## PL6265 Urban Analytics

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Module designation	Urban Analytics
Semester(s) in which the module is taught	2 <sup>nd</sup> Semester
Person responsible for the module	Dr. Maya Safira
Language	Indonesian
Relation to curriculum	Elective Course
Teaching methods	Lecture, independent reading, practicum (Hands-on), independent individual assignments, group work
Workload (incl. contact hours, self- study hours)	Class: 80 hours
	Tutorial: 80 hours
	Final Project: 20 hours
Credit points	4 CU/ 5 ECTS
Required and recommended prerequisites for joining the module	
Module objectives/inten ded learning outcomes	<ul> <li>Able to analyze the objectives of urban analytics in accordance with the regional and urban problems being faced.</li> <li>Able to identify data needs and data preparation for urban analytics needs.</li> <li>Able to create AI-based urban analytics models that meet the needs of urban analytics.</li> <li>Able to explain the strategy and stages of AI model deployment in answering various urban problems</li> </ul>
Content	This course will delve into the Urban Analytics Methodology, starting with an understanding of business within the context of urban analytics and exploring the crucial aspect of data understanding. Participants will learn how to prepare data for urban analytics applications and develop models tailored to urban environments. The course will also cover the deployment of these models, ensuring they effectively address real-world urban challenges and improve decision- making processes.
Examination forms	Weekly Individual Assignments, Group Project Assignments.
Study and examination requirements	Weekly Individual Assignments (60%) Group Project Assignments (40%)
Reading list	. Singleton, A., Spielman, S., & Folch, D. (2018). Urban Analytics. SAGE Publications. 2. Batty, M. (2007). Cities and Complexity: Understanding Cities with Cellular Automata, Agent-Based Models, and Fractals. MIT Press. 3. Batty, M. (2013). The New Science of Cities. MIT Press. 4. Batty, M. (2018). Inventing Future Cities. MIT Press. 5. Bettencourt, L. M. A. (2013). The Origins of Scaling in Cities. Science. 6. Evans, J., & Karvonen, A. (2023). Smart Cities and Urban Inequality: New Digital Technologies and the Uneven Urban Landscape. Palgrave Macmillan. 7. Goodchild, M. F., & Janelle, D. G. (Eds.). (2010). Spatially Integrated Social Science. Oxford University Press. 8. Harris, R., Sleight, P., & Webber, R. (2005). Geodemographics, GIS, and Neighbourhood

Targeting. Wiley. 9. Hastie, T., Tibshirani, R., & Friedman, J. (2009). The
Elements of Statistical Learning: Data Mining, Inference, and
Prediction. Springer. 10. Kitchin, R. (2014). The Data Revolution: Big
Data, Open Data, Data Infrastructures and Their Consequences. SAGE
Publications. 11. Kitchin, R. (2018). The Ethics of Smart Cities and Urban
Science. Philosophical Transactions of the Royal Society A. 12. Lee, D.,
& Waddell, P. (2010). UrbanSim: Modeling Urban Development for
Land Use, Transportation, and Environmental Planning. Journal of the
American Planning Association, 13. Longley, P. A., Goodchild, M. F.,
Maguire, D. J., & Rhind, D. W. (2015), Geographic Information Science
and Systems, Wiley, 14, Miller, H. L. & Goodchild, M. F. (2015), Data-
Driven Geography Springer 15 Porta S Crucitti P & Latora V
(2006) The Network Analysis of Urban Streets: A Primal Approach
Environment and Planning B 16 Roy A & Datta A (2024) Digital
Urbanisms: The Global Urban Age and Emerging Forms of Digital
Covernance Boutledge 17 Shekhar & Eeiner & & Aref W (2015)
Visual Information Communication, Snringer, 18, Smith, D. M. (1077)
Visual Information Communication. Springer. 18. Smith, D. M. (1977).
Human Geography: A weitare Approach. Edward Arnold. 19. Torrens,
P. M. (2012). Agent-Based Models of Geographical Systems. Springer.
20. Townsend, A. (2013). Smart Cities: Big Data, Civic Hackers, and the
Quest for a New Utopia. W.W. Norton & Company. 21. Tufte, E. R.
(2001). The Visual Display of Quantitative Information. Graphics Press.
22. Zook, M., & Graham, M. (2007). Mapping DigiPlace: Geocoded
Internet Data and the Representation of Place. Environment and
Planning B.