

CIHAN UNIVERSITY/SULIMANIA, ARCHITECTURAL DEPT.

FOURTH YEAR                      2024-2025

SECOND SEMESTER              LECTURE 5



# Housing

FAMILY AND URBAN HOUSING

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# Inhabitation

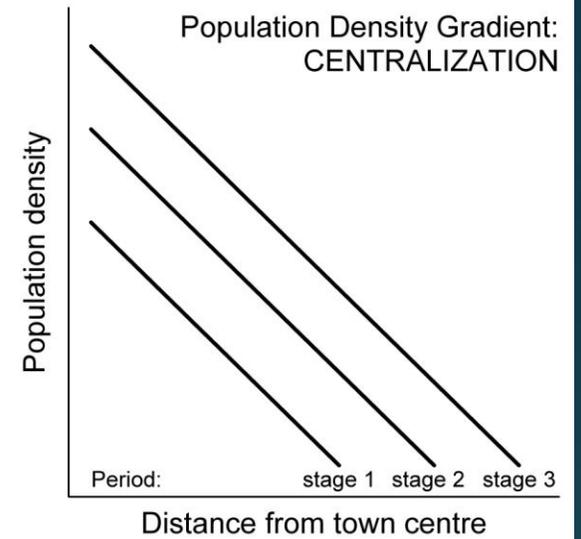
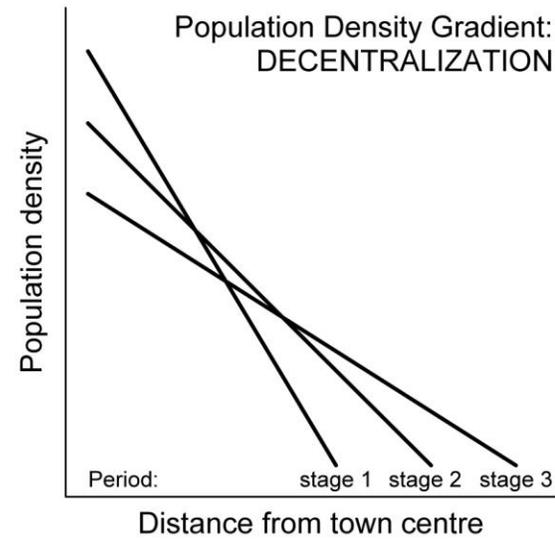
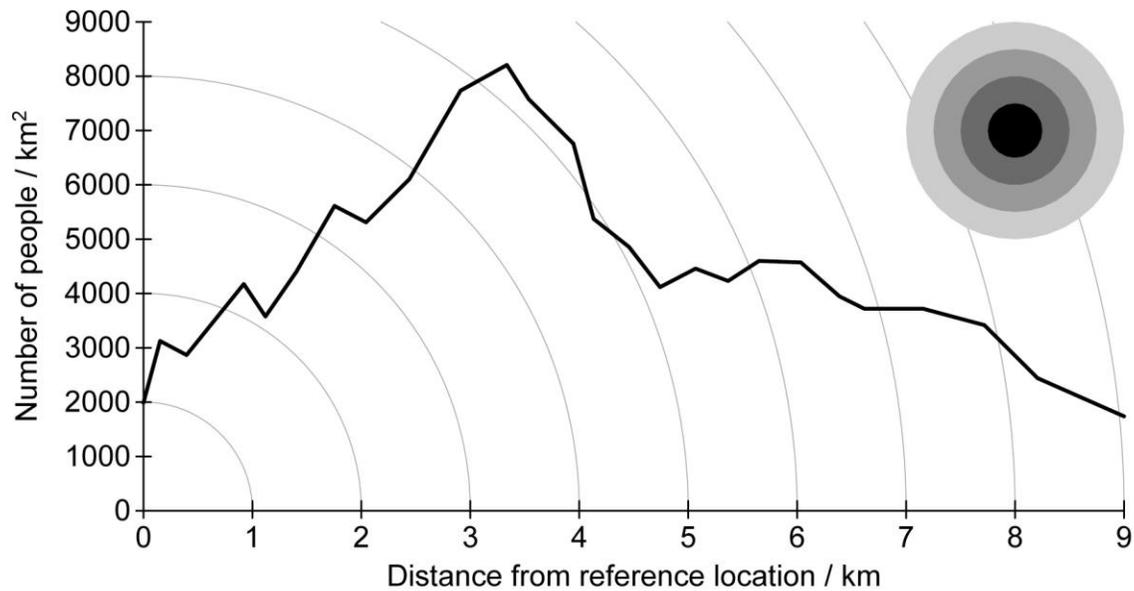
- ▶ **Inhabitants**: number of people live in a specific area like a city or district or even a neighborhood.
- ▶ Gross Inhabitation density (population density):

No. of Inhabitants / gross area (total area)

- ▶ Net Inhabitation density:

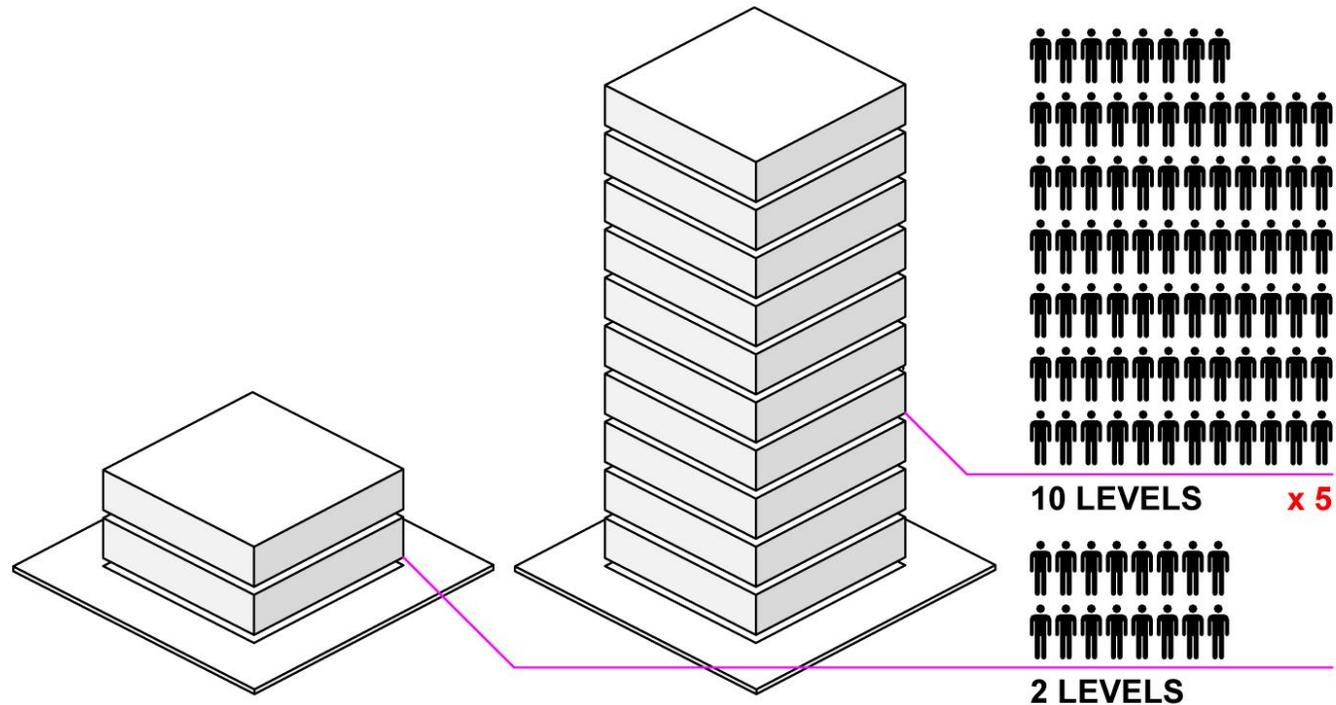
No. of Inhabitants / residential area (total area – non buildup area)

# Density theories



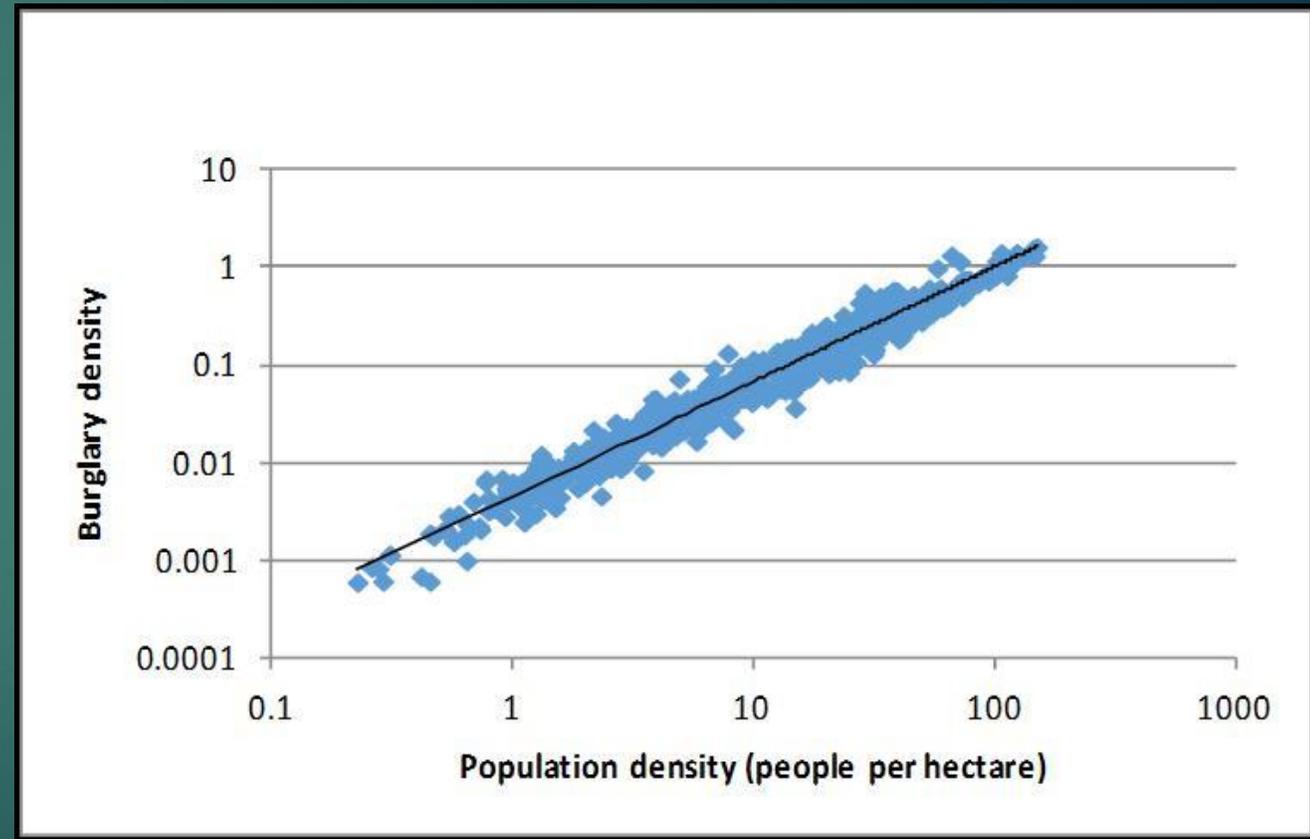
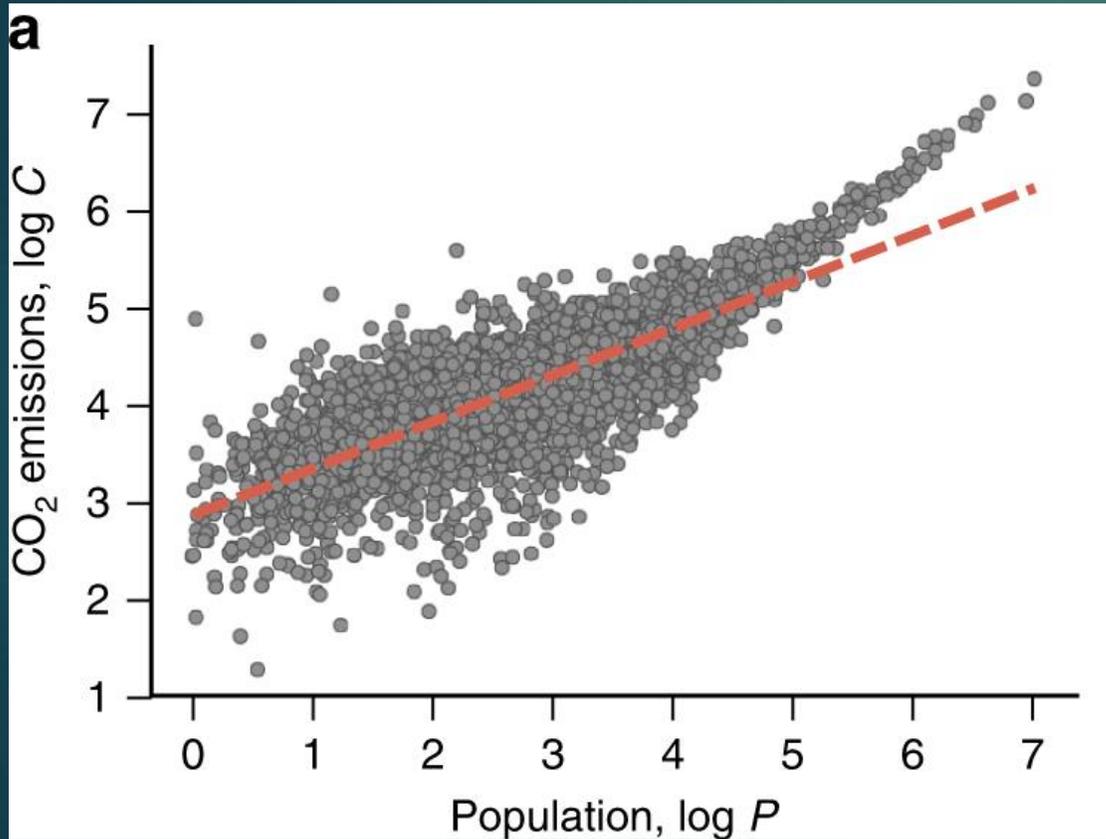
# Inhabitants Density vs building density

$$\text{Inh. Dens} \propto \text{Building Dens}$$





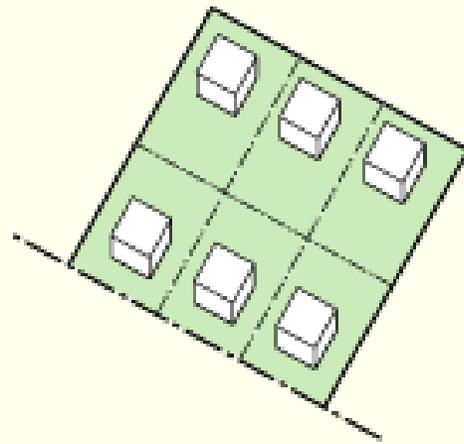
# Environmental effect of increasing population



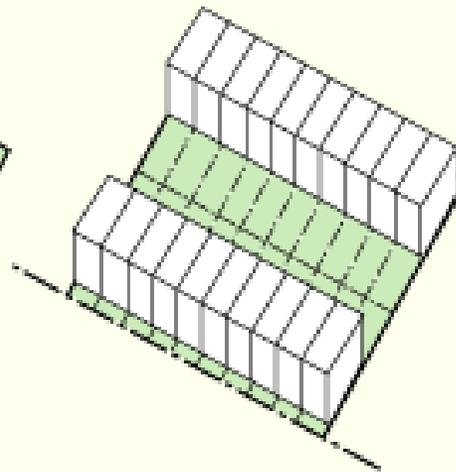
# Dwelling density

- ▶ No of Dwellings / total area

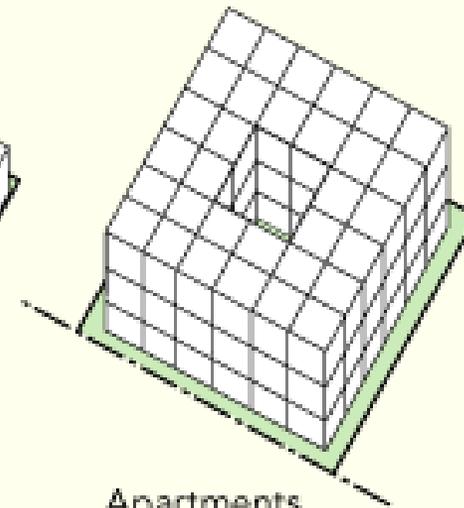
## Housing Density Dwelling Units Per Acre (du/ac)



Single Family Homes  
(4-10 du/ac)

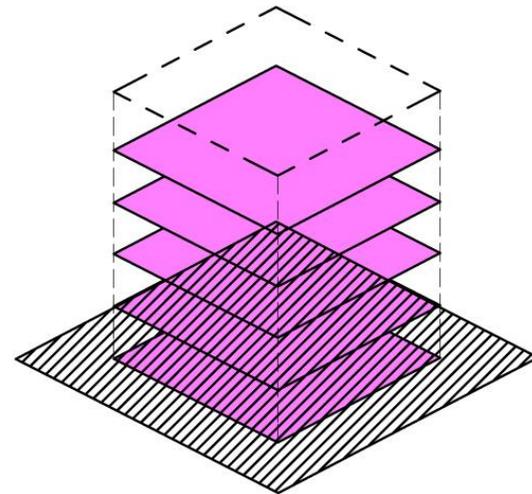
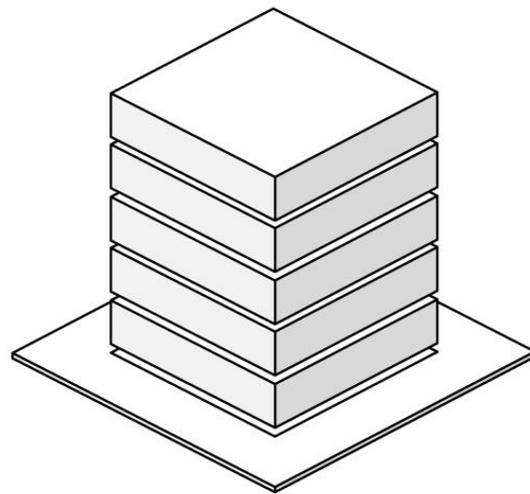


Townhomes  
(20-40 du/ac)

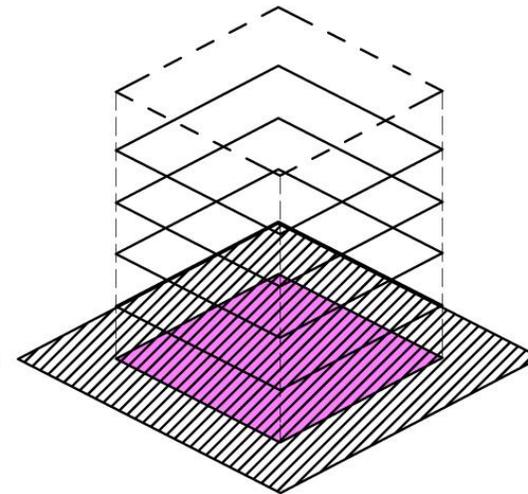


Apartments  
(50-100 du/ac)

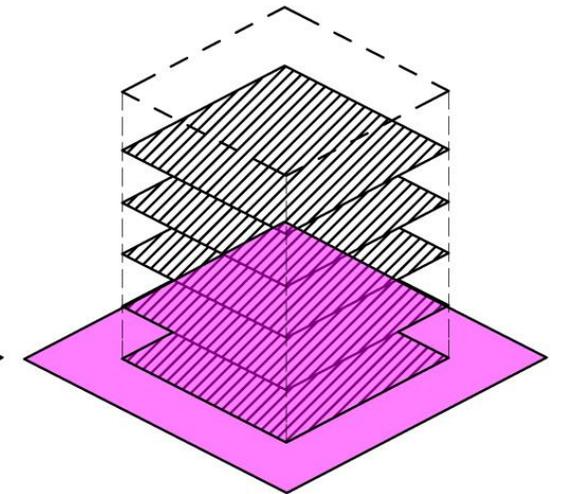
# Quantitative issues related to Density



**FLOOR AREA RATIO**  
gross floor area / plan area



**GROUND SPACE INDEX**  
built area / plan area



**OPEN SPACE RATIO**  
(plan area, built area) / gross floor area



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# Quality issues related to Density

High density	Low density
Reduce life quality	Increase life quality
Pressure on environment and services	High environmental quality
Decrease happiness encouraging vandalism	Increase sense of belonging
Decrease socio- cultural relations	Encourage socio- cultural norms
Unhealthy space due to crowding	Healthy space
Reduce personal space and territoriality	Increase welfare