

Course title/Course Neptun ID: Natural Hazards and their impacts on agricultural production/ GAZDT521N	Credit value: 6
Professor in charge (name, position, academic degree): Prof. Dr. Zsuzsanna Bacsi, PhD	
Professor(s) involved in teaching, if any (name, position, academic degree): Prof Dr. Béla Vizvári, external lecturer, CSc	
Course category: compulsory / elective Elective	
Course type: <u>lecture</u> /seminar/practical course/consultation, and total number of course sessions in the given semester: 21/0/0/0 course sessions	
Methods, (<i>specific</i>) tools, and characteristics applied to convey knowledge: e.g.: case reports, case study analyses, project work, other... Lectures, case reviews, case study analyses, project work	
Method of assessing knowledge (exam / practical course grade / other): exam	
Grading method(s) applied for assessing knowledge: grading by five-grade scale	
The course's placement in the curriculum (in which semester the course is taken): 2nd, 4th, or 6th semester	
Compulsory studies prior to the course (if any): none	
Course description: a brief yet informative description of the course's objectives and the material to be covered: The education purpose of this subject is to provide knowledge for the students about the major sources of environmental risks and hazards affecting agriculture in the present and in the near future. The forthcoming global climate change presents challenges for agricultural production, and the need for new technologies and new production approaches is increasingly pressing, with regard to environmental sustainability as well as to socio-economic sustainability. The students are provided with methods to assess the severity of various hazards, the currently applied sustainable responses to these, and will be challenged to identify forthcoming risks, and analyse possible approaches to manage them.	
Course topics/semester syllabus: Hazards, disasters and catastrophes in general (Examples of disasters and catastrophes; Definition and classification catastrophes – Basics of catastrophe relief and management organisation) Main hazards affecting agriculture – typology, examples Risks and disasters related to water availability – typology, examples Drought and its various measurements, drought indices – international examples Irrigation – technologies and their economic significance – international examples Pricing of water, international trade of water. Individual assignments for students – analysis of specific agricultural hazards.	
A list of the 2-5 most relevant <u>compulsory</u> literature (notes, textbooks) with bibliographic information (author, title, publication details, page numbers, ISBN): OECD/FAO (2021): <i>Building Agricultural Resilience to Natural Hazard-induced Disasters: Insights from Country Case Studies</i>, OECD Publishing,	

Paris, https://doi.org/10.1787/49eefdd7-en (alternatively: https://reliefweb.int/sites/reliefweb.int/files/resources/cb5000en.pdf) • FAO. 2020. <i>The State of Food and Agriculture 2020 - Overcoming water challenges in agriculture</i>. Rome. https://doi.org/10.4060/cb1447en • Etkin, David (2016): <i>Disaster Theory: An Interdisciplinary Approach to Concepts and Causes</i>. Elsevier- Butterworth-Heinemann, Amsterdam-London-New York-Tokyo • FAO.2023. <i>The Impact of Disasters on Agriculture and Food Security</i>. Rome. https://doi.org/10.4060/cc7900en
A list of the 2-5 most relevant <i>recommended</i> literature (notes, textbooks) with bibliographic information (author, title, publication details, page numbers, ISBN): • Tomasella, Javier; Ana Paula M. A. Cunha; Paloma Angelina Simões; Marcelo Zeri (2023): Assessment of trends, variability and impacts of droughts across Brazil over the period 1980–2019, <i>Natural Hazards</i>, 116:2173–2190, https://doi.org/10.1007/s11069-022-05759-0 • Johansson, Robert C. (2000): Pricing Irrigation Water: A Literature Survey. The World Bank, Washington, D.C. https://documents1.worldbank.org/curated/en/567231468766233272/pdf/multi-page.pdf • Yerushalmi, Erez (2012): Measuring the administrative water allocation mechanism and agricultural amenities, <i>The Warwick Economics Research Paper Series (TWERPS) 992</i>, University of Warwick, Department of Economics. https://warwick.ac.uk/fac/soc/economics/research/workingpapers/2012/twerp_992.pdf
Professional competencies, elements of competence, and skills to which the course typically and substantially contributes (knowledge, ability, attitude, autonomy, and responsibility): Knowledge: Students will have the necessary knowledge about the typology and character of the main hazards affecting agriculture, and their possible impacts in the present and in the near future, with special focus on the consequences of global climate change. They gain knowledge about the possible technological responses to these challenges, and their relationship to the concept of sustainability. They learn methods to assess the severity of hazards, with special focus on the issues of water scarcity. Ability/ Competencies: Students will develop the ability to creatively analyse, comparatively and critically evaluate practical and theoretical issues arising in relation to natural hazards affecting agriculture, in real situations, and to compare the effectiveness of various approaches to manage these hazards. Attitude: The students will develop perseverance and strong professional commitment to explore new scientific possibilities for minimizing the effects of natural hazards and managing their consequences in agricultural production.

They will represent and communicate their commitments and professional values to the community they work with.

Autonomy & Responsibility: The students will develop creative autonomy in initiating new research and approaches to handle the problems discovered by the course. They will be ready and able to participate in discussions with stakeholders in the academic and business community, taking responsibility for raising and answering new ethical questions, associated with agricultural disaster management.