**Course name: Urban Agriculture**
**Subject key:76973**
**Type of subject: Optative**
**No. of credits approved:**
**Last date of curricular review: September 2020**
**Subject matter and subject code requirement: None**

## 1) COURSE NAME: URBAN AGRICULTURE

| **Synthetic program** | | | | | | | | | | | | |
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| **Urban Agriculture** | | | | | | | | | | | | |
| **General Information** | | | | | | | | | | | | |
| **Type of curricular proposal:** | New creation | | x | Restructuration | | | Change | | | | | |
| **Type of course**: | Mandatory | | Optional | | x | Complementary | | | Other | | | |
| **Course shared with another Academic program or academic entity** | ( x ) No<br>( ) Yes<br><br>With which academic program is shared? _____<br><br>From which semester? _____<br><br>From which academic entity? _____ | | | | | | | | | | | |
| **Designed by:** | Marcos Algara Siller<br>Carolin Antoni<br>Mariana Buendía Oliva<br>Abraham Cardenas Tristan<br>Lourdes Marcela López Mares<br>Carlos Renato Ramos Palacios<br>Madigan Martínez Parga Méndez | | | | | | | | | | | |
| **Revised by por:** | Gadjah Mada University, Indonesia | | | | | | | | | | | |

| **Semester** | **Theory hours per week** | **Practice hours per week** | **Additional student work hours per week** | **Credits** |
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| | 3 | 1 | 1 | 6 |

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| **Main Objective** | To learn about the basic strategies to design, plan, and manage urban agriculture projects, as well as to understand complex relations between agriculture, food chains and urban food production. | |
| **Specific and professional competences to which it contributes to develop the subject** | The graduate will apply his knowledge on urban agriculture as an instrument to improve the use of resources in cities and address environmental problems. The graduate will learn to analyze the relationship between the urban context and urban agriculture form a complex thinking and transdisciplinary perspective. | |
| **Performance of the specific professional competence to which it contributes to develop the subject** | Students will perform tasks and solve specific problems related to Urban Agriculture. They will formulate arguments, discussions and defend viewpoints in oral presentations. They will be able to solve evaluation exams. They will analyze scientific, academic, and dissemination literature. They will use information and communication technology in the learning process as a tool to access the globalized world. They will become aware of the value of the use and correct management of knowledge. | |
| **Competences to which it contributes to develop the subject** | Students will assume one's responsibilities under criteria of quality and relevance to society, and actively contributing to the identification and solution of urban problems, including social, economic, political and environmental sustainability disciplines. Students will obtain organizational and project management skill. They will conduct empirical social research (surveys, etc.) and perform field measurements. Graduates know how to work independently but also in a team. | |
| **Performance of transversal professional competence to which it contributes to develop the subject** | Students will participate in actions in favor of equal opportunities that improve the quality of urban situations. They will take protect and use in a responsible way natural resources related with natural and sustainable products from and of urban agriculture.<br>Students will analyze and discuss factors and variables about all associated aspects in depth. Graduates will learn to communicate in a trans-disciplinary environment. | |
| **Units** | **Units** | **Contents** |
| | 1. **Introduction to urban agriculture** | Urban agriculture and cities toward the sustainability<br>Students will be able to understand cities as a social and ecological subsystem, based on social ecological system theory. Furthermore, they will be able to identify the bridge between the social-ecological system and urban agriculture. |
| | 2. **Global, regional and local dynamics** | Global urban agricultural movements and politics<br>Students will understand global, regional and local politics and economical dynamics and their connection in the global and local food system. Furthermore, they will be familiar with |

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| | | urban agricultural processes and the influence in community development and public health. | |
| | 3**. Ecological and horticultural fundaments of the urban orchards** | Definition of organic products and environmental impacts | |
| | 4. **Urban Agriculture, society and natural resources** | Social impacts of urban agriculture.<br>Students will be able to understand the linkages from the energy-water-food nexus in the context of a city economics development; to differentiate food production scales related to sustainability; to understand how society's participation drive food production.<br>Derived from these, the student will be able to design an urban food production program correlated to the nexus based on a participatory approach | |
| **Methods and practices** | **Methods** | Presentation of topics through videos, power point presentations and lectures.<br>The course will mainly be set up as a seminar-workshop. The main attraction of this method lies in the possibility of a collective reflection on each of the topics looked at during the program. The content of the class will be delivered through readings and presentations in class and home. The course will be dynamic and participatory, based on discussions.<br>Every student has to hand in an essay about a self-selected topic on Urban Agriculture.<br>As a preparation for the classes every student has to read a specific article and develop an essay (max. 1 page), where he/she should express his OWN opinion, experiences, doubts and/or thoughts. This text has to be handed in on the night before the next class.<br>The professor also provides theoretical presentations and introduces new topics. | |
| | **Practices** | In Unit 4: The class will visit an urban agricultural project. Then, the group will break into small teams (3-5 people) to write a report on an urban agricultural project in the urban area. Every group has to analyze the crops, the use of fertilizer, the history of the project, as well as tits financial and management plan. Finally, every group presents findings. | |
| **Assesment method** | **Partial exam** | 20% | First partial exam: Units 1 y 2 |
| | | 20% | Second partial exam: Unit 3 |
| | | 20% | Third partial exam: Unit 4 |
| | | 40% | Research work |

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| | **Final exam** | The ordinary final grade will correspond to the weighted average of the three partial evaluations (20% each) and a research paper (40%): 100% |
| | **Other activities** | Group work |

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| | | https://doi.org/10.1016/j.ecolmodel.2016.04.015<br><br>Withman A. & S. DeJohn (Editors of the National Gardening Association). 2009. Organic Gardening for Dummies. Wiley Publishing Inc. 2nd. Edition. Indianapolis, Indiana, U.S.A. 388 p.<br><br>Zhang, C., Chen, X., Li, Y., Ding, W., & Fu, G. (2018). Water-energy-food nexus: Concepts, questions and methodologies. Journal of Cleaner Production, 195, 625–639. https://doi.org/10.1016/j.jclepro.2018.05.194 |

| Synthetic program | | |
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| | **Digital resouces** | FAO - Committee on Agriculture, Fifteenth Session. Urban and peri-urban agriculture, 25 - 29 January 1999 http://www.fao.org/unfao/bodies/coag/Coag15/X0076e.htm<br><br>World Food Summit: five years later (FAO, Rome June 2002) . Feeding an increasingly urban world http://www.fao.org/worldfoodsummit/english/newsroom/focus/focus2.htm<br><br>World Urban Forum: http://www.un-habitat.org/categories.asp?catid=535<br><br>Third Meeting of the Support Group of Urban Agriculture (SGUA)<br><br>March 18 - 19, 1996 at the International Development Research Centre, Ottawa, Canada. http://www.crdi.ca/en/ev-2442-201-1-DO_TEMA.html<br><br>The Quito declaration. http://www.idrc.ca/uploads/user-S/10401380100Declaration-Ingles.pdf<br><br>The La Paz Declaration. http://www.fao.org.sv/noticias/noticias.php<br><br>High Level Conference on Food Security, Climate change and energy (FAO, Rome 3-5 June 2007). http://www.fao.org/foodclimate/hlc-home/en/<br><br>**Videos**<br><br>Background of the Sustainable Development Goals \| UNDP: http://www.undp.org/content/undp/en/home/sustainable-development-goals/background.html<br><br>Four Important Lessons from Cuba's Urban Food Survival Strategy: http://blogs.worldwatch.org/four-lessons-cuba-food/<br><br>New Vision for Agriculture \| World Economic Forum: https://www.weforum.org/projects/new-vision-for- |

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| | | agriculture |

D) CONTENTS AND METHODS BY UNITS AND SUBJECTS

| **Unit 1. Introduction to urban agriculture** | | **6 h** |
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| **Topic 1.1** Definition and history of Urban Agriculture and social ecological systems | | **3h** |
| **Subtopic** | 1.1.1 Social –ecological system<br>1.1.2 Definition and history of Urban Agriculture and social ecological systems | |
| **Topic 1.2** Interaction between the social-ecological system and urban agriculture | | **3h** |
| | 1.2.1 Food flows in cities<br>1.2.2 Water-energy flows in cities<br>1.2.3 Urban agriculture and urban sustainability | |

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| **Readings and other resources** | **1.1.1 Social –ecological system**<br>Chapin, F.S., Kofinas, G.P. y Folke, C. 2009. Principles of Ecosystem Stewardship Resilience-Based Natural Resource Management in a Changing World. Stockholm: Springer, 2009. ISBN 978-0-387-73032-5<br><br>McGinnins, M.D., et al. 2014, Social-ecological system framework: initial changes and continuing challenges<br><br>**1.1.2 Definition and history of Urban Agriculture and social ecological systems**<br>Burgin, S., 2018, 'Back to the future'? Urban backyards and food self-sufficiency<br><br>FAO, 2001, Urban and Peri-urban Agriculture, 1. Edition, SPFS/DOC/27.8, Rome<br><br>FAO, 2014, Growing Greener Cities in Latin America and the Caribbean, Rome<br><br>Game, I., et al., 2015, Urban Agriculture, GSDR Brief<br><br>Lovell, S.T, 2010, Multifunctional Urban Agriculture for Sustainable Land Use Planning in the United States, Sustainability, 2(8):2499-2522, doi:10.3390/su2082499<br><br>Mougeot, L.J.A., 2001, Urban Agriculture: Definition, Presence, Potentials and Risks, and Policy Challenges, Cities Feeding People Series Report 31<br><br>Specht, K. et al, 2014, Urban agriculture of the future: an overview of sustainability aspects of food production in and on buildings, Agric Hum Values 31:33-51<br><br>Tornaghi, C., 2014, Critical geography of urban agriculture, 38(4):551-567, Progress in Human Geography |

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| | **1.2.1 Food flows in cities**<br>Drechsel, P., et al. 2007, Rural-Urban Food, Nutrient and Virtual Water Flows in Selected West African Cities, Research Report 115, International Water Management Institute<br><br>**Others**:<br>http://www.fao.org/in-action/food-for-cities-programme/toolkit/introduction/en/<br><br>**1.2.2 Water-energy flows in cities**<br>Barthel, S. et al. 2013, Urban gardens, agriculture, and water management: Sources of resilience for long-term food security in cities, Ecological Economics 86:224-234<br><br>Chrysoulakis, N., et al., 2013, Sustainable urban metabolism as a link between bio-physical sciences and urban planning: The BRIDGE project, Landscape and Urban Planning, 112:100-117<br><br>Maheshwari, B. etal, 2014 The Security of Water, Food, Energy and Liveability of Cities, Springer<br><br>**1.2.3 Urban agriculture and urban sustainability**<br>Barthel, S. et al, 2010, Social-ecological memory in urban gardens-Retaining the capacity for management of ecosystem services, 20:255-265<br><br>Basant, M., et al., The Security of Water, Food, Energy and Liveability of Cities, Springer, Dordrecht Heidelberg<br><br>Bausch, J.C., et al., 2015, Development pathways at the agriculture-urban interface: the case of Central Arizona<br><br>García-Llorente, et al, 2016, Social Farming in the Promotion of Social-Ecological Sustainability in Rural and Periurban Areas, Sustainability, 8<br><br>Grimm, N.B., et al, 2010, Integrated Approaches to Long-Term Studies of Urban Ecological Systems, 50(7) |
| **Teaching and learning methods** | The course will mainly be set up as a seminar-workshop; the main attraction of this method lies in the possibility of a collective reflection on each of the issues raised in the program, based on certain key concepts derived from readings and presentations in class.<br>The experience of a personal reading is enhanced by the synergy of collective reflection. |
| **Learning activities** | • Pre reading activity |

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| | • Lecture<br>• Interactive discussion<br>• Presentation (single)<br>• Hand in first draft |

| Unit 2. **Global, regional and local dynamics** | | **18h** |
|---|---|---|
| **Topic 2.1** Introduction to the food system and food security. Global, region and local examples | | **6h** |
| **Subtopic** | 2.1.1. Food security in the context of the sustainable development goals<br>2.1.2. Food safety dimensions<br>2.1.3. Availability, access, consumption and food promotion<br>2.1.4. Examples | |
| **Topic 2.2** Global politics and economical dynamics in the food system, causing urban agricultural processes. | | **6 h** |
| **Subtopic** | 2.2.1 Urban agricultural regions and their governance | |
| **Topic 2.3 Impact of urban agriculture on community development, food security and public health** | | 6 h |
| **Subtopic** | 2.3.1 Urban Agriculture and its impact on community development<br>2.3.2 Urban agriculture and biodiversity<br>2.3.3 Integration of urban agriculture in urban policies<br>2.3.4 Urban agriculture as a strategy for municipal development Sustainable<br>2.3.5 The dynamics of urban farmers | |
| Readings and other resources | **2.1.1. Food security in the context of the sustainable development objectives**<br>Hubert De Bon, Laurent Parrot, Paule Moustier. Sustainable urban agriculture in developing countries. A review. Agronomy for Sustainable Development, Springer Verlag/EDP Sciences/INRA, 2010, 30 (1).<br><br>Santo, Raychel, Anne Palmer, and Brent Kim. 2016. Vacant Lots to Vibrant Plots: A Review of the Benefits and Limitations of Urban Agriculture. Johns Hopkins Center for a Livable Future. https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/research/clf_reports/urban-ag-literature-review.pdf<br><br>**2.1.2. Food safety dimensions**<br>Consejo Nacional de Evaluación de la Política de Desarrollo Social. Dimensiones de la seguridad alimentaria: Evaluación Estratégica de Nutrición y Abasto. México, DF. CONEVAL, 2010 | |

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| | **2.1.3. Availability, access, consumption and food promotion**<br>FAO (S/F) Food for the Cities multi-disciplinary initiative position.<br><br>FAO (2004) Globalization of food systems in developing countries: impact on food security and nutrition.<br><br>Global panel on agriculture and food systems of nutrition (2017) Urban diets and nutrition: Trends, challenges and opportunities for policy action.<br><br>**2.1.4. Examples**<br>IPES-Food. 2017. What makes urban food policy happen? Insights from five case studies. International Panel of Experts on Sustainable Food Systems. www.ipes-food.org<br><br>**2.3.1 Urban agriculture and its impact on community development**<br>Domenic Vitiello, Laura Wolf-Powers; Growing food to grow cities? The potential of agriculture foreconomic and community development in the urban United States, Community Development Journal, Volume 49, Issue 4, 1 October 2014, Pages 508–523, https://doi.org/10.1093/cdj/bst087<br><br>E. Duchemin, F. Wegmuller and A.-M. Legault. (2008). Urban agriculture: multi-dimensional tools for social development in poor neighbourhoods. The Journal of Field Actions Science Reports, 1, 43:52<br><br>**2.3.4 Urban agriculture as a strategy for municipal development sustainable**<br>Anthopoulou, T., Nikolaidou, S., Partalidou, M., & Petrou, M. (2018). The Emergence of Municipal Allotment Gardens in Greece in Times of Crisis. Governance Challenges for New Urban Gardening Practices. 181–199. https://doi.org/10.1007/978-3-319-71037-2_11<br><br>Mansfield, B., & Mendes, W. (2013). Municipal Food Strategies and Integrated Approaches to Urban Agriculture: Exploring Three Cases from the Global North. International Planning Studies, 18(1), 37–60. https://doi.org/10.1080/13563475.2013.750942<br><br>Mougeot, L. J. A. (2006). Growing Better Cities: Urban Agriculture for Sustainable Development (In Focus).<br><br>Mougeot, L. J. A. (2005). Agropolis. The social, political and environmental |

dimensions of Urban Agriculture (Earthscan). London: James and James.

Pothukuchi, K., & Kaufman, J. L. (1999). Placing the food system on the urban agenda: The role of municipal institutions in food systems planning. Agriculture and Human Values, 16(2), 213–224. https://doi.org/10.1023/A:1007558805953

Scheromm, P., & Mousselin, G. (2017). The Proliferation of Collective Gardens in Lisbon (Portugal) and Montpellier (France): Urban Residents Demand and Municipal Support. 201–217. https://doi.org/10.1007/978-3-319-71037-2_12

Smith, V. M., Greene, R. B., & Silbernagel, J. (2013). The social and spatial dynamics of community food production: A landscape approach to policy and program development. Landscape Ecology, 28(7), 1415–1426. https://doi.org/10.1007/s10980-013-9891-z

**2.3.5 The dynamics of urban farmers**

De Zeeuw, H. (2004). Introduction to urban agriculture. Nairobi Course. Leusden, Urban Harvest, UAF

Fantini, A. (2016). La agricultura urbana y periurbana como práctica de transformación territorial, económica, social y política. Universidad Autónoma de Barcelona.

FAO. (2007). Profitability and sustainability of urban and peri-urban agriculture. In FAO (Ed.), Agricultural Management, Marketing and Finance Occasional Paper. Retrieved from http://books.google.com/books?id=c7l9kmC7PZ0C%7B&%7Dpgis=1

Jaramillo Avila, C. (2003). Aspectos Económicos de la Agricultura Urbana. Agricultura Urbana, (7), 35.

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Sanz Sanz, E., Martinetti, D., & Napoléone, C. (2018). Operational modelling of peri-urban farmland for public action in Mediterranean context. Land Use Policy. https://doi.org/10.1016/j.landusepol.2018.04.003

United States Department of Agriculture. (2016). Urban Agriculture Tool Kit. 18. Retrieved from https://www.usda.gov/sites/default/files/documents/urban-

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| | agriculture-toolkit.pdf<br><br>Walters, J. P., Archer, D. W., Sassenrath, G. F., Hendrickson, J. R., Hanson, J. D., Halloran, J. M., … Alarcon, V. J. (2016). Exploring agricultural production systems and their fundamental components with system dynamics modelling. Ecological Modelling, 333, 51–65. https://doi.org/10.1016/j.ecolmodel.2016.04.015 |
| **Other resources** | **Web Sities**<br>FAO - Committee on Agriculture, Fifteenth Session. Urban and peri-urban agriculture, 25 - 29 January 1999<br>http://www.fao.org/unfao/bodies/coag/Coag15/X0076e.htm<br>World Food Summit: five years later (FAO, Rome June 2002) . Feeding an increasingly urban world<br>http://www.fao.org/worldfoodsummit/english/newsroom/focus/focus2.htm<br>World Urban Forum<br>http://www.un-habitat.org/categories.asp?catid=535<br>Third Meeting of the Support Group of Urban Agriculture (SGUA) March 18 - 19, 1996 at the International Development Research Centre, Ottawa, Canada<br>http://www.crdi.ca/en/ev-2442-201-1-DO_TOPIC.html<br>The Quito declaration<br>http://www.idrc.ca/uploads/user-S/10401380100Declaration-Ingles.pdf<br>The La Paz Declaration<br>http://www.fao.org.sv/noticias/noticias.php<br>High Level Conference on Food Security, Climate change and energy (FAO, Rome 3-5 June 2007)<br>http://www.fao.org/foodclimate/hlc-home/en/<br><br>**Videos**<br><br>Background of the Sustainable Development Goals \| UNDP<br>http://www.undp.org/content/undp/en/home/sustainable-development-goals/background.html<br>Four Important Lessons from Cuba's Urban Food Survival Strategy<br>http://blogs.worldwatch.org/four-lessons-cuba-food/<br>New Vision for Agriculture \| World Economic Forum<br>https://www.weforum.org/projects/new-vision-for-agriculture |
| **Teaching and learning methods** | The course will mainly be set up as a seminar-workshop; the main attraction of this method lies in the possibility of a collective reflection on each of the issues raised in the program, based on certain key concepts derived from readings and |

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| | presentations in class.<br>The experience of a personal reading is enhanced by the synergy of collective reflection. |
| **Learning activities** | • Pre reading activity<br>• Lecture<br>• Interactive discussion<br>• Presentation (group)<br>• Hand in draft of project |

| **Unit 3. Ecological and horticultural fundaments of the urban orchards** | | **9h** |
|---|---|---|
| **Topic 3.1** Energetic principles and ecology of the urban agriculture | | **3 h** |
| **Subtopic** | 3.1.1 Plant-soil-atmosphere interaction and water relations<br>3.1.2 Generalities of soil and substrates properties<br>3.1.3 Orchard types, techniques and economic features | |
| **Topic 3.2** Energetic principles and ecology of the urban agriculture | | **3 h** |
| **Subtopic** | 3.3.1 Orchards and species care, and outcomes variation seasonally<br>3.3.2 Tolerant plants, vegetable crops, and compatibility between plant species<br>3.3.3 Environmental and landscape functions of urban crops | |
| **Topic 3.3 Cultural identification and nutrition** | | **3 h** |
| **Subtopic** | 3.4.1 Productivity scale (input & output), and urban orchard extent<br>3.4.2 Cultural features and uses of local food plants<br>3.4.3 Nutrition values of fruits and vegetable species, organic products | |

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| **Readings and other resources** | **3. Ecological and horticultural fundaments of the urban orchards**<br>Barajas M. G. & V.L. Barradas. 2011. Microclimate and sapling survival under organic and polyethylene mulch in a tropical deciduous forest. Bol.Soc.Bot.Méx. 88:27-34<br><br>Barthel S. 2013. Urban gardens, agriculture, and water management: Sources of resilience for long-term food security in cities. Ecological Economics, 86: 224-234<br><br>Torreggiani D., E. Dall'Ara & P. Tassinari. 2012. The urban nature of agriculture: Bidirectional trends between city and countryside. Cities, 29: 412-416<br><br>Velazquez L.S. 2005. Organic greenroof architecture: Sustainable design for the new millennium. Environmental Quality Management. Wiley InterScience (online): 73-85<br><br>Withman A. & S. DeJohn (Editors of the National Gardening Association). 2009. Organic Gardening for Dummies. Wiley Publishing Inc. 2nd. Edition. Indianapolis, Indiana, U.S.A. 388 p. |
| **Teaching and learning methods** | The course will mainly be set up as a seminar-workshop; the main attraction of this method lies in the possibility of a collective reflection on each of the issues raised in the program, based on certain key concepts derived from readings and presentations in class.<br>The experience of a personal reading is enhanced by the synergy of collective reflection. |
| **Learning activities** | • Pre reading activity<br>• Lecture<br>• Group discussion<br>• Hand in draft of Project |

| **Unit 4. Urban agriculture, society and natural resources** | | **15 h** |
|---|---|---|
| **Topic 4.1** Food – water – energy nexus. | | **2 h** |
| **Subtopic** | 4.1.1 What´s Water-energy-food nexus<br>4.1.2. Study Cases. Water energy food nexus | |
| **Topic 4.2** Economics, society and environment related to urban agriculture. Food production sustainability: industrialized versus micro-scale practices | | **5 h** |
| **Subtopics** | 4.2.1 Food production scales<br>4.2.2 Footprints of food production<br>4.2.3 Urban agriculture limitations and advantages | |
| **Topic 4.3** Urban gardening movements and participatory action research | | **2h** |

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| **Subtopics** | 4.3.1. Urban agriculture: actors and roles<br>4.3.2 Food Justice movements<br>4.3.3 Participatory Action Research in Urban gardening<br>4.3.4 Case studies: urban gardening movements around the world | |
| **Topic 4.4 S**trategies for the design, planning and management of an urban agriculture | | **5h** |
| **Subtopics** | 4.4.1 Strategic spatial planning for urban agricultural areas and its flexibility<br>4.4.2 Financial planning<br>4.4.3 Management of an agricultural urban region and spatial geostatistical tools<br>4.4.4 Final projects presentations | |
| **Topic 4.5** Wrap up & course review | | **1h** |
| **Readings and other resources** | **4.1.1 WHAT´S WATER-ENERGY-FOOD NEXUS**<br>Bizikova, L., Roy, D., Swanson, D., Venema, H. D., & McCandless, M. (2013). The Water-Energy-Food Security Nexus : Towards a practical planning and decision-support framework for landscape investment and risk management International Institute for Sustainable Development. Manitoba, Canada.<br><br>Covarrubias, M. (2019). The nexus between water, energy and food in cities: towards conceptualizing socio-material interconnections. Sustainability Science, 14(2), 277–287. https://doi.org/10.1007/s11625-018-0591-0<br><br>Leck, H., Conway, D., Bradshaw, M., & Rees, J. (2015). Tracing the Water–Energy–Food Nexus: Description, Theory and Practice. Geography Compass, 9(8), 445–460. https://doi.org/10.1111/gec3.12222<br><br>Zhang, C., Chen, X., Li, Y., Ding, W., & Fu, G. (2018). Water-energy-food nexus: Concepts, questions and methodologies. Journal of Cleaner Production, 195, 625–639. https://doi.org/10.1016/j.jclepro.2018.05.194<br><br>**4.1.2. STUDY CASES. WATER ENERGY FOOD NEXUS**<br>Covarrubias, M. (2019). The nexus between water, energy and food in cities: towards conceptualizing socio-material interconnections. Sustainability Science, 14(2), 277–287. https://doi.org/10.1007/s11625-018-0591-0<br><br>Lehmann, S. (2018). Implementing the Urban Nexus approach for improved resource-efficiency of developing cities in Southeast-Asia. City, Culture and Society, 13(March 2017), 46–56. https://doi.org/10.1016/j.ccs.2017.10.003<br><br>Rasul, G. (2014). Food, water, and energy security in South Asia: A nexus perspective from the Hindu Kush Himalayan region. Environmental | |

Science and Policy, 39, 35–48. https://doi.org/10.1016/j.envsci.2014.01.010

**4.2.1 FOOD PRODUCTION SCALES**

Arizpe, N. G. (2012). Understanding Agricultural Change: Integrated analysis of societal metabolism at different scales. (September), 1–251. Retrieved from http://www.tesisenred.net/bitstream/handle/10803/117594/ngar1de1.pdf?sequence=1

Pearson, L. J., Pearson, L., & Pearson, C. J. (2010). Sustainable urban agriculture: Stocktake and opportunities. International Journal of Agricultural Sustainability, 8(1–2), 7–19. https://doi.org/10.3763/ijas.2009.0468

Pimbert, M. P. (2009). Towards Food Sovereignty. Número 141 de Gatekeeper Series, (November), 20. https://doi.org/ISSN 1357-9258

**4.2.2 FOOTPRINTS OF FOOD PRODUCTION**

Edwards-Jones, G. (2010). Does eating local food reduce the environmental impact of food production and enhance consumer health? Proceedings of the Nutrition Society, 69(4), 582–591. https://doi.org/10.1017/s0029665110002004

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Khan, S., & Hanjra, M. A. (2009). Footprints of water and energy inputs in food production - Global perspectives. Food Policy, 34(2), 130–140. https://doi.org/10.1016/j.foodpol.2008.09.001

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https://doi.org/10.1016/j.foodpol.2008.11.002

**4.2.3 URBAN AGRICULTURE LIMITATIONS AND ADVANTAGES**

Azunre, G. A., Amponsah, O., Peprah, C., Takyi, S. A., & Braimah, I. (2019). A review of the role of urban agriculture in the sustainable city discourse. Cities, 93(April), 104–119. https://doi.org/10.1016/j.cities.2019.04.006

Gutman, P. (1987). Urban agriculture : the potential and limitations of an urban self-reliance strategy. 9(2), 1–6.

Korth, M., Stewart, R., Langer, L., Madinga, N., Rebelo Da Silva, N., Zaranyika, H., … De Wet, T. (2014). What are the impacts of urban agriculture programs on food security in low and middle-income countries: A systematic review. Environmental Evidence, 3(1), 1–10. https://doi.org/10.1186/2047-2382-3-21

Orsini, F., Kahane, R., Nono-Womdim, R., & Gianquinto, G. (2013). Urban agriculture in the developing world: A review. Agronomy for Sustainable Development, 33(4), 695–720. https://doi.org/10.1007/s13593-013-0143-z

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**4.3.1 URBAN AGRICULTURE: ACTORS AND ROLES**

Smit, J., Nasr, J., & Ratta, A. (1996). Urban agriculture: food, jobs and sustainable cities. New York, USA, 2, 35-37. http://www.jacsmit.com/book.html Chapter 6, Which Organizations Influence Urban Agriculture?

Meghan Z. Gough & John Accordino. (2013). Public Gardens as Sustainable Community Development Partners: Motivations, Perceived Benefits, and Challenges. Urban Affairs Review, 49(6) 851–887

**4.3.2 FOOD JUSTICE MOVEMENTS**

Gerda R. Wekerle. (2004). Food Justice Movements, Policy, Planning, and Networks. Journal of Planning Education and Research. Volume: 23 issue: 4, page(s): 378-386

**4.3.3 PARTICIPATORY ACTION RESEARCH**

Kemmis, S., McTaggart, R., & Nixon, R. (2013). The action research planner: Doing critical participatory action research. Springer Science & Business Media.

Pretty, J. N. (1995). Participatory learning for sustainable agriculture. World development, 23(8), 1247-1263.

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**4.3.4 CASE STUDIES**

Mougeot, L. J. (Ed.). (2005). Agropolis: The social, political, and environmental dimensions of urban agriculture. IDRC. (case studies approached from different perspectives)

**4.4.1 STRATEGIC SPATIAL PLANNING FOR URBAN AGRICULTURAL AREAS AND ITS FLEXIBILITY**

Chakraborti, S., Das, D. N., Mondal, B., Shafizadeh-Moghadam, H., & Feng, Y. (2018). A neural network and landscape metrics to propose a flexible urban growth boundary: A case study. Ecological Indicators, 93(May), 952–965. https://doi.org/10.1016/j.ecolind.2018.05.036

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Hersperger, A. M., Oliveira, E., Pagliarin, S., Palka, G., Verburg, P., Bolliger, J., & Grădinaru, S. (2018). Urban land-use change: The role of strategic spatial planning. Global Environmental Change, 51(May), 32–42. https://doi.org/10.1016/j.gloenvcha.2018.05.001

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https://doi.org/10.1016/j.ufug.2019.126430

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Oliveira, E. (2018). Can Strategic Spatial Planning Contribute to Land Degradation Reduction in Urban Regions ? State of the Art and Future Research. https://doi.org/10.3390/su10040949

Pierce, F. J., & Frye, W. W. (1998). Advances in soil and water conservation. CRC Oress Taylor and Francis Group.

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#### 4.4.3 MANAGEMENT OF AN AGRICULTURAL URBAN REGION AND SPATIAL GEOSTATISTICAL TOOLS

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| | |
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| **Teaching and learning methods** | The course will mainly be set up as a seminar-workshop, the main attraction of this method lies in the possibility of a collective reflection on each of the issues raised in the program, based on certain key concepts derived from readings and presentations in class. |
| **Learning activities** | • Pre reading activity<br>• Lecture<br>• Group discussion<br>• Hand in and presentation of the project |

**C) TEACHING & LEARNING STRATEGIES**

The course will mainly be set up as a seminar-workshop. The main attraction of this method lies in the possibility of a collective reflection on each of the issues overviewed in the program, based on certain key concepts derived from readings and presentations in class. The course will be dynamic and participatory, based on discussions.

Every student has to hand in an essay about a self-selected topic of Urban Agriculture.

For some theoretical classes every student has to do assigned readings and prepare an essay (max. 1 side). This essay should express his OWN opinion, experiences, doubts and/or thoughts. This text has to be handed in on the night before the next class.

The professor also provides theoretical presentations and introduces the new topic.

In Unit 4 students will visit an urban agriculture project. Also in this unit, students will organize in teams of 3 to 5 people to work on an urban agriculture project in the urban area. At the end of the unit, students will write and conduct a research project. Results will be summarized in the form of a scientific short article and presented in class.

The experience of a personal reading is enhanced by the synergy of collective reflection.

The main activities to be carried out in the course are:

- ✓ Pre-readings for each session, including the development of essays, conceptual maps;
- ✓ Participation in specific activities during the sessions of the course and on the website,
- ✓ Individual or teamwork activities (including fieldwork activities).
- ✓ Formulation of a project (an integrated project with other core courses) at the end of the course.

A large and active student participation is expected in-group discussions both in class, in the field and/or on the website (post comments in discussion forums or links, keep communication, answering surveys, etc.). This participation should be guided by the following criteria:

- ✓ Content and argumentation
- ✓ Tolerance and openness
- ✓ Cooperation
- ✓ Focusontheissuesraised
- ✓ Continuity

**D) ASSESSMENT METHOD**

| Preparation and / or presentation of: | Periodicity | Units | Percentage |
|---|---|---|---|
| **First partial exam** | At the end of Unit 1 and 2 | Units 1 and 2 | 20% |
| **Second partial exam** | At the end of Unit 3 | Unit 3 | 20% |
| **Third partial exam** | At the end of Unit 4 | Unit 4 | 20% |
| **Final Essay** | - | - | 40% |
| **TOTAL** | | | 100 |
| **Ordinary Exam** | The ordinary final grade will consist of the 3 partial grades (60%) and the final essay (40%). | | |
| **Other academy activities required** | Special non-mandatory activities will not have a value in the partial evaluation. This consists of attending special events on the subject or participation as organizers in events of the discipline, whether from the Faculty or outside it as dissemination and training activities | | |

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