Course program and reading list

School: School of Sustainability Founded by Israel Corp. ICL

Advanced Urban Analytics and Smart Cities

Lecturer:

Mr. Guy Pross   guy.pross@post.runi.ac.il

Teaching Assistant:

Mr. Nadav Zohn   nadav.zohn@post.runi.ac.il

Course No.:	Course Type :	Weekly Hours :	Credit:
3648	Lecture	2	2

Course Requirements :	Group Code :	Language:
Final Paper	241364800	English

◎ Course Description

Advanced Data Analytics and Smart Cities.

Transforming Urban Paradigms: Leveraging People and Data to Enhance City Life

This course, "Advanced Data Analytics and Smart Cities," introduces a groundbreaking approach to urban planning and management, diverging from the traditional infrastructure-centric perspective. It emphasizes a strategy focused on understanding and addressing the needs of city residents through data-driven insights, aiming to foster urban environments that significantly improve the quality of life. By transcending conventional departmental silos and centering on a holistic, resident-centric methodology, this curriculum is designed to equip students with the skills to implement

transformative urban innovations.

Structured around the innovative principles of leveraging data analytics and smart technologies, this course advocates for a paradigm shift towards prioritizing the well-being and needs of urban populations. It integrates advanced data analytics and consumer marketing principles to meet the diverse requirements of city dwellers, promoting the development of sustainable, inclusive, and responsive urban spaces.

This course represents a pivotal shift in urban planning and innovation, promising a future where cities are more attuned to the needs and well-being of their residents through the strategic use of data and analytics. Through a combination of theoretical knowledge, practical case studies, and hands-on projects, students will learn to navigate and influence the urban landscapes of the 21st century effectively.

Course Goals

- **Module 1: Understanding Urban Ecosystems and the Need for Transformation**

    - An introduction to the challenges posed by rapid urbanization and the limitations of infrastructure-centric urban management.
    - Exploration of the evolution of Smart Cities, highlighting the shift towards a focus on residents at the center of urban innovation.

- **Module 2: Resident-Centric Analysis**

    - Techniques for segmenting the urban population into distinct clusters based on their needs, behaviors, and preferences.
    - In-depth case studies focusing on specific resident groups, such as middle school children, commuters from outside the city, and soldiers with transportation challenges.

- **Module 3: Data-Driven Insights**

    - The role of data analytics in identifying patterns and trends within urban environments, correlating resident needs with environmental and infrastructural data.
    - Strategies for using data to uncover the underlying challenges and opportunities in urban living.

- **Module 4: Informed Policy-Making**

    - Development of targeted interventions to address the unique needs of each resident cluster, based on data-driven insights.
    - Examples of how policy changes, resource reallocation, and the design of new services can enhance urban living.

Grading

- Class participation (including attending lectures and discussions on smart cities,

theory, and implementation): 10%
- Midterm report: 30%
- Final Project: 60%

📘 Learning Outcomes

Upon completing this course, students will be able to:

- Critically assess the complexities of urban ecosystems and the significance of shifting from an infrastructure-centric to a resident-centric approach in urban planning.
- Apply consumer marketing techniques to accurately segment urban populations and tailor services to meet their specific needs.
- Utilize data analytics to inform policy-making and urban management, aiming to create more inclusive, sustainable, and responsive cities.
- Propose and develop innovative solutions that enhance the quality of life for urban residents, grounded in a deep understanding of data-driven policy making.

💬 Additional Notes

- **Lecturer Office Hours:** Available upon request.
- **Teaching Assistant (TA):** Uri Mestechkin (urimest@gmail.com) - Scheduling available upon request.

💬 Reading List

- McKinsey Global Institute (2018): "Smart cities: Digital solutions for a more livable future."
- Jesus Leal, Trujillo, and Joseph Parilla, Brookings Institute (2016): "Redefining Global Cities."
- Brookings Institute (2014): "Getting Smarter About Smart Cities."
- Townsend Anthony M. (2014): "Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia."
- Toppeta, D. (2010): "The Smart City Vision: How Innovation and ICT Can Build Smart, 'Livable', Sustainable Cities." The Innovation Knowledge Foundation. Report 005/2010.
- Robert G. Hollands (2008): "Will the real smart city please stand up?", City, Vol. 12 (3).
- Schaffers, H., et al. (2011): "Smart Cities and the Future Internet: Towards Cooperation Frameworks for Open Innovation."
- Goldsmith Stephen & Crawford Susan (2013): "The Responsive City: Engaging Communities Through Data-Smart Governance."
- Gooch, Daniel; et al. (2015): "Reimagining the Role of Citizens in Smart City Projects."

- Klein Gabe: "Start-Up City: Inspiring Private and Public Entrepreneurship, Getting Projects Done, and Having Fun."
- Arribas-Bel et al. (2015): "Cyber Cities: Social Media as a Tool for Understanding Cities," Applied Spatial Analysis and Policy.
- Kitchin Rob (2014): "The real-time city? Big data and smart urbanism," GeoJournal.
- The White House (2014): "The social value of big data: Big data: Seizing Opportunities, Preserving Values."