can also take a case from the course materials, (4) the argument you intend to make in your essay, and (5) the expected structure of your essay.
<p>Mid-term essay</p> <p>Submission deadline: 15.12.2022</p>	<p>Your mid-term essay will take the form of an ‘op-ed’ that discusses a particular issue pertaining to the themes discussed in this course. Central to your essay should be a ‘case,’ like a thought-provoking event or a politically relevant feature of a blockchain-based system. This can, for instance, be the DAO attack, the Bitcoin scaling debate, or the impact of NFTs on the governance of art. You can pick a case direct from the course, but you will gain bonus points if you find the case yourself through online research (e.g., related to a recent event).</p> <p>In writing your essay, keep the following things in mind:</p> <ul style="list-style-type: none"> • Don’t write more than 2000 words, or less than 1700 • Your audience will be the general public, keep this in mind. Don’t make the language too complicated, and try to write in an accessible style • Add references as footnotes. You can use hyperlinks for online sources (e.g., newspaper articles), but use proper referencing (e.g., APA style) for academic sources. • Develop an argument that links to one of the themes of the course (rule of code, trust, states of exception, a legality, polycentricity and the commons, and legitimacy). For instance: ‘I argue that the DAO attack represents a state of exception that triggered the emergence of a sovereign power’ • The best op-eds will be short-listed for publication of the ‘Cyber Prometheus’ blog: https://cyber-prometheus.blogspot.com/
<p>Session # 5</p> <p>12.01.2022</p> <p>13:15-17:15</p>	<p>Topic: Polycentricity and the Commons</p> <p>Location: Hörsaal 1, alte WU, Augasse 2-6, EG Kern A H0.1</p> <p>Description: In this session, we discuss blockchain technologies as ‘polycentric systems,’ i.e., systems with multiple, diverse, overlapping clusters of influences—each enjoying a degree of autonomy and decision-making power. As claimed by Michael Polanyi, the governance of polycentric systems integrates limited and relatively autonomous powers for determining, enforcing, and modifying legal relations. By analogy, while blockchain-based systems mostly operate according to autonomous on-chain rules, they also rely on polycentric off-chain power relations between influential actors, including governments and standard-setting bodies (e.g., the FATF). We turn to commons governance to investigate how norms can be implemented to govern these systems.</p> <p>Readings:</p> <ul style="list-style-type: none"> • Blockchain Governance: Chapter 8

	<ul style="list-style-type: none"> • Aligica, P. D., & Tarko, V. (2012). Polycentricity: From Polanyi to Ostrom, and Beyond. <i>Governance</i>, 25(2), 237–262. https://doi.org/10.1111/j.1468-0491.2011.01550.x • Black, J. (2008). Constructing and contesting legitimacy and accountability in polycentric regulatory regimes. <i>Regulation & Governance</i>, 2(2), 137–164. https://doi.org/10.1111/j.1748-5991.2008.00034.x <p>Optional readings:</p> <ul style="list-style-type: none"> • Alston, E., Law, W., Murtazashvili, I., & Weiss, M. B. H. (2021). Blockchain Networks as Constitutional and Competitive Polycentric Orders. <i>Journal of Institutional Economics</i>, 1–17. https://doi.org/10.2139/ssrn.3887701 • O’Dwyer, R. (2015). The Revolution Will (not) Be Decentralised: Blockchains. <i>Commons Transition</i>, March. <p>Assignment:</p> <ul style="list-style-type: none"> • Draft end-of-term essay ready. Submitted an anonymized (no name in the document, nor in the file) max. 2000-word draft of your mid-term essay. See below for more instructions on the writing. Save your draft as a PDF in the following format: ‘studentnr._BG_Endterm_draft.pdf’
<p>Session # 6</p> <p>26.01.2023</p> <p>13:15-17:15</p>	<p>Topic: The Role of Legitimacy</p> <p>Location: Hörsaal 1, alte WU, Augasse 2-6, EG Kern A H0.1</p> <p>Description:</p> <p>In this session, we discuss the ‘legitimacy’ of blockchain-based architectures, as a topic that has recently been raised by blockchain proponents. We start by considering how blockchain systems have or even are constitutional orders. Departing from digital constitutionalism, which asks how constitutionalist principles can be applied to digital systems, we then ask how blockchain constitutions might be or become ‘legitimate.’ We discuss examples of attempts towards constitutionalizing, such as done at 1Hive, which has implemented a Community Covenant.</p> <p>Readings:</p> <ul style="list-style-type: none"> • Blockchain Governance: Chapter 9 • Suber, P. (1990). <i>The Paradox of Self-Amendment: A Study of Law, Logic, Omnipotence, and Change</i>. Peter Lang International Academic Publishers. • Dyzenhaus, D. (1997). <i>Legality and Legitimacy: Carl Schmitt, Hans Kelsen and Herman Heller in Weimar</i>. Oxford University Press. <p>Optional readings:</p> <ul style="list-style-type: none"> • Jongen, H., & Scholte, J. A. (2021). Legitimacy in multistakeholder global governance at ICANN. <i>Global Governance</i>, 27(2), 298–324. https://doi.org/10.1163/19426720-02702004 • Diver, L. (2021). Digisprudence: the design of legitimate code. <i>Law, Innovation and Technology</i>, 13(2). https://doi.org/10.31228/osf.io/nechu <p>Assignment:</p> <ul style="list-style-type: none"> • Review end-of-term essay. You will receive an email with an anonymized draft of a fellow student. Use the attached review document to prepare your review. Make sure that your review is both critical (i.e., do not only celebrate how good the essay

	is, but also indicate points of improvement) and constructure (i.e., on those points of improvement, offer <i>concrete</i> advise on how to do better).
<p>End of term essay</p> <p>Submission deadline: 15.02.2023</p>	<p>Your end-of-term essay will take the form of a short academic paper, in which you focus on one of the political themes of this course. The point is to argue for the relevance of a debate in political philosophy (e.g., concerning sovereignty or legitimacy) for our understanding of blockchain governance. You can take a topic from the course (e.g., arguing for the relevance of the Kelsen-Schmitt controversy) but you get bonus points if you go beyond that, finding a hitherto unexplored debate in political philosophy that is relevant for blockchain governance.</p> <p>In writing your essay, keep the following things in mind:</p> <ul style="list-style-type: none"> • Don't write more than 2000 words, or less than 1700 • Add in-text references (author-date) and add a reference list (APA style)