Green Building and Socio-Economic Values

Lecturer: Dr. Elise Machline

3-hour lectures once a week, 3 academic credits, Undergraduate

Course synopsis

With momentum building for an expansion of architectural and urban design practices that respond to the environmental challenges of our time, it is worth considering the socio-economic implications of what has come to be known around the world as sustainable urbanism. In this course, we bring together a series of topics aiming to address the socio-economic impacts of 'green' building policies focusing on Israel but through an international overview. In sum, this course aims to answer a crucial question: If sustainable urbanism does offer individual as well as societal benefits, can it be affordable to those who need it the most?

More specifically, this course will focus on (i) the sustainable urbanism policies implemented to prevent climate change; (ii) "green building policies and practices (iii) the socio-economic impacts of "green" building policies. (iiiiv) the analysis of case studies addressing sustainable urbanism.

GRADING

Your performance in this class will be assessed through discussion, quizzes, and a presentation.

Assessments are determined by several components, including:

Participation, attendance, punctuality 15%

Oral presentation…… 30%

Quizzes 1 and 2…… 30%

Final exam…….. 25%

Course topics:

1. Introduction,

- Course overview, expectations, and learning styles
- What is urban sustainability? (reading 20)

2. Sustainable urbanism agenda: Goals and policies -

- Climate change mitigation and adaptation – the role of cities (reading 9,24)
- The Israeli policy (reading 3, 14)
- The European Union "green" building policy (reading 4, 10)

3. What is "green" building? (Guest lecturer: Prof. David Pearlmutter)

- Green building principles (reading 8, 14,15)
- Green building rating systems (reading 10, 19)

5. Passive and active strategy for energy saving in buildings

(Guest lecturer- Mr. Dror Zchori)

- Passive cooling and heating, building materials

6. Does "green" building reduce energy consumption and housing costs?

- Quiz 1
- Assessments of "green" certified building energy consumption-examples from Israel, Europe and the US (reading 10)
- Energy and poverty (reading 13, 21)

7. The impacts of "green" building on housing prices and operation costs-

- The "green premia" (reading 6, 11, 18, 25)
- "Green" building development in Israel and its impacts on housing prices (reading 20)

- Towards Eco-gentrification (reading 2, 5)

9. Conference from the Eilot regional council-Environmental Unit

(Guest lecturer: Mr. Asaf Admon)

- *Low-carbon urbanism projects*

10. Green building at the neighborhood scale

- What is a "green" neighborhood? (reading 12)
- Eco-districts standards and label around the world (reading 7, 17)
- Quiz 2

11. The social aspects of eco-districts

- Eco-district: housing affordability and social mix?'(reading 5)
- Green building policy aiming to restrain eco-gentrification: an international overview (reading 19)

12. Eco-district around the world (students' presentation)-

The students will choose an eco-district case study and present it according to guidelines and through a critical view.

13. Final exa

Readings

1.Antonini, E., Boeri, A., Lauria, M., & Giglio, F. (2020*). Reversibility and durability as potential indicators for circular building technologies.* Sustainability, 12(18)

2. Banzhaf, H. S., & McCormick, E. (2007). *Moving beyond cleanup: Identifying the crucibles of environmental gentrification. Andrew Young School of Policy Studies Research Paper Series, Working Paper 07–29, May*. Atlanta: Georgia State University.

3. Bar Ilan, Y., Pearlmutter, D., & Tal, A. (2010). *Building green: Promoting energy efficiency in Israel, Center for Urban and Regional Studies*. Haifa: Technion – Israel Institute of Technology.

4.Cortinovis, Chiara, et al. "Is urban spatial development on the right track? Comparing strategies and trends in the European Union." *Landscape and urban planning* 181 (2019): 22-37.

5. Checker, M. (2011). Wiped out by the "Greenwave": Environmental gentrification and the paradoxical politics of urban sustainability. *City & Society, 23*, 210–229.

6.Dwaikat, L.N.; Ali, K.N. (2016) Green Buildings Cost Premium: A Review of Empirical

Evidence. *Energy Build.* , *110*, 396–403.

7. de Chastenet, C., Belziti, D., Bessis, B., Faucheux, F., Le Sceller, T., Monaco, F. X., & Pech, P. (2016). The French eco neighborhood evaluation model: Contributions to sustainable city making and to the evolution of urban practices. *Journal of Environmental Management, 176*, 69–78.

8.Darko, A., Chan, A. P. C., Ameyaw, E. E., He, B. J., & Olanipekun, A. O. (2017). Examining issues influencing green building technologies adoption: The United States green building experts' perspectives. *Energy and Buildings*, *144*, 320-332.

9. De Roo, Gert, and Donald Miller, eds. *Compact cities and sustainable urban development: A critical assessment of policies and plans from an international perspective*. Routledge, 2019.

10. Franco, M. A. J. Q., Pawar, P., & Wu, X. (2021). Green building policies in cities: A comparative assessment and analysis. *Energy and buildings*, *231*, 110561.

11. Fuerst, F., & McAllister, P. (2011). Green noise or green value? Measuring the effects of environmental certification on office values. *Real estate economics, 39*(1), 45–69.

12. Garde, A. (2009). Sustainable by Design? Insights From U.S. LEED-ND Pilot Projects. *Journal of the American Planning Association 75*(4), 424–40.

13. González-Eguino, M. (2015). Energy poverty: An overview. *Renewable and sustainable energy reviews*, *47*, 377-385.

14. Goulden, S., Erell, E., Garb, Y., & Pearlmutter, D. (2017). Green building standards as socio-technical actors in municipal environmental policy. *Building Research & Information, 45*(4), 414–425.

15.He, Y., Kvan, T., Liu, M., & Li, B. (2018). How green building rating systems affect designing green. *Building and Environment*, *133*, 19-31.

16. Machline, E., Pearlmutter, D., Cohen, C., Schwartz, M. (2022). Covid 19: A catalyst for transforming empty business districts into mixed-use urban centers? The case of Paris. *Building Research an Information 51(1), 39-55*

17. Machline, E., Pearlmutter, D., & Schwartz, M., Pech, P. (2020) *Green-neighborhoods and Eco-gentrification: A tale of two countries.* Ed. Springer Nature, New York

18. Massimo, D. (2012). Emerging issues in real estate appraisal: market premium for building sustainability. *Aestimum*, 653–673.

19. Shan, Ming, and Bon-gang Hwang. "Green building rating systems: Global reviews of practices and research efforts." *Sustainable cities and society* 39 (2018): 172-180.

20. Spiliotopoulou, M., & Roseland, M. (2020). Urban sustainability: from theory influences

to practical agendas. *Sustainability*, *12*(18), 7245.

21. Streimikiene, D., Lekavičius, V., Baležentis, T., Kyriakopoulos, G. L., & Abrhám, J. (2020). 30. Climate change mitigation policies targeting households and addressing energy poverty in European Union. *Energies*, *13*(13), 3389.

22. Uğur, L. O., & Leblebici, N. (2018). An examination of the LEED green building certification system in terms of construction costs. *Renewable and Sustainable Energy Reviews*, *81*, 1476-1483.

23. Wang (2012) Leaders, followers, and laggards: adoption of the US Conference of Mayors Climate Protection Agreement in California Environment and Planning C: Government and Policy 30(6):1116-1128

24. Zhao, D., McCoy, A., Du, J. (2016) An Empirical Study on the Energy Consumption in Residential Buildings after Adopting Green Building Standards, *Procedia Engineering*, 145, 766-773.

25. Zhang, L., Wu, J., & Liu, H. (2018). Turning green into gold: A review on the economics of green buildings. *Journal of cleaner production*, *172*, 2234-2245.