Course Description
This interdisciplinary graduate studio joins two urban design studios being taught within the Master of Urban Design and the Master of Landscape Architecture programs and is offered as an option studio. The studio considers traditional urban challenges such as unemployment, poverty, and inequity in light of new urban infrastructural technologies that are quickly becoming prevalent in an increasingly digital age. These new technologies are creating novel opportunities that pertain to: small-scale entrepreneurship; the sharing economy; the Internet of Things (IoT); the Internet of People (IoP); new transport options (including driverless cars); the bottom-up leveraging of local and micro-situations; and new logistical options that can be used to enact a more circular economy.

Whether it is through driverless cars, the internet of things, or the new sharing economies, cities are poised to take on new kinds of behaviors and offer new kinds of lifestyles. New digital technologies reshape infrastructures that allow for a more fluid and nimble exchange of goods and services in comparison to traditional ‘bricks and mortar’ infrastructures.

Too often, when new technologies become available, the technologies ‘lead’ and people are forced to follow. When private automobile travel became the norm, the technology of the car demanded that traffic engineers build cities that could accommodate this new mode of transport, which in turn disrupted patterns of living and the face of urban scale and civility. We live with this legacy of disruption today: freeways tear through neighborhoods creating lines of segregation; long commutes snake their way to the suburbs; sprawl strains our infrastructure; and we are left with the anonymity of streets designed for flows of traffic rather than flows of people. As we move into an age increasingly mediated by digital flows, will these flows in turn control our lives, or will we control them so as to channel only those that lead to ‘best’ urban practices? What might ‘best’ even mean in this context?

Many mid-western cities have been ‘left behind’ through shifts in large-scale infrastructural economies, which moved industries offshore and left traditional manufacturing towns obsolete. The coming digital – infrastructural age may well offer new kinds of efficiencies that help to reignite communities in terms of employment opportunities, housing, and transport. This studio examines new possibilities offered by digital infrastructures that are able to leverage new opportunities and expertise, in ways that are more light, local, and nimble.

Introduction to Studio Site
This studio uses the Omaha and Council Bluffs metro as a test bed to understand the potential implications of infrastructural shifts. The Omaha/Council Bluffs municipal region is typical of many in the Midwest. Here, cities were established as part of trade routes, first reliant on the natural infrastructure of water to channel flows of market goods, with a gradual shift towards the infrastructure of rail to deliver flows more reliably and more economically. Other layers of infrastructures made new ways of city life possible. The electric power grid shifted lives as it extended the workday into the night hours. The telecommunications grid allowed physically removed transactions to occur with ease. Highways and sewage infrastructure enabled massive suburban expansion (Westward, in Omaha’s case). Each of these infrastructures, that moved people, goods, and ultimately ideas, formed the skeletal framework upon which lifestyles and economies were anchored in towns across North America. Innovations in technologies fundamentally altered how lives could be lived, and how livelihoods could be made.

The eight counties comprising the Omaha/Council Bluffs metro population have a population of ~860,00 (including the Council Iowa side of 100,000 pop.). The Metropolitan Area Planning Agency (MAPA), a key organization currently involved in planning the region, anticipates a 42% increase of population and a 40% increase of jobs by the year 2050 (See Heartland Vision 2050). A review of Heartland Vision reveals that balanced housing stock, more and equitable access to jobs, stemming the exodus of young professionals and graduates, improved equity, healthy environments, and crime reduction (particularly in Omaha) seem to be the top community concerns.

The digital age brings with it a new capacity to disrupt space, time, and information transfer. It is this capacity that we wish to use to rethink and re-envision solutions to the kinds of fundamental urban issues the Omaha/Council Bluffs area faces.

This studio will employ such revisionist thinking.
STUDIO OUTLINE:

The studio consists of four parts. It includes two 2-day trips to the project area and a longer field trip to examine new ideas and operations in Chicago.

Part 1: INITIAL DESIGN RESEARCH – INFRASTRUCTURE WORLDS
(3.5 weeks, Due Feb 1st)
Omaha Field Trip January 25th and 26th.
*See Part 1 file for detailed description of each class assignment.

Part One consists of a two week series of design research assignments (with related readings) and a two week mapping/analysis exercise that considers Omaha-Council Bluffs area – including history, site analysis, and current plans.

Weeks 1 & 2: Students imagine and research old and new urban practices that might be mobilized through the use of new digital infrastructures. How do the new technologies alter how we work, how we live, and how we play? Rather than simply compiling examples, students will research and categorize examples into classes, clarifying the kinds of practices that are being leveraged (such as leveraging the sharing economy, or leveraging the internet of things, etc. Further, students will be asked to classify the kinds of externalities that would be optimized by engaging such practices – be it minimizing travel times, minimizing energy use, minimizing land requirements, maximizing employment opportunities, etc.

We will consider questions such as: What will a new digitally mediated world look like? Who is driving the technology involved? Who pays the cost? Who benefits? Who is disadvantaged? How will lifestyles change? How will the physical urban landscape change? What forms and practices do new digital capacities enable?

Weeks 3 + 4: Students will review planning documents (data and maps) produced by actors within the Omaha/Council Bluffs area and discuss how the assumptions of these documents might be altered in light of the potentials offered by new practices. During week three of Phase 1, we will visit the area and speak to authorities able to answer specific questions about the area and development challenges, prior to finalizing plans.

Part 2: SCHEMATIC DESIGN
(4 weeks, Due March 6th; Field Trip to Chicago Feb. 14 - 18th)
We will select a Council Bluffs/Omaha transect area to examine. This area will span the river, encompassing both an abandoned rail corridor on the Council Bluffs side, and extending towards a housing neighborhood adjacent to the downtown area in North Omaha - one isolated from employment opportunities and suffering from a range of socio-economic hardships. We will consider how new digital infrastructures and shared economies might present novel opportunities for conceiving of interventions that address a number of urban factors along this transect, including transport, housing, leisure, and employment.

Part Two includes a visit to Chicago where we will participate in a two-day workshop at the Dorchester Arts and Housing Collaborative, a project developed by the ReBuild Foundation and Theaster Gates, which works to address community neighborhood improvement and empowerment through the arts. In addition, we will visit ‘The 606’ (Bloomington Trail), a project equated with New York’s Highline that uses an abandoned rail line as a new urban parkway. We will meet with actors from the University of Chicago involved with Chicago’s Array of Things’ project, being developed to better the design of cities using digital means. If time permits, we will also visit the Mansueto Institute for Urban Innovation at the University of Chicago and discuss coming trends in urban thinking. Students will incorporate ideas gleaned from the Chicago visit in developing their schematic projects.

Part 3: DESIGN DEVELOPMENT (4 weeks, Due April 5th)
Working in small interdisciplinary teams, students will develop the designs of discreet portions of the urban transect, incorporating both physical components of the design, and technological principles that alter how the physical manifests. Discreet portions of the design will nonetheless work together to build assumptions about how actions performed in one area will constrain or enable possibilities in another. The urban environment will be considered as a system, where small actions at a distance have the opportunity to affect global outcomes.

Part 4a: PILOT PROJECTS + STAKEHOLDER PRESENTATION
(3 weeks, Due April 26th)
Students will identify specific communities and sites in Omaha and Council Bluffs for detailed pilot projects that test and illustrate design principles and strategies.

Part 4b: FINAL PRESENTATION AND PUBLICATION (MAY3/4)
We will incorporate input from the pre-final review, make changes, and finalize the design proposals, as well as assembling project documents into a small publication. We will return to Omaha to present our work at ‘Omaha by Design’. This will provide an opportunity to offer our analysis to civic stakeholders, and host an open house where the public has an opportunity to comment on the vision of the schemes.
Learning Outcomes
Students are expected to develop proficiency working within the field of Urban Design – Specifically, they will:

• Evaluate & apply modes of Urban Design within the Midwest context;
• Address changing economical, technological & sociological forces that give rise to urban form;
• Explore vehicles for creative and experimental approaches to urbanism, while remaining grounded in real-world cultural & economic constraints;
• Develop basic skills of three-dimensional spatial composition;
• Understand how landscape, infrastructure, policy, & buildings come together in urban contexts;
• Acquire critical thinking skills regarding urbanism, planning & sustainability;
• Explore interfaces between landscape, technology, planning & urbanism;
• Understand the basic norms & techniques of Urban Design;
• Recognize the value of team-based learning;
• Value different discipline-based knowledge areas.

Class Resources:
The studio has a dedicated Canvas webpage for class syllabus, assignments, discussions, links, and notices. You are expected to familiarize yourself with these resources and continue to do ongoing research over the course of the semester as resources are added. There is a research component to this studio that you are expected to embrace. A separate bibliography is provided.

Class format and policies
We meet on Tuesdays and Thursdays, from 8:10 a.m. to 1:00 p.m. You are expected to be on time and ready to work in class. A typical class begins with a class brief about the day's work followed by a lecture, discussion, brainstorming/ideating sessions, and/or pin ups/reviews. Each class will include a period of individual or team work on assignments and/or desk crit. The class will end with pin-ups/reviews of the work done in class and home assignments.

As this is a two-day weekly studio, each class is critical. Two unexcused absences will result in course failure. In particular, absences from reviews and trips are clearly to be avoided and will reflect in a lower-class grade. Written notification of absences for crucial commitments must be given one week prior to absence and is subject to approval.

Work Ethic
You are expected to make progress between classes, including between Tuesdays and Thursdays. Since you are likely to have evenings and Wednesday classes, make sure you carve out enough time between the classes to complete your assignments. Time management between classes/other course-work is your responsibility to manage. Late work will not be tolerated and if you are unable to balance the work load you will be asked to withdraw from the course.

Grading
You will receive general an assessment of your work at the end of each phase. Making progress in work through the semester will be reflected in a higher grade. Percentage value of the course is:

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<tr>
<td>Attendance &amp; In-class participation</td>
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<td>Final work</td>
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Class material and equipment
- trace paper, W24"/large format pad (various paper), 18"x24"
- personal computer
- graphite pencils - assortment, various tip pens/markers, etc.
- color pencils, watercolor, chalk/wax/oil crayons, etc.
- Scissors, Xacto/cutting knife
- cutting board and metal ruler. Do not cut on desks!
- old picture magazines for cutouts
- various media, material to build models and create artwork

Graphic Expectations:
You are expected to innovate! See: https://www.archdaily.com/878262/the-80-best-architecture-drawings-of-2017-so-fa

Instructor Contact Information
You may expect email responses normally within a 24 hour period. Please be mindful of maintaining a professional tone within emails. Note that the studio is being jointly taught between departments - you may expect to receive crits and feedback from either professor regardless of your enrolment course.

Mira Engler, Professor, Landscape Architecture MUD Program Co-ord.
email: miraengl@iastate.edu; tel. 515-450-5028

Sharon Wohl, Assistant Professor, Architecture and Urban Design
email: swohl@iastate.edu; tel. 515-450-5028
OMAHA METRO AREA:

REGULATIONS:

Dead Week
This class follows the Iowa State University Dead Week guidelines as outlined in http://catalog.iastate.edu/academiclife/#deadweek

Plagiarism, Cheating, and Other Fun Stuff
We have a ZERO tolerance policy on plagiarism and cheating. Plagiarism as defined by the ISU Student Handbook as: “Unacknowledged use of the information, ideas, or phrasing of other writers is an offense comparable with theft or fraud”…one is responsible for plagiarism when: the exact words of another writer are used without using quotation marks and indicating the source of the words; the words of another are summarized or paraphrased without giving the credit that is due; the ideas from another writer are borrowed without properly documenting their source. To use and pass off as one’s own the ideas, work, or writing of another”. Plagiarized assignments will receive a ZERO and we further reserve the right to apply all University policies regarding academic honesty to the situation. The class will follow Iowa State University’s policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office. http://www.dso.iastate.edu/ja/academic/misconduct.html

Disability Accommodation
Iowa State University complies with the Americans with Disabilities Act and Sect 504 of the Rehabilitation Act. If you have a disability and anticipate needing accommodations in this course, please contact either instructor to set up a meeting within the first two weeks of the semester or as soon as you become aware of your need. Before this meeting, you will need to obtain a SAAR form with recommendations for accommodations from the Disability Resources Office, located in Room 1076 on the main floor of the Student Services Building. Their telephone number is 515-294-7220 or email disabilityresources@iastate.edu. Retroactive requests will not be honored.

Harassment and Discrimination
Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, Student Assistance at 515-294-1020 or email dso-sas@iastate.edu, or the Office of Equal Opportunity and Compliance at 515-294-7612.

Religious Accommodation
If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and your instructor or supervisor will review the request. You or your instructor may also seek assistance from the Dean of Students Office or the Office of Equal Opportunity and Compliance.

Contact Information
If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu.

BIBLIOGRAPHY:

(Subject to Revision and Additions)

General Books


Kelly, Kevin. “The inevitable: understanding the 12 technological forces that will shape our future” Penguin Random House (available online Parks Library)

Schwartz, Samuel. Driverless Cars: The Good, the Bad, and the Ugly Princeton University. October 2017. PDF.


Omaha/Council Bluffs History Books


Journal Articles


Volume, no. 28, Internet of Things


Competitions and Exhibitions
Blankspace NYC, Driverless City competition, Vimeo.com/245656361

**Institutional Website Resources**

American Planning Association: Specific resources on Autonomous Vehicles
https://www.planning.org/resources/av/

Circle Cities Programme: social enterprise dedicated to advancing circular economy principles
https://www.circle-economy.com/tool/cities/

Ellen MacArthur Foundation - mission to accelerate transition to a circular economy: https://www.ellenmacarthurfoundation.org/

Mobility Lab - Policy lab on transport options
https://mobilitylab.org/

Smart City Amsterdam - devoted to developing smart impact projects: https://amsterdamsmartcity.com/projects

**Institutional Reports:**

Brookings Institute Report: The current/future state of the sharing economy:


National Association of City Transportation Officials (Nacto) - various reports on autonomous urbanism. https://nacto.org/publication/bau/


Web/Blogs


‘Circulate’: latest news and insight on the circular economy: http://circulatenews.org/category/cities/


Some cautionary information on the limits of technology as a means to solve immediate social problems; https://www.citylab.com/transportation/2017/11/when-a-smart-city-doesnt-have-all-the-answers/542976/


Time to come round to the circular economy; http://www.eco-business.com/opinion/time-come-round-circular-economy/


When the city meets the circular economy; http://circulatenews.org/2016/04/when-the-city-meets-the-circular-economy/

**Films/Videos/ Podcasts**

WALL-E
https://www.ted.com/talks/william_mcdonough_on_cradle_to_cradle_design?language=en

Circular Economy - its the way forward https://www.youtube.com/watch?v=IK00v_tzkCI


**News Articles**


**BIBLIOGRAPHY (cont’d):**