Simulation Development

Course code	*POL142*
Compulsory in the programmes	*Compulsory*
Level of studies	*Undergraduate*
Number of credits and hours	*6 ECTS (48 contact hours + 6 consultation hours, 106 individual work hours)*
Course coordinator (title and name)	*Dr. Pijus Krūminas*
Prerequisites	*Introduction to Politics*
Language of instruction	*English*

THE AIM OF THE COURSE:

The course focuses on applying simulation game-based learning to analysing politics, economics, and public policy, often through the lens of conflict. While scientific theories offer an understanding of political and economic processes and standard modelling tools such as game theory help explain these processes, simulation games build upon this knowledge by applying it to real (or expected) events. During the course, student groups will select a political and/or economic topic of their choice and develop analogue simulation games for it. By combining theory, literature analysis and other tools, the course will help understand how simulation games can serve as a means for research, education, and analysis through the lenses of modelling and agency.

In addition to lectures, the course will strongly focus on trying out various simulation games to help develop students their own games. Therefore, there will be classes, where the focus will be on hands-on work rather than on theory. In this case, students may be required to pre-read texts dealing with the topics of games used in class to better understand how modelling works in these cases. The selection of games to be run in the classroom remains at the discretion of the lecturer but will be done in consultation with students and will depend on the topic choices for their projects. Non-obligatory activities for trying simulation games outside of classroom will also be arranged.

MAPPING OF COURSE LEVEL LEARNING OUTCOMES (OBJECTIVES) WITH DEGREE LEVEL LEARNING OBJECTIVES, ASSESMENT AND TEACHING METHODS

Course level learning outcomes (objectives)	Degree level learning objectives (Number of LO)	Assessment methods	Teaching methods
CLO1. Understand the use of simulations in the study and research in politics and economics.	ELO1.1. ELO1.2.	Seminar participation, simulation project (written output), simulation project (demonstration), final exam	Lectures, seminars, workshops, self-study, group-work, consultations
CLO2. Understand the types of simulations and their practical application to inform policy and business decisions, including the ethics of simulations.	ELO1.1. ELO1.2. ELO2.1.	Seminar participation, simulation project (written output), simulation project (demonstration), final exam	Lectures, seminars, workshops, self-study, group-work, consultations
CLO3. Define the elements of simulation and serious game design.	ELO1.2.	Seminar participation, simulation project (written output), simulation project (demonstration), final exam	Lectures, seminars, workshops, self-study, group-work, consultations

CLO4. Structure and develop interactive simulations in the areas of politics and economics.	ELO1.1. ELO1.2.	Seminar participation, simulation project (written output), simulation project (demonstration), final exam	Lectures, seminars, workshops, self-study, group-work, consultations
CLO5. Carry out political economy research needed to make theories applicable to simulations.	ELO1.1.	Seminar participation, simulation project (written output), simulation project (demonstration), final exam	Lectures, seminars, workshops, self-study, group-work, consultations
CLO6. Implement group projects of high complexity, needing a broad set of skills from research to time management.	ELO4.1. ELO4.3.	Seminar participation, simulation project (written output), simulation project (demonstration), final exam	Lectures, seminars, workshops, self-study, group-work, consultations
CLO7. Analyse the results of interactive simulations and interpret their results in terms of political and economic processes.	ELO1.2.	Seminar participation, simulation project (written output), simulation project (demonstration), final exam	Lectures, seminars, workshops, self-study, group-work, consultations
CLO 8. Use simulation games to teach others about a specific topic in political economy.	ELO4.1. ELO4.2. ELO4.3.	Seminar participation, simulation project (written output), simulation project (demonstration), final exam	Lectures, seminars, workshops, self-study, group-work, consultations

ACADEMIC HONESTY AND INTEGRITY

The ISM University of Management and Economics Code of Ethics, including cheating and plagiarism are fully applicable and will be strictly enforced in the course. Academic dishonesty, and cheating can and will lead to a report to the ISM Committee of Ethics. With regard to remote learning, ISM reminds students that they are expected to adhere and maintain the same academic honesty and integrity that they would in a classroom setting.

COURSE OUTLINE

Topic	In-class hours	Readings
Introduction Introductory comments about the course. What are simulations and serious games? What are their benefits for learning and research? Simulations/games and examples of their practical use in politics and economics. Seminar activity: an example of a simulation game	4	None
History and use of political/economic simulation games The origins of simulation/serious games. The broad overview of types of simulation games. Seminar activity: pitching project ideas	4	Reading: Perla & McGrady (2011), pp. 1-23. Assignments: (i) have project groups organised; (ii) have project pitch presentation.
Designing political economy simulations Elements of a simulation game. Types of games. Use of simulations in social science education and research. Process	4	Reading: Weuve et al. (2004); Dunnigan (2011), pp. 27-31; UK Ministry of

of simulation gaming. Roles in designing simulation games. Mechanics. Adjudication. Seminar activity: workshop on project topics and design elements		Defence (2017), pp. 19-46; U.S. Naval War College (n.d.), pp. 63-71. Assignments: none.
Interactive activities: modelling counterinsurgency	4	Reading: brief pre-reads for the topic will be announced based on the game selection Assignments: none.
Research for simulation development: Why is research needed? Planning research. Connecting theory and simulation. Seminar activity: example of a simulation game	4	Reading: selected background descriptions. Assignments: none.
Storytelling in simulations Why should simulation games tell a story? What is a story? How simulation games tell stories? Scenarios. Seminar activity: workshop on agency in simulation games	4	Reading: Kirschenbaum (2009), pp. 357-371; van Notten (2005). Assignments: literature list and brief theory description.
Analysis and business How can simulation games inform research? Benefits for theory research and applied research. The application of wargaming approach to business. Games for management. Games for business regulation compliance. Seminar activity: example of a simulation game.	4	Reading: Wong (2016); Davies (2020). Assignments: none.
Interactive activities: modelling disinformation	4	Reading: UK MoD (2023). Assignments: none.
Matrix games Definition and structure of matrix games. The applicability of matrix games. Advantages and disadvantages. Seminar activity: an example matrix game	4	Reading: Price (2019). Assignments: none.
Simulations, commercial games, application Commercial games and their relevance. Paths to commercialisation. The practical use for simulation game design skills. Educational use of simulation games. Seminar activity: workshop on assessing the practical use and/or commercialisation potential of selected topics.	4	Reading: selected rules for commercial political economy-focused games. Assignments: none.
Future directions and summary Hot topics: pandemics, peacebuilding, etc. Summarising the course contents. Discussing the advantages and disadvantages of simulation games Seminar activity: discussing prototype preparations.	4	Reading: Haggman (2019), Dorn et al. (2020); Davies (2020) Assignments: be ready to ask questions on improving your prototypes
Prototype demonstration Demonstration of student prototypes.	4	Reading: none. Assignments: have prototype demonstration ready.
	Total: 48 hours	
CONSULTATIONS	6	

FINAL EXAM	2	

FINAL GRADE COMPOSITION

Type of assignment	%
Group Components 60%	
Simulation project (written output)	40%
Simulation project (demonstration)	20%
Individual Components 40%	
Seminar activity	20%
Final exam	20%
Total:	**100**

DESCRIPTION AND GRADING CRITERIA OF EACH ASSIGNMENT
(Provide short descriptions and grading criteria of each assignment)

Assessment consists of four different elements:
- **Seminar participation (20%)** – participating in seminar progress presentations, simulations and workshops.
- **Simulation project (written output) (40%)** – preparing the project report involving the background and theoretical analysis of the simulated topic, instructions of the simulation, components of the simulation.
- **Simulation project (demonstration) (20%)** – in-class demonstration of the prototype of the simulation game (to be done before providing the final version of the written output).
- **Final exam (20%)** – answering questions based on the course material.

Seminar participation will include:
- workshops to analyse the applications of the discussed content to the projects developed by students (e.g. design, research implementation, etc.)
- progress presentations that will allow to assess the state of the projects, further steps and possible modifications
- example simulations to test various types of simulations in practice, learning how they work, and how they can illustrate political economic processes and decision making

Simulation project – simulation game prototype (written output) will consist of the following elements:
- topic summary and justification
- literature review on the topic (empirical and theoretical studies)
- the approach to transforming the topic into a simulation (theoretical basis for the simulation)
- the simulation instructions ('game rules') and components

Simulation project (demonstration) will cover:
- presenting the instructions to the coursemates
- running the most up-to-date version of the simulation in the class
- discussing the demonstration / providing feedback to other groups

The final exam will consist of an open question, where you will have to describe how you would approach simulation development for a given topic.

Retake policy: If the final grade is negative, the student may be allowed to retake the final examination during the re-sit exam session. The retake will cover all course material and comprise 20% of the final grade. Therefore, it is important to take note that seminar activity and simulation project development are necessary to have a sufficient cumulative grade. In the case of retake, only the final exam evaluation is annulled.

Extra points: There will be a possibility to gain an extra point by working on a micro-game in the topic of civil resistance.

Readings (changes are possible during the semester based on mutual agreement and the focus of your projects, you will be notified in advance):

Davies, B., Rainwatter Lovett, K., Card, B. & Polatty, D. (2020). Urban Outbreak 2019 Pandemic Response: Select Research & Game Findings. U.S. Naval War College Digital Commons.

Dorn, A.W., Webb, S. & Pâquet, S. (2020). From Wargaming to Peacegaming: Digital Simulations with Peacekeeper Roles Needed. International Peacekeeping, 27(2), pp. 289-310.

Dunnigan, J.F. (2011). Simulation Game Design. In: Costikyan, G. & Davidson, D. Tabletop: Analog Game Design, pp. 27-31.

Haggman, A. (2019). Cyber Wargaming: Finding, Designing, and Playing Wargames for Cyber Security Education. Doctoral dissertation.

Kirschenbaum, M. (2009). War Stories: Board Wargames and (Vast) Procedural Narratives. In: Third person: authoring and exploring vast narrative, MIT Press, Cambridge, MA, USA, pp. 357-372.

Perla, P. & McGrady, E.D. (2011). Why Wargaming Works. Naval War College Review, 64(3), pp. 1-20. Price, T. (2019). Basic Law: A Matrix Game of anti-government riots.

Schwarz, J.O. (2011). Ex ante strategy evaluation: the case for business wargaming. Business Strategy Series, 3(12), pp. 122-135.

Schwarz, J.O. (2013). Business wargaming for teaching strategy making. Futures, 51, pp. 59-66.

Schwarz, J.O., Ram, C. & Rohrbeck, R. (2019). Combining scenario planning and business wargaming to better anticipate future competitive dynamics. Futures, 105, pp. 133-142.

UK Ministry of Defence (2017). Wargaming Handbook. Development, Concepts and Doctrine Centre, United Kingdom Ministry of Defence.

UK Ministry of Defence (2023). Influence Wargaming Handbook, United Kingdom Ministry of Defence.

U.S. Naval War College (n.d.). War Gamers' Handbook. A Guide for Professional War Gamers. War Gaming Department, U.S. Naval War College, Newport, RI, USA.

Van Notten, P. (2005). Scenario development: a typology of approaches. Dissertation chapter.

Weuve, C.A., Perla, P.P., Markowitz, M.C., Rubel, R., Downes-Martin, S., Martin, M. & Vebber, P.V. (2004). Wargame Pathologies. Wong, Y.H. (2016). How Can Gaming Test Your Theory? Accessible: https://www.rand.org/blog/2016/05/how-cangaming-help-test-your-theory.html

DEGREE LEVEL LEARNING OBJECTIVES

Learning objectives for the <u>Bachelor of Social Science</u>
Programmes:
Economics and Data Analytics,
Economics and Politics

Learning Goals	Learning Objectives
Students will be critical thinkers	ELO1.1. Students will be able to understand core concepts and methods in the key economics disciplines
	ELO1.2. Students will be able to identify underlying assumptions and logical consistency of causal statements
Students will have skills to employ economic thought for the common good	ELO2.1.Students will have a keen sense of ethical criteria for practical problem-solving
Students will be technology agile	ELO3.1. Students will demonstrate proficiency in common business software packages
	ELO3.2. Students will be able to make decisions using appropriate IT tools
Students will be effective communicators	ELO4.1.Students will be able to communicate reasonably in different settings according to target audience tasks and situations
	ELO4.2.Students will be able to convey their ideas effectively through an oral presentation
	ELO4.3. Students will be able to convey their ideas effectively in a written paper