SIMULATION DEVELOPMENT

Course code	*POL142*
Course title	*Simulation Development*
Type of course	*Elective*
Study level	*Undergraduate*
Year of study	*3rd*
Semester	*6th semester*
ECTS	*6, 48 contact hours, 112 self-study hours, 2 hours of consultations*
Lecturer	*Dr. Pijus Krūminas, pijkru@faculty.ism.lt*
Study form	*Regular, daytime*
Prerequisites	*Introduction to Politics*
Course language	*English*

The course focuses on applying simulation-based learning to analysing politics, economics and public policy, often through the lense of conflict. While scientific theories offer an understanding of political and economic processes, simulation games build upon this knowledge by applying it to real (or projected) 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.

Aim of the Course
This course aims at providing the framework for studying political and economic processes through interactive simulation development and use. Students will be provided with tools needed to develop simulation games based on scientific theories and research that can generate additional insights into the area of political economy.

Subject learning outcomes (SLO)	Study methods	Assessment methods
SLO1. Understand the use of simulations in the study and research in politics and economics.	Lectures, seminars, workshops, self-study, group-work, consultations	Seminar participation, simulation project (written output), simulation project (demonstration), final exam
SLO2. Understand the types of simulations and their practical application to inform policy and business decisions.	Lectures, seminars, workshops, self-study, group-work, consultations	Seminar participation, simulation project (written output), simulation project (demonstration), final exam
SLO3. Define the elements of simulation and serious game design.	Lectures, seminars, workshops, self-study, group-work, consultations	Seminar participation, simulation project (written output), simulation project (demonstration), final exam
SLO4. Structure and develop interactive simulations in the areas of politics and economics.	Lectures, seminars, workshops, self-study, group-work, consultations	Seminar participation, simulation project (written output), simulation project (demonstration), final exam
SLO5. Carry out political economy research needed to make theories applicable to simulations.	Lectures, seminars, workshops, self-study, group-work, consultations	Seminar participation, simulation project (written output), simulation project (demonstration), final exam
SLO6. Implement group projects of high complexity, needing a broad set of skills from research to time management.	Lectures, seminars, workshops, self-study, group-work, consultations	Seminar participation, simulation project (written output), simulation project (demonstration), final exam
SLO7. Analyse the results of interactive simulations and interpret their results in terms of political and economic processes	Lectures, seminars, workshops, self-study, group-work, consultations	Seminar participation, simulation project (written output), simulation project (demonstration), final exam
SLO8. Use simulation games to teach others about a specific topic in political economy.	Lectures, seminars, workshops, self-study, group-work, consultations	Seminar participation, simulation project (written output), simulation project (demonstration), final exam

Quality issues
The lecturer assures a variety of teaching methods as well as modes of self-assessment. The feedback from students will always be highly valued and appreciated.

Cheating issues
The teaching and testing methods are chosen taking into account the purpose of the minimization of cheating opportunities. The ISM regulations on academic ethics are fully applied in the course.

Topics

Week	Topic	Contact Hours		Assignments and readings
		Lecture	Seminar	
1	**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 simulation	2	2	**Reading**: none **Assignments**: none.
2	**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 topics	2	2	**Reading**: Perla & McGrady (2011), pp. 1-23. **Assignments**: (i) have project groups organised; (ii) have project pitching presentation.
3	**Designing political economy simulations I** Elements of a simulation game. Types of games. Use of simulations in social science education and research. Seminar activity: workshop on project topics and design elements	2	2	**Reading**: Weuve et al. (2004); Dunnigan (2011), pp. 27-31. UK Ministry of Defence (2017), pp. 19-46. **Assignments**: none.
4	**Designing political economy simulations II** Process of simulation gaming. Roles in designing simulation games. Mechanics. Adjudication. Seminar activity: examples of games.	2	2	**Reading**: Weuve et al. (2004); U.S. Naval War College (n.d.), pp. 63-71. **Assignments**: none.
5	**Research for simulation development** Why is research needed? Planning research. Connecting theory and simulation. Seminar activity: workshop on research planning and implementation.	2	2	**Reading**: selected background descriptions. **Assignments**: none.
6	**Storytelling in simulations** Why should simulation games tell a story? What is a story? How simulation games tell stories? Scenarios. Seminar activity: workshop on storytelling for selected topics.	2	2	**Reading**: Kirschenbaum (2009), pp. 357-371; van Notten (2005). **Assignments**: literature list and brief theory description.
7	**Matrix games** Definition and structure of matrix games. The applicability of matrix games. Advantages and disadvantages. Seminar activity: an example matrix game	2	2	**Reading**: Price (2019). **Assignments**: none.
8	**Business wargaming** The application of wargaming approach to business. Games for management. Games for business regulation compliance. Seminar activity: project progress presentation.	2	2	**Reading**: Schwarz (2011), Schwarz (2013), Schwartz et al. (2019) **Assignments**: have project progress presentation.

9	**Analysis** How can simulation games inform research? Benefits for theory research and applied research. Seminar activity: an example negotiation simulation.	2	2	**Reading**: Wong (2016); Davies (2020). **Assignments**: none.
10	**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.	2	2	**Reading**: selected rules for commercial political economy-focused games. **Assignments**: none.
11	**Future directions** Hot topics: pandemics, peacebuilding, . Seminar activity: project demonstrations. Note: demonstrations may last longer. Therefore, we will begin with them.	2	2	**Reading:** Haggman (2019), Dorn et al. (2020); Davies (2020) **Assignments**: have project demonstration ready.
12	**Project demonstration** Summarising the course contents. Discussing the advantages and disadvantages of simulation games. Seminar activity: project demonstrations. Note: demonstrations may last longer. Therefore, we will begin with them.	2	2	**Reading**: none. **Assignments**: have project demonstration ready.
	Total	24	24	

Individual work and assessment

TYPE OF WORK	TOPICS	TOTAL HOURS	EVALUATION
Seminar activity	1-12	23	20%
Simulation project (written output)	1-12	45	40%
Simulation project (demonstration)	1-12	22	20%
Final exam	1-12	22	20%
Total		**112**	**100%**

Course assignments and evaluation

Assessment consists of three 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 simulation projects (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 (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.

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 case of retake, only the final exam evaluation is annulled.

Readings (changes are possible during the semester, 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.

U.S. Naval War College (n.d.). *War Gamers' Handbook. A Guide for Professional War Gam*ers. 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-can-gaming-help-test-your-theory.html