

## DISCIPLINE DESCRIPTION

### 1. Information about the program

1.1 Higher education institution	Babeş–Bolyai University, Cluj–Napoca
1.2 Faculty	Faculty of Political, Administrative and Communication Sciences
1.3 Department	Political Science
1.4 Field of study	Political Science
1.5 Level of study	Undergraduate
1.6 Study Program/Qualification	Political Science
1.7 Location	Course: FSPAC 1, Mondays, FPSAC III-O305, 10.00 am to 12.00 am Seminar: FSPAC 1, Mondays, FPSAC III-O305, noon to 2.00 pm

### 2. Information about the discipline

2.1 Discipline title	Policies for regulating innovation technology (ULE1435)						
2.2 Course lecturer	Lect. Univ. Dr. Daniel Pop ( <a href="mailto:daniel.pop@ubbcluj.ro">daniel.pop@ubbcluj.ro</a> ) (office hours upon appointment: Tuesdays, 2.00 pm to 3.00 pm FSPAC 2, 205)						
2.3 Seminar assistant	Lect. Univ. Dr. Daniel Pop ( <a href="mailto:daniel.pop@ubbcluj.ro">daniel.pop@ubbcluj.ro</a> ) (office hours upon appointment: Tuesdays, 3.00 pm to 4.00 pm FSPAC 2, 205)						
2.4 Year of study	2	2.5 Semester	2	2.6. Evaluation type	E	2.7 Discipline type	Elective
2.8	ULE1435						

### 3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 seminar	2
3.4 Total hours in the study plan	56	of which: 3.5 course	28	3.6 seminar	28
Time distribution: 4 hours of classroom work and 3 hours of individual study.					hrs
Studying the manual, course reader, bibliography, and notes:					14
Supplementary documentation in the library, on electronic platforms and in the field:					10
Preparing seminars/laboratories, homework, syntheses, portfolios, and essays:					14
Tutorials					4
Examinations					2
Other activities: .....					
3.7 Total hours of individual study					38
3.8 Total hours per semester					100
3.9 Number of credits					4

### 4. Prerequisites (where applicable)

4.1 based on the curriculum	<ul style="list-style-type: none"> <li>Not the case</li> </ul>
4.2 based on competences	<ul style="list-style-type: none"> <li>Not the case</li> </ul>

### 5. Conditions (where applicable)

5.1 for the course	<ul style="list-style-type: none"> <li>In accordance with UBB and FSPAC regulations, attendance at the course lectures is not mandatory to pass the course.</li> <li>The subject taught by the teacher in the course is an integral part of the exam subject, complementary to the bibliography sent to the students and provided in the syllabus.</li> <li>The course is organised according to the schedule approved by the department and communicated to students at the beginning of the semester.</li> <li>Course recoveries are only held when they overlap with official bank holidays or when the course holder cannot take a course for objective reasons. The recovery schedule is established in agreement with the students through their representatives.</li> </ul>
5.2 for the seminar/laboratory	<ul style="list-style-type: none"> <li>Seminar attendance is mandatory for at least 75% of all seminar activities during the semester. Fulfilling the attendance criterion is a mandatory condition for entering the final exam.</li> </ul>

	<ul style="list-style-type: none"> <li>• The impossibility of participating in the seminar for objective reasons (medical situations, overlaps with schedules to other study programs in which the student is enrolled, other professional obligations that cannot be rescheduled, etc.) is announced to the course holder and the seminar holder at the beginning of the semester or as soon as they appear.</li> <li>• The seminar is organised according to the schedule approved by the department and sent to students at the beginning of the semester.</li> <li>• Seminar recoveries are only held when they overlap with official bank holidays or when the course holder cannot take a course for objective reasons. The recovery schedule is established in agreement with the students through their representatives.</li> </ul> <p>Note: The final exam includes a seminar component. If the student's work does not meet the seminar requirements to promote this discipline, the student will not be admitted to the final exam.</p>
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## 6. Accumulated specific competencies

<b>Professional competencies</b>	<ul style="list-style-type: none"> <li>• Comprehension of the foundations of social and political theories for analysing and evaluating socio-political organisation.</li> <li>• Developing and managing projects, plans, programmes and socio-political actions.</li> <li>• The use of methodologies for the analysis of socio-political systems.</li> <li>• Designing policy strategies in local, regional, national and global contexts.</li> <li>• Supporting, promoting and communicating social and political ideas and values.</li> <li>• The development of reports and analyses regarding the evolution of local, regional, national, and international policy processes.</li> <li>• The identification of key concepts and methods to evaluate public policy processes and critical policy events.</li> <li>• The application of tools and instruments specific to comparative public policy analysis.</li> <li>• The use of domain-specific tools and instruments in evaluating political and policy processes.</li> </ul>
<b>Transversal competencies</b>	<ul style="list-style-type: none"> <li>• Ability to manage specific information for solving complex tasks (reception, transmission, processing, storage of information in profile documents), including through the advanced use of an international language.</li> <li>• The use of efficient work techniques in a multidisciplinary team corresponding to various hierarchical levels.</li> <li>• The ability to objectively assess (and self-assess) the need for professional training to insert and adapt to the labour market requirements.</li> <li>• Maintaining and developing professional networks.</li> <li>• Ability to work autonomously and responsibly.</li> <li>• Ability to assume roles or functions of activity management in professional groups and institutions.</li> <li>• Implement projects in conditions of autonomy and professional independence.</li> </ul>

## 7. Discipline objectives (from the accumulated competencies grid)

7.1 General objective	<p>This course provides an overview of how public policy interacts with and regulates innovation and technology. The principal aim of this course is to support students in their learning and comprehensive understanding, master general skills and competencies, acquire concepts, and become familiar with the theories of technological innovation and the principal approaches to public regulation. To this end, the course will introduce basic social and economic concepts (microeconomics and macroeconomics) so that students can apply economic principles to studying politics and public policy. Finally, we will employ concepts from innovation policy regulation to real-world political events and processes.</p>
7.2 Specific objectives	<p>The key specific objectives of the course include:</p> <ul style="list-style-type: none"> <li>• To introduce students to the principal tenets of innovation and technology regulation.</li> <li>• To problematise the notion of human made artefacts and their socio-economic contexts.</li> <li>• Students will be able to discuss the principal arguments in favour of and against state intervention in the process of technological innovation and implementation in society.</li> </ul>

	<ul style="list-style-type: none"> <li>• To help students acquire the skills and competencies and learn about the key analytical tools necessary to comprehend and elaborate analyses of technology regulation.</li> <li>• To problematise the limitations of the field and present students with the principal lines of inquiry seeking to develop innovation and technology regulation further as a standalone multi-disciplinary field of scientific inquiry.</li> <li>• To help students acquire the competencies to explain current events through the lenses of policy analysis.</li> </ul>
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## 8. Contents

8.1 Course	Teaching methods	Observations
<b>Week 1. Introduction to Policies for regulating innovation and technology</b> CR: Saviotti (2023), ch. 1. RR: Kuhn (2012)	The introduction of course structure, key concepts, and theories will be introduced and explained. Expectations, interests, and standards will also be interactively discussed. Review of syllabus and lecture on the role of technological innovation in the articulation of political theories of society. Overview of innovation and technology in the context of knowledge systems and paradigm shifts. Discussing the importance of policy in regulating innovation. Review of the historical context and evolution of technology policy.	Students are required to read the literature indicated in the syllabus and prepare to discuss their expectations and interests related to the course topic.
<b>Week 2. Theories of Public and Private Sector Innovation</b> CR: Cinar et al. (2024) RR: Schumpeter (1942), Schumpeter, J. A. (1947)	Lecture on the principal concepts of progress and development, the economic theories of innovation (creative destruction, diffusion of innovation, the Baumol Model of Innovation), and innovation systems theory. Public Sector Innovation.	Students are required to read the literature indicated in the syllabus.
<b>Week 3. Policy Frameworks and Instruments</b> CR: Saviotti (2023), ch. 2-3. RR: Kovács, O. (2022). Ch. 3.	Lecture on the principal types of policy instruments (regulatory, economic, informational) and case studies of successful policy frameworks. Political responses to creative discussions and paradigm shifts.	Students are required to read the literature indicated in the syllabus.
<b>Week 4. Policy design – the framework</b> CR: Howlett, M., & Mukherjee, I. (2018) RR: Törnberg, P. (2023). Mukherjee, I., Coban, M. K., & Bali, A. S. (2021).	The lecture focuses on the concept of policy design as a tool to enhance the articulation of policy processes from both a theory-drive and real-world perspectives. We will also discuss policy design effectiveness from the perspectives of policy processes instrument choice and policy outputs.	Students are required to read the literature indicated in the syllabus.
<b>Week 5. Policy designs under uncertainty</b> CR: Howlett, M. (2023). RR: Criado, J. I., et al. (2023)	Lecture on the reactive, non-design character and the dark side of policy designs in the context of uncertainties.	Students are required to read the literature indicated in the syllabus.
<b>Week 6. Regulatory sandboxes</b> CR: Johnson, W. G. (2023). RR: Lucy, W. (2024). Brownsword, R. (2022).	Policy approaches of sensing and responding to emerging technologies. Regulating “creating destruction”.	Students are required to read the literature indicated in the syllabus.
<b>Week 7. Regulation of Emerging Digital Technologies</b> CR: Roca, J. B., & O’Sullivan, E. (2022). RR: Stanger, A. et al. (2024).	Addressing challenges in regulating digital technologies and discussing the ethical considerations of autonomous technologies. Case studies: new materials, AI, biotechnology, and nanotechnology.	Students are required to read the literature indicated in the syllabus.

<b>Week 8. Policy Capacity to Innovation, Societal Progress and Economic Development</b> CR: Meng, J. H., Wang, J., & Liu, Y. (2023). RR: Norton, S.D. (2024).	Presenting taxonomies of technological innovation and societal progress (friends or foes) and discussing innovation's various roles in economic growth and societal development. Policies to promote innovation-driven development.	Students are required to read the literature indicated in the syllabus.
<b>Week 9. Technology Assessment and Management</b> CR: Tran, T. A., & Daim, T. (2008).	Key methods and standards for conducting technology assessments. Concepts of risk management in innovation. Case studies on technology management.	Students are required to read the literature indicated in the syllabus.
<b>Week 10. Environmental and Social Impacts of Innovation</b> CR: Clausen, L. P. et al. (2023). RR: Schillo, R. S., & Kinder, J. S. (2017).	Assessing environmental impacts and social implications of technological change. Policies for Sustainable Innovation.	Students are required to read the literature indicated in the syllabus.
<b>Week 11. Comparative Perspectives on Innovation Policy</b> CR: Hervas-Oliver, J. L., et al. (2021).	Comparative analysis of national innovation systems. International cooperation in innovation policy, and role of international organisations.	Students are required to read the literature indicated in the syllabus.
<b>Week 12. Global Perspectives on Innovation Policy</b> CR: Larrue, P. (2021). RR: Allan, Jet al. (2021).	Presenting principal frameworks of international cooperation in innovation policy. The role of international organisations in setting international technology standards.	Students are required to read the literature indicated in the syllabus.
<b>Week 13. Future Trends in Innovation Policy</b> CR: Chisholm & Critchley, (2023).	Emerging trends and technologies and future challenges and opportunities. Policy responses to future technology trends.	Students are required to read the literature indicated in the syllabus.
<b>Week 14. Course review and wrap-up</b>	Comprehensive review of course material	

#### Bibliography

- Acemoglu, D., Golosov, M. & Tsyvinski, A. (2008). "Political Economy of Mechanisms." *Econometrica* 76, no. 3: 619–41. <http://www.jstor.org/stable/40056459>.
- Allan, J., Belz, S., Hoeveler, A., Hugas, M., Okuda, H., Patri, A., ... & Anklam, E. (2021). Regulatory landscape of nanotechnology and nanoplastics from a global perspective. *Regulatory Toxicology and Pharmacology*, 122, 104885.
- Brownsword, R. (2022). *Rethinking Law, Regulation, and Technology*. Cheltenham, UK: Edward Elgar Publishing.
- Chisholm, O., & Critchley, H. (2023). Future directions in regulatory affairs. *Frontiers in Medicine*, 9, 1082384.
- Cinar, E.; Simms, C.; Trott, R. & Demircioglu, M. A. (2024) Public sector innovation in context: A comparative study of innovation types, *Public Management Review*, 26:1, 265-292, DOI: 10.1080/14719037.2022.2080860
- Clausen, L. P. W., Nielsen, M. B., Oturai, N. B., Syberg, K., & Hansen, S. F. (2023). How environmental regulation can drive innovation: Lessons learned from a systematic review. *Environmental Policy and Governance*, 33(4), 364-373.
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Hartung, T., Morales Pantoja, I. E., & Smirnova, L. (2024). Brain organoids and organoid intelligence from ethical, legal, and social points of view. *Frontiers in Artificial Intelligence*, 6, 1307613.

Hervas-Oliver, J. L., Gonzalez-Alcaide, G., Rojas-Alvarado, R., & Monto-Mompo, S. (2021). Emerging regional innovation policies for industry 4.0: analyzing the digital innovation hub program in European regions. *Competitiveness Review: An International Business Journal*, 31(1), 106-129.

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Kuhn, T. S. (2012). *The Structure of Scientific Revolutions*. The University of Chicago Press, forth edition.

Kovács, O. (2022). *Complexity economics: economic governance, science and policy*. Routledge.

Johnson, W. G. (2023). Caught in quicksand? Compliance and legitimacy challenges in using regulatory sandboxes to manage emerging technologies. *Regulation & Governance*, 17(3), 709-725.

Larrue, P. (2021). The design and implementation of mission-oriented innovation policies. *OECD science, technology and industry policy papers*.

Lucy, W. (2024). Legal Regulation, Technological Management and the Future of Human Agency. *Oxford Journal of Legal Studies*.

Meng, J. H., Wang, J., & Liu, Y. (2023). How is government embedded in innovation process for breakthroughs? A meta-synthesis of qualitative case studies. *Technological Forecasting and Social Change*, 194, 122735.

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Stanger, A., Kraus, J., Lim, W., Millman-Perlah, G., & Schroeder, M. (2024). Terra incognita: The governance of Artificial Intelligence in global perspective. *Annual Review of Political Science*, 27(1), 445-465.

Törnberg, P. (2023). How platforms govern: Social regulation in digital capitalism. *Big Data & Society*, 10(1). <https://doi.org/10.1177/20539517231153808> .

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8.2 Seminar/laboratory	Teaching methods	Observations
<b>Week 1. Introduction and seminar activities review</b>	Case study illustrations of knowledge systems, paradigm shifts and creative destruction.	Students must read the literature indicated in the syllabus and engage in seminar debates.
<b>Week 2. Individual choice, technology competition and markets</b> CR: Baum et al. (2022), Uctu, R., Tuluca, N. S. H., & Aykac, M. (2024). RR: Nielsen et al. (2022)	Group discussion on the role of regulation in technological advancements	Students must read the literature indicated in the syllabus and engage in seminar debates.

<b>Week 3. Coevolution of innovation, technology and institutions</b> CR: Criado, J. I., Alcaide-Muñoz, L., & Liarte, I. (2025). RR: Kochetkov D. (2023).	Discussions about dominant designs, radical vs. incremental innovations, technological guideposts, technological paradigms and regimes, qualitative change.	Students are required to read the literature indicated in the syllabus.
<b>Week 4. Policy design</b> Fitch, W. T. (2023). Qian et al. (2019), Hartung et al. (2024).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 5. Policy design under uncertainty</b> Juma (2016), any one chapter of your preference. Bonnin Roca, J. (2024).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 6. Policy Sandboxes</b> CR: Beckstedde, et al. (2023). RR: Brey, P. A. (2012), Raudla et al. (2024).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 7. Emerging digital technologies</b> CR: Rodríguez-Gómez, F. D., Monferrer, D., Penon, O., & Rivera-Gil, P. (2025). RR: Marchant, Gary E. (2020). Allan et al. (2021).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 8. Mission-oriented technology policy and technology sovereignty</b> CR: OECD, (2021) RR: Raudla, R., Juuse, E., Kuokštis, V., Cepilovs, A., Cipinys, V., & Ylönen, M. (2025).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 9. Policy sector innovation</b> CR: Huang, Kenneth G., Yu-Shan Su, Jin Chen, and Yuya Kajikawa (2025).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 10. Environmental and Social Impacts of Innovation</b> CR: Madzík, P., Falát, L., Yadav, N., Lizarelli, F. L., & Čarnogurský, K. (2024).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 11. Perspectives on policy innovation</b> CR: Serpe, et al. (2025).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 12. Global perspectives on policy innovation</b> CR: Chourasia, S., et al. (2022).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 13. Trends in policy innovation</b> Niembro, A., & Levin, L. (2026).	Detailing and illustrating the concepts and theories discussed in the course. Interactive discussion of examples.	Students are required to read the literature indicated in the syllabus.
<b>Week 14. Review</b>	Student presentations. <ul style="list-style-type: none"> <li>• Presentation of research projects</li> <li>• Peer feedback and discussion</li> </ul>	
Selected bibliography		

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- Qian X, Song H, Ming GL. Brain organoids: advances, applications and challenges. *Development*. 2019 Apr 16;146(8):dev166074. doi: 10.1242/dev.166074. PMID: 30992274; PMCID: PMC6503989.
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- Sloot, B.V.D., & Groot, A.D. (Eds.). (2018). *The Handbook of Privacy Studies: An Interdisciplinary Introduction* (1st ed.). Routledge. <https://doi.org/10.5117/9789462988095>
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- Uctu, R., Tuluçe, N. S. H., & Aykac, M. (2024). Creative destruction and artificial intelligence: The transformation of industries during the sixth wave. *Journal of Economy and Technology*, 2, 296-309.

### 9. The corroboration of discipline contents with the expectations of epistemic community representatives, professional associations and representative employers in the study program's corresponding field

The course will synthesise the key and core concepts, notions, and theories in the field of innovation policy regulation related to advanced technologies during the undergraduate learning cycle. This way, the course helps students further understand the nature of their professional formation and the practical utility of their acquired skills and competencies in the labour market. From the employer's point of view, graduates' mastery in understanding policy for regulating advanced technologies related theories, methods and practical actions.

### 10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Weight in final mark
10.4 Course	Evaluation of expert knowledge taught in class.	The written final exam will evaluate knowledge of the subjects treated in lectures.	40%
10.5 Seminar/ laboratory	Work in the seminars	Substantive contributions to the discussions of the seminar.	20%
		Case study presentation on a topic agreed with instructor – deadline to pick topic is Week 6, first draft due Week 9, presentation Week 14.	25%
		Experimental design of policy innovation	15%

Course attendance is not compulsory but strongly recommended. Grading:

- A final exam comprising all course readings will be up to 50 % of the final grade. Failing to obtain a passing grade (at least a 50% score) on the final exam implies failing the class.
- Students must attend at least 75% of seminars, complete assigned readings, and engage actively in seminar activities (25 %).
- Case presentation 25% of the final grade.

Any academic paper relies on information with proper sources cited according to scientific rules. Using one of the existing bibliographical styles (APA, MLA, Chicago, etc.) is strongly recommended. The Department of Political Sciences recommends using the APSA style (American Political Science Association). If any other style is preferred, it should be used consistently throughout the paper. Evaluation of the papers will also consider the correct use of the bibliographical style.

The notion of plagiarism is defined following the Department of Political Science policies:

(<http://fspac.ubbcluj.ro/resurse/formulare-regulamente/reguli-etice-si-deontologice/>). Plagiarism and attempted fraud at examination is punishable by 1 to this note and the case presented to the Dean to take appropriate administrative measures.