

# Urban Sustainability and circular Economy

## Titulaires

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## Mnémonique du cours

URBA-H9009

## Crédits ECTS

5 crédits

## Langue(s) d'enseignement

Anglais

## Période du cours

Premier quadrimestre

## Campus

Solbosch

## Contenu du cours

Introduction: urban sustainability challenges and circular economy perspectives

Sustainable urbanism: socio-economic, environmental and political dimensions of urbanism

Sustainable circular economy: concepts and approaches

Urban sustainability assessment: concepts and approaches

Metabolism of urban systems – I

Metabolism of urban systems – II

Urban ecosystem services – I

Urban ecosystem services – II

Sustainable urbanism: Micro-scale case studies and best practices

Sustainable urbanism: Macro-scale case studies and best practices

Urban sustainability design, planning, and policy development

## Objectifs (et/ou acquis d'apprentissages spécifiques)

This module aims at analysing and assessing the sustainability of urban systems with an emphasis on circular economy perspectives and sustainable urbanism approaches.

By the end of the module, the student should be able to:

- <sup>1</sup> understand the functioning of urban systems at different scale levels
- <sup>2</sup> analyse the interaction between urban systems and resource flows
- <sup>3</sup> analyse and assess the sustainability of urban systems using state-of-the-art methods, indexes and tools

<sup>4</sup> assess the different initiatives and plans aimed at sustainable urban development

<sup>5</sup> develop strategies and solutions to improve the urban sustainability in terms of urban design, spatial planning and policy

<sup>6</sup> present the analysis and assessment of urban sustainability in the form of a scientific paper

## Méthodes d'enseignement et activités d'apprentissages

24h lectures: organized to cover the different concepts and methods, including invited guest lectures from practitioners.

12h tutorials: urban sustainability assessment methods and tools application in case studies.

12h case study analysis: students work in groups on a selected case (city, urban area) approved by the coordinator. They will collect data, followed by analysis and assessment with the tools learned during the module.

12h personal work in groups dedicated to the final report in the form of a scientific paper.

## Contribution au profil d'enseignement

Advanced Masters in Transition Urbanism / Sustainable Urban Design & Regional Planning; and MSc in Urban Studies, and contribution towards: understanding, analysing and assessing the sustainability of urban systems with an emphasis on circular economy perspectives and sustainable urbanism approaches.

## Références, bibliographie et lectures recommandées

Adler, Frederick R. and Colby J. Tanner, 2013. *Urban Ecosystems: Ecological Principles for the Built Environment*, Cambridge: Cambridge University Press.

Baccini, P. and P. H. Brunner, 1991. *Metabolism of the Anthroposphere*. Berlin Heidelberg: Springer-Verlag.

Bell, S. and S. Morse, 2008. *Sustainability indicators: measuring the immeasurable?* London: Earthscan.

Cathorpe, Peter, 2011. *Urbanism in the Age of Climate Change*, Washington DC: Island Press.

Ellen Macarthur Foundation, 2013 and 2015. *The circular model - an overview*, and *Circularity Indicators Methodology*, EMF.

Farr, D., 2008. *Sustainable Urbanism: Urban Design with Nature*. New Jersey: John Wiley and Son.

Ferrão, P. and J. E. Fernández, 2013. *Sustainable urban metabolism*, Cambridge (MA): MIT Press.

Jenks, M., & Dempsey, N., 2005. *Future forms and design for sustainable cities*. Boston: Architectural Press.

Loftness, Vivian and Dagmar Haase, eds., 2013. *Sustainable Built Environments*, New York: Springer.

Mostafavi, M., and G. Doherty, eds., 2010. *Ecological Urbanism*. Baden: Lars Muller Publishers.

Pickett, S.T.A. et al. (eds.), 2013. *Resilience in Ecology and Urban Design: Linking Theory and Practice for Sustainable Cities (Future City)*, Dordrecht: Springer.

Stahel, W.R., 2015. *From Waste to Resources - going the opposite way of the Industrial Economy*. London: RESOURCE.

## Autres renseignements

### Lieu(x) d'enseignement

Solbosch

### Contact(s)

Coordinator: Prof. dr. **Ahmed Z. Khan**, BATir Dept., CP 194/2, C Building, Ave Buyl 87, 5<sup>th</sup> floor, room SC5-212, E-mail: [ahmed.khan@ulb.be](mailto:ahmed.khan@ulb.be)

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## Programmes

### Programmes proposant ce cours à l'école polytechnique de Bruxelles

MS-URDE | Master de spécialisation en urbanisme et aménagement du territoire | bloc U

### Programmes proposant ce cours à la faculté d'Architecture La Cambre Horta

MS-URDE | Master de spécialisation en urbanisme et aménagement du territoire | bloc U

### Programmes proposant ce cours à la faculté des Sciences

MA-GEOG | Master en sciences géographiques, orientation générale | finalité Urban studies/bloc 2

