

Course: EST 569 – Technology in the City
Department: Department of Technology and Society
Semester: Spring 2020
Class schedule: TBA (location TBA)
Professor: Sira Maliphol (TBA smaliphol@sunykorea.ac.kr)
Office: TBA
Office hours: Drop-in hours: TBA
By appointment, email in advance



COURSE DESCRIPTION

Will technology transform our cities, making them more livable, efficient, and desirable? Will technology erode our cities, making them more dangerous, chaotic, and insufferable? This course is at the intersection of two trends. First, the world is undergoing a wave of urban growth. Second, the pace of technological change is quickening and, with it, the pace of social change and even social transformation. Course modules will cover technology and society in urban contexts with particular attention to: 1) energy, 2) environments, 3) transportation, 4) health and human safety (including security) and 5) economic systems (including inequality). This class may involve trips to sites in Songdo and/or Seoul, and will involve the use of IT technologies in creative ways to advance our learning.

STUDENT LEARNING OUTCOMES

This course emphasizes and supports the following student learning objectives:

- Distinguishing key concepts of urban challenges and be able to identify appropriate technological applications that may be used to address the challenges
- Develop evaluation techniques to consider urban challenges and relevant technological applications
- Identify and become familiar with appropriate forms of data regarding urban challenges and technological solutions
- Develop research skills including reading, writing and presentation

EVALUATION

Participation (10%): Class participation includes contributions to class discussion. Attendance is necessary for participation. See [student attendance policy](#).

Presentations (25%): Students will be assigned readings for which they will prepare brief (8-10 minutes) presentations that summarize the important aspects of one of the (*) reading(s) for the topic. Student are expected to include their own comments to the paper.

Quizzes (25%): Quizzes will cover the readings. Quizzes will be administered at the start of class. Students will be given 10 minutes to complete quizzes.

Final paper (40%): The final paper will provide a research proposal on a topic related to urban challenges that are addressed by technology. The proposal can be as long as you

feel necessary but no longer than 20 pages all inclusive. It should include the motivation to address the specific challenge, how you will study the challenges, and to formulate policy recommendations that can be addressed using technology. Results are not expected to be reported but you may present preliminary results representing the expected outcome.

All class assignments should be sent via email in MS Word or Google Doc format. Presentations should be sent the day before class (by midnight). Papers should be sent by midnight on the date due.

GRADING

A = 93-100	B+ = 86-89	B- = 80-82	C = 73-75	D = 60-69
A- = 90-92	B = 83-85	C+ = 76-79	C- = 70-72	F = 0-59

CLASS POLICIES

Student conduct must follow university policies. Excused absences must be notified in advance unless emergency related. [See university policies.](#)

Laptops are permitted in class for notetaking, assignments, and other classroom-related activities. Laptops are encouraged for use during lab sessions.

Changes to the syllabus and course may become necessary. As instructor, I reserve the right to modify this syllabus. Any changes will be communicated to the entire class clearly and in writing.

ADDITIONAL COURSE SYLLABUS STATEMENTS

1. Disabilities Act. If you have a physical, psychological, medical or learning disability that may impact your course work, please contact the Department of Student Affairs, Campus Building A, Room 207, (032) 626-1190. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

2. Academic Integrity. Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Plagiarism and representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

The school regards any act of academic dishonesty as a major violation punishable by severe penalties, including dismissal from the University. University policy requires that instructors and GAs and TAs report all suspected cases of academic dishonesty to the appropriate Academic Judiciary Committee, which is empowered to take strong action against violators. Under no circumstances will the University permit cheating of any kind.

3. Critical Incident Management. SUNY Korea expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Department of Academic Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.

COURSE SCHEDULE

Week	Topic	Assignment
1 (Feb 24)	<p>Introduction</p> <ul style="list-style-type: none"> • What do we mean by ‘tech’ in the city? • How does technological infrastructure affect the productivity of industry and the well-being of individuals? 	
2 (Mar 2)	<p>Urban Challenges and Smart Cities</p> <ul style="list-style-type: none"> • Topics <ul style="list-style-type: none"> ○ Energy ○ Environment ○ Transportation ○ Public health and safety ○ Economic growth and inequality • Reading <ul style="list-style-type: none"> ○ *Albino, V., Berardi, U. and Dangelico, R.M. 2015. “Smart Cities: Definitions, Dimensions, Performance, and Initiatives, Journal of Urban Technology.” Urban Technology ○ Letaifa, S.B. 2015. “How to strategize smart cities: Revealing the SMART model.” Journal of Business Research. https://www.sciencedirect.com/science/article/abs/pii/S0148296315000387 ○ Lombardi, P., Giordano, S., Farouh, H., and Yousef, W. 2012. “Modelling the smart city performance.” Innovation: The European Journal of Social Science Research 	Update your email in class management software and send me an email
3 (Mar 9)	<p>Energy</p> <ul style="list-style-type: none"> • Reading <ul style="list-style-type: none"> ○ * Lazaroiua, G.C. and Roscia, M. 2012. “Definition methodology for the smart cities model.” Energy. https://www.sciencedirect.com/science/article/abs/pii/S0360544212007062 ○ Calvillo, C.F., Sánchez-Miralles, A., and Villar, J. 2016. “Energy management and planning in smart cities.” Renewable and Sustainable Energy Reviews ○ Zhou, L., Wu, D., Chen, J., and Dong, Z. 2017. “Greening the Smart Cities: Energy-Efficient Massive Content Delivery via D2D Communications.” 	Presentation
4 (Mar 16)	<p>Energy, cont.</p> <ul style="list-style-type: none"> • Reading <ul style="list-style-type: none"> ○ *Viitanen, J. and Kingston, R. 2014. “Smart cities and green growth: outsourcing democratic and environmental resilience to the global technology sector.” Environment and Planning A ○ Byrd, H. and Matthewman, S. 2014. “Exergy and the City: The Technology and Sociology of Power (Failure).” Journal of Urban Technology. 	Paper topic
5 (Mar 23)	<p>Environment</p> <ul style="list-style-type: none"> • Reading <ul style="list-style-type: none"> ○ *Marsal-Llacunaa, M.-L., Colomer-Llinàs, J., Meléndez-Frigola, J. 2015. “Lessons in urban monitoring taken from 	Presentation

	<p>sustainable and livable cities to better address the Smart Cities initiative.” Technological Forecasting and Social Change. https://www.sciencedirect.com/science/article/pii/S0040162514000456</p> <ul style="list-style-type: none"> ○ Ahvenniemi, H., Huovila, A., Pinto-Seppä, I., and Airaksinen M. 2017. What are the differences between sustainable and smart cities?” Cities. https://www.sciencedirect.com/science/article/abs/pii/S0264275116302578 	
6 (Mar 30)	<p>Environment, cont.</p> <ul style="list-style-type: none"> ● Reading <ul style="list-style-type: none"> ○ * Cavan, G. and Kingston, R. 2012. “Development of a climate change risk and vulnerability assessment tool for urban areas.” Climate change risk and vulnerability. ○ Coaffee, J. 2008. “Risk, resilience, and environmentally sustainable cities.” Energy Policy. https://www.sciencedirect.com/science/article/pii/S0301421508004977 	
7 (Apr 6)	<p>Transportation</p> <ul style="list-style-type: none"> ● Reading <ul style="list-style-type: none"> ○ * Kaewunruen, S., Sussman, J.M., and Matsumoto, A., 2016. “Grand challenges in transportation and transit Systems.” Frontiers in Built Environments ○ Lee, S. and Y.G. Hur. 2017. “Night Bus: Route Design Using Big Data.” Seoul Urban Solutions Agency. http://susa.or.kr/en/node/177?ckattempt=1 	Presentation
8 (Apr 13)	<p>Transportation, cont.</p> <ul style="list-style-type: none"> ● Reading <ul style="list-style-type: none"> ○ *Bakioglu, G. and Karaman, H. 2018. “Accessibility of medical services following an earthquake: A case study of traffic and economic aspects affecting Istanbul roadway.” International Journal of Disaster Risk Reduction. 	
9 (Apr 20)	<p>Public health</p> <ul style="list-style-type: none"> ● Reading <ul style="list-style-type: none"> ○ * Pramanik et al. 2017. “Smart health: Big data enabled health paradigm within smart cities.” Expert Systems with Applications. ○ Solanas et al. 2014. “Smart health: A context-aware health paradigm within smart cities.” IEEE Communications Magazine. ○ Hossain, M.S., Muhammad, G., and Alamri, A. 2019. “Smart healthcare monitoring: a voice pathology detection paradigm for smart cities.” Multimedia Systems. https://link.springer.com/article/10.1007/s00530-017-0561-x 	Presentation
10 (Apr 27 /May 4)	<p>Public health</p> <ul style="list-style-type: none"> ● Reading <ul style="list-style-type: none"> ○ *Silva et al. 2018. “Towards sustainable smart cities: A review of trends, architectures, components, and open challenges in smart cities.” Sustainable Cities and Society 	

	<ul style="list-style-type: none"> ○ Galdon-Clavell, G. 2013. “(Not so) smart cities?: The drivers, impact and risks of surveillance-enabled smart environments.” <i>Science and Public Policy</i>. 	
12 (May 11)	<p>Economic effects of agglomeration</p> <ul style="list-style-type: none"> ● Reading <ul style="list-style-type: none"> ○ * van Geenhuizen, M. 2007. “Modelling dynamics of knowledge networks and local connectedness: a case study of urban high-tech companies in The Netherlands.” <i>Annals of Regional Science</i>. ○ Florida, R. 2017. “Where the streets are paved with ideas.” <i>Nature</i>. 	Presentation
13 (May 18)	<p>Economic effects of agglomeration</p> <ul style="list-style-type: none"> ● Reading <ul style="list-style-type: none"> ○ * Farber, H. 2015. “Why you can’t find a taxi in the rain and other labor supply problems.” <i>The Quarterly Journal of Economics</i> ○ Chou, T.-L. 2007. “The science park and the governance challenge of the movement of the high-tech urban region towards polycentricity: the Hsinchu science-based industrial park 	
14 (May 25)	<p>Inequality issues: Causes of inequality</p> <ul style="list-style-type: none"> ● Reading <ul style="list-style-type: none"> ○ *Glaeser, E.L., Resseger, M.G., Tobio, K. 2008. “URBAN INEQUALITY.” NBER. ○ Florida, R. and Mellander, C. “The Geography of Inequality: Difference and Determinants of Wage and Income Inequality across US Metros.” <i>Regional Studies</i>. ○ *Beaudry, P., Doms, M., and Lewis, E. 2006. “ENDOGENOUS SKILL BIAS IN TECHNOLOGY ADOPTION: CITY-LEVEL EVIDENCE FROM THE IT REVOLUTION.” NBER ○ Baum-Snow, N., Freedman, M., and Pavan, R. 2018. “Why has urban inequality increased?” <i>American Economic Journal: Applied Economics</i>. ○ Lee, N. and Rodríguez-Pose. A. 2016. “Is There Trickle-Down from Tech? Poverty, Employment, and the High-Technology Multiplier in U.S. Cities.” <i>Annals of the American Association of Geographers</i>. 	Presentation
15 (Jun 1)	Technology in the City Site Visit (TBA)	
16 (Jun 8)	Reading period	
17 (Jun 15)	Finals (no class)	Final papers due