Identity

"Who We Are" Sub-Committee

Thesis Review: Beatriz Santos Challenges the Built Environment to Redefine Urban Identity Through Nature - [Link]

Garden Cosmologies: Curated Nature in the Contemporary City. Image © Beatriz Santos
Identity Sub-Committee

- Sub-Committee members: Bailey Greene, Steve Wilkerson, Can Saygin, David Matiella, Debaditya Chakraborty, Krystel Castillo, Corey Sparks, Mark Leung, William Dupont, Marcio Giacomoni
- Liaisons: John Murphy, Rebecca Weston
- Integrated Design Task-Force Chair: JoAnn Browning

A zoomed out site plan. Image © Beatriz Santos
Objective / Purpose

• To understand “who we are” as two colleges coming together, to create a critical awareness of our own nature and the way in which we think about ourselves

• Inherently an introspective undertaking and the basic task is metacognitive in nature
  • First step in metacognition - identifying one’s own learning style and needs

• To construct a narrative for how we think about ourselves using qualitative and quantitative information
Qualitative Methodology

The Knowledge Cafe

• An internationally recognized format and a conversational process

• Allows participants to share experiences, learn from each other, build relationships and make a better sense of a rapidly changing situation to help improve decision making

• It is a *descriptive* approach toward knowledge discovery rather than a *prescriptive* approach
Knowledge Cafes

Two types of Knowledge cafés emerged:

• Faculty Cafés
  • A series of three conversations with focused discussion topics

• Student Café
  • A single session of student leaders or Knowledge Champions

• Topics for each discussion were decided by the sub-committee
Faculty Knowledge Cafes

- Series of 3 Cafés. 90 minutes
- Dates – June 11th, 18th and 25th
- Attendees

Three dominate themes emerged, prompted by discussion questions:
  - Core strengths
  - Added values and synergies of integration
  - Future opportunities made possible by integration

*Consolidated notes*
Dominate Theme 1: Core Strengths

- Our degree programs and the professions we serve / clear meanings
- The value of the civic learning lab: San Antonio itself
- Our connection to the community
- Our international programs
- Engagement, outreach, design-build, and project leadership in the regional built environment.
Dominate Theme 2: Added values and synergies of integration

- Students need interdisciplinary training to be leaders in their domains
- Student exposure across disciplines
- Capitalize on opportunity for multi-disciplinary endeavors
- Incentivize research and new programs building on synergies
- International programs and study abroad
- Integrated process can accelerate innovation
- Integrated design and Equity

*Consolidated notes*
Dominate Theme 3: Future opportunities made possible by integration

- Excellence and innovation
  - Offer integrated content
- Leadership and collaboration
  - Build leaders
  - Student ambassadors
  - Involvement with industry
  - Involvement with the city itself and civic leadership
- Integrity, inclusiveness, and respect
  - Illuminate equity
  - Teach research ethics
  - Explore all aspects of sustainability: social, environmental, economic, good governance
  - Encourage and support ethical endeavors within the core mission of each discipline

*Consolidated notes*
• 90-minute session on Wednesday, June 17th With 20 student participants from each college*

• Introduction from Provost Espy and broad vision from Dean Browning

• **Student attendees**

• Themes
  • *What brought you here as a student?*
  • *What keeps/has kept you here as a student?*
  • *Where will you be when you leave here and where are you going?*
  • *What has been your transformative educational experience at UTSA?*
  • 12 minutes was spent per question in the break-out groups and mind map creation using Mural app in the break-out groups

• Closing statements and call to action

*Complete Agenda and run of show*
Mind Map Group 1

What brought me here?

What is my story as a UTSA student?

What is my transformative experience at UTSA?

Where do I want to go when I leave?

- City culture
- Faculty
- Accredited Program
- Scholarship Program/ Honors College
- Location
- The City of San Antonio
- Academic Programs
- Programs/financial aid available for veterans
- Students I met
- Back to working
- Analyzing data
- Planning to have my own firm
- Graduating from UTSA
- Working on campus

- Proximity to high-level research labs (e.g., Biomedical, ME)
Mind Map Group 2
What brought me here
What keeps me here
Where am I going
What has been my transformational experience at UTSA?
Student Knowledge Cafe

• Call to action
  • Be empowered
  • Be intentional
  • Be empathetic
  • Be a leader

• Engineer, design, build, and plan the future you want for yourself and for others

*Complete Agenda and run of show
Quantitative Analysis of IR Data

Numbers of Students
Average SCH by Faculty Rank
Research Proposals, Awards, Success Rate, and Expenditures
### Numbers of Students

<table>
<thead>
<tr>
<th>FALL 2019 DATA</th>
<th>UTSA</th>
<th>College X</th>
<th>% of UTSA</th>
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<tr>
<td>Total students</td>
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<td>2019 1-yr Retention</td>
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<td>78%</td>
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<td>2018 cohort</td>
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<td>2019 6-yr Grad</td>
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<td>2013 cohort</td>
<td>2686</td>
<td>375</td>
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Average Semester Credit Hours (SCH) by Faculty Rank

<table>
<thead>
<tr>
<th>Faculty Rank</th>
<th>COE</th>
<th>CACP</th>
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<tbody>
<tr>
<td>Professor</td>
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<tr>
<td>Associate Professor</td>
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<tr>
<td>NTT</td>
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</table>

Graph showing average SCH by faculty rank and year from 2015 to 2019.
Research Proposal Analysis

Proposal Amounts [Million $] / month / T-TT Faculty

CACP

COE

Trend

Seasonality

Residuals

Proposal Amounts [Million $]
Model details:
Trend: Linear Regression that produced an $R^2$ of 0.95 on unseen testing data.
Seasonality: Random Forest that produced an $R^2$ of 1 on unseen testing data.
Residuals: Not predictable from the data that we have. One solution may be to utilize the median of the residuals for future predictions.
Research Expenditure Analysis

Normalized Expenditure [$/T-TT]: COE

Normalized Expenditure [$/T-TT]: CACP
Conclusions

• What have we learned that can be brought into the next phase?
  • Culture of each department / domain
  • Opportunity to explore synergies is supported by both faculty and students
  • Opportunities to engage our students across domains can increase their potential and further connects our programs to industries
• How does this influence possible notional models?
  • Provides identifiable areas of potential to justify synergies between domains
  • Helps us to prioritize those synergies
Community Engagement Subcommittee
• Taylor Adkins
• Saadet Beeson
• Roger Enriquez
• Albert Han
• Dhireesha Kudithipudi
• Elvira Leal
• John Murphy
• Neda Norouzi
• Humberto Saenz
• Fidel Santamaria

Subcommittee Liaisons
• Debaditya Chakraborty
• Sedef Doganer

Task Force Administrators
• JoAnn Browning
• Shannon Heuberger
• Debbie (Howard) Rappaport
Integrated Design Initiative
Community Engagement Subcommittee
PHASE 1

Private Sector

Community Representatives

Departments/Programs Advisory Councils

Public Sector (CoSA, UTSA)

400+ list of contacts

UTSA CACP Charrette
June 10th, 2020
160 + Participants

additional contacts

Community Engagement Survey
Distributed on July 3rd, 2020 to 500 +
As of July 8th, 2020, 82 responses

Needs and Wants of Stakeholders
• Questions Asked
  1. What is the community needs/interest on: (A) Degree Programs, (B) Professional Development
  2. What is the community research needs/interest and partnership opportunities
  3. What can the faculty/staff/students do to help the community?
  4. What faculty/staff/students engagement in teaching, research, and service is most impactful to the community?

• Data: Text data from notes (15,352 words)
• Methods: Topic Modeling for pattern recognition
  Review by the subcommittee members
Question 1.

What is the community needs/interest on: (A) Degree Programs, (B) Professional Development?
Question 1. What is the community needs/interest on:
(A) Degree Programs, (B) Professional Development


Regards to Architecture + Construction Science + Engineering

“Likes the combination of architecture and construction science. Students will have the whole picture, solve problems onsite.”

“Give students a glimpse into the real world of how we really work - benefit of combined with engineering - likes the holistic view and benefit of architects as having the advantage of knowing engineers - build teams inside the college and they will be ready with doing collaborative work”

“Power of engineering and engineers are that they are problem solvers. Architect’s power is ability to think in a non-linear way.”
Question 2.

What is the community research needs/interest and partnership opportunities?
Question 2. What is the community research needs/interest and partnership opportunities?

Regards to Internships

“Internship requirement for engineering and architecture degrees. All need to learn what is expected at work. **Bring architecture programs to have the same internship experiences as engineers.**

“Create a **partnership opportunity with internships which is a win-win for industry, students, and community**”

“More internships and partnership in studio work is helpful.”

“Real hands-on experience and internship.”

“Most of the attendees need more interns – not enough coming out of UTSA; ads have gone out to the students but not a lot of response
Question 2. What is the community research needs/interest and partnership opportunities?

Regards to Research

“Design build projects and opportunities within academic research to collaborate with different organizations nationally to bring outside expertise into San Antonio/”

“Want San Antonio to stand out with top notch research facilities that would establish San Antonio as a research hub.”

“Collaboration for a richer research program that helps prioritize local issues”

“Community outreach efforts -- research impacts technology as well as important social issues.”

“San Antonio is unique and having local knowledge is valuable for research”
Question 3.
What can the faculty/staff/students do to help the community?
Question 3. What can the faculty/staff/students do to help the community?

**Regards to Community and Engagement**

“Do community engagement research - dive into micro history of communities - sensitivity to communities past traumas – especially in communities of color - demolition and gentrification can be traumatic”

“The communities that need the most engagement are the ones that…lack the infrastructure. **Infrastructure plays a critical role in engagement**”

“Go out to communities and engage them by using research expertise”

“Community engagement can create a stronger link to the community... Create loyalty to the community”

“Engage professional community to bring their technology into classrooms”
Question 3. What can the faculty/staff/students do to help the community?

**Regards to Students**

“Are students trained to conduct community input sessions? A good skill would be able to do community engagement research”

“Preparing students for modern workforce... designers and architects’ understanding of local values - projects belong to community”

“Keep a line of communication open between UTSA Students/communities”

“Different communities mean different issues/concerns; make sure students understand that; have students go out and have events out in the community”

“Faculty need to educate students in such a way that the students are aware of how efficiently they can serve the community”
Question 4.

What faculty/staff/students engagement in teaching, research and service is (or could be) most impactful to the community?
Question 4. What faculty/staff/students engagement in teaching, research and service is most impactful to the community?

- **Regards to Communities**
  
  “Already connecting with community, like SAISD, but this needs to be increased; we are building our communities, impacting where we live and work”

  “Students collaborating with faculty to help communities with constructing small projects”

  “Focus where the need is more. Engage with communities that have been historically marginalized”

  “Real engagement happens when the university opens its doors to the community and shares the knowledge they have.”
Question 4. What faculty/staff/students engagement in teaching, research and service is most impactful to the community?

Regards to Programs

“Interdisciplinary programs to solve real problems – with city of San Antonio as the client – would be great way for academia to have direct contribution to improving quality of life in the community”

“Formalize the linkage between prep programs, UTSA programs, etc. will attract more students if they could see the tract or link.”

“Being able to communicate what the program is doing and how the program is beneficial. Market the profession and what we are doing and what we can do to help the community.”
KEY TAKEAWAYS FROM THE CHARRETTE

• Work with and for the San Antonio communities, especially who are disenfranchised and marginalized.
• Enhance communications among faculty, students, communities, and public/private sectors
• Promote interdisciplinary collaboration/partnership to enhance research and teaching
• Provide real-world, hands-on learning experience to students by partnering with industries and communities (studios, study-work program, internships)
Thank you for your interest in our new college (read more about our initiative [here](#)), which will live at the intersection of architecture, construction, planning and engineering. Our work is just beginning and we still need input on how we can best serve our city and region. Can you please provide your opinion to help us forge our new vision for the future? If so, click the button in lower right hand corner to start the survey, thank you.
24.1% of the respondents (19) were affiliated with UTSA (Alumni (10), Advisory Board (14), Faculty (2), Administrator (1))
CORE QUESTION 1:
How important is it for the new college to help local industries to develop innovative materials, processes or structures that improve the lives of people?

<table>
<thead>
<tr>
<th>Choice</th>
<th>Count</th>
<th>Percent</th>
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<tbody>
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<tr>
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<td>32.5%</td>
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<td>11</td>
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</tr>
<tr>
<td>Slightly Important</td>
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<td>2.5%</td>
</tr>
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</table>

- Fostering partnerships with private and public sectors to enhance teaching, research and employment opportunities with a focus on the local community. 58.5%
- Incorporating data analytics and other emerging technologies to enhance public understanding and find solutions to grand challenges in the fields of architecture, construction, planning and engineering. 42.7%
- Designing secure and environmentally friendly systems (e.g., construction, energy, water and materials) that are friendlier to our planet. 36.6%
- Focusing on research that can be transitioned to commercial or non-profit organizations or to communities for actual deployment in the real world 29.3%
- Other (please describe) 6.1%
CORE QUESTION 2:
How important is it for the new college to undertake research that takes into account the needs of the community?

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<thead>
<tr>
<th>Choice</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Extremely Important</td>
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<tr>
<td>Very Important</td>
<td>29</td>
<td>35.8%</td>
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<tr>
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<td>9.9%</td>
</tr>
<tr>
<td>Slightly Important</td>
<td>2</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

- Transforming technology and processes that promote sustainable consumption of resources, by planning, designing, building and maintaining climate-resilient structures, and enhanced energy efficient buildings (53.7%)
- Promoting compact development that allows for aging in place to mitigate sprawl while preserving community’s culture and addressing housing affordability (41.5%)
- Working in a interdisciplinary manner motivated by discovery and helping society to mitigate inequalities in the fields of architecture, construction, planning and engineering (39.0%)
- Innovating with emerging technologies like artificial intelligence, self-driving vehicles, and smart grids to spur economic development and improve quality of life (37.8%)
- Other (please describe) (7.3%)
CORE QUESTION 3:
How important is it for the new college to help students develop “marketable-skills” like work ethic, leadership and communication skills?

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</table>

- Developing project leadership skills for **project management**, **strategic decision-making**, and **team building**. 65.9%
- Fostering in students the ability to **express ideas and articulate their rationale when communicating** concepts in architecture, construction, planning, and engineering using visual media and written communication. 57.3%
- Exposing students to common **ethical issues regarding financial, business, management, and relationship decisions** in architecture, construction, planning, and engineering. 48.8%
- Inculcating in students an appreciation of **cultural diversity and social equity** in the workplace and beyond. 20.7%
- Other (please describe) 3.7%
How important is it for the new college to help students develop “technical-skills” like software training and certificates?

<table>
<thead>
<tr>
<th>Choice</th>
<th>Count</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
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<td>4.9%</td>
</tr>
<tr>
<td>Not at all Important</td>
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<td>1.2%</td>
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</table>

- Offer training on **collecting, analyzing, and visualizing data using virtual and augmented reality** in architecture, construction, planning and engineering applications. 52.4%
- Incorporate **geographic information systems** software training across various applications. 39.0%
- Provide training for students on **industry specific software packages** (please describe). 34.1%
- Offer **discipline specific cutting-edge certificates** and micro-masters to students (please describe). 14.6%
- Other (please describe). 6.1%
CORE QUESTION 5:
Is it important for the new college to be engaged in experiential learning programs that provide opportunities to get real-world experience?

<table>
<thead>
<tr>
<th>Choice</th>
<th>Count</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Extremely Important</td>
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<tr>
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<td>42.0%</td>
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<td>Moderately Important</td>
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<td>6.2%</td>
</tr>
<tr>
<td>Slightly Important</td>
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</table>

- **Partner with local firms** to work on actual projects in class while utilizing a workshop style format. \(61.0\%\)
- Establish **mentoring and/or shadowing opportunities** where students can acquire first-hand experience of the profession. \(52.4\%\)
- Create **co-op opportunities** where students can apply academic training, test skills and get a head start on a career. \(51.2\%\)
- Offer opportunities to take **field trips and site visits** of relevance to architecture, construction, planning and engineering disciplines. \(28.0\%\)
- **Other (please describe)** \(3.7\%\)
CONCLUSION

• **CACP Charrette**: Important areas of innovation in research and teaching
  • Foster community-engaged, interdisciplinary research
  • Enhance partnership with industry partners and public sector
  • Train students with important marketable and technical skills

• **Preliminary Survey Results: Concrete Solutions**
  • Research
    • Fostering partnership with private and public sectors
    • Data analytics/technologies to enhance public understanding and find solutions
    • Designing secure, sustainable environmental systems
    • Research with real-world application and implications
  • Teaching
    • More emphasis on marketable skills (e.g., communication, management, advocacy)
    • Technical Skills (e.g., data analytics, visualization, technical certificates)
NEXT STEP

• Complete the analysis of the survey results (survey to be closed next week)
  • Rich inputs from the open-ended responses

• Expand the scope of community engagement to national and international communities
  • Research and teaching beyond local communities (e.g., study abroad programs)

• Identify and address the missing pieces from Phase 1 by coordinating with other subcommittees
Benchmarking Subcommittee Members
Ibukun Awolusi
Janis Bush
Ian Caine
Sedef Doganer
Curtis Fish
Sean Kelly
Arturo Montoyo
Jianwei Niu
Hatim Sharif
Rebecca Weston

Subcommittee Liaisons
Albert Han
David Matiella

Task Force Administrators
JoAnn Browning
Shannon Heuberger
Debbie (Howard) Rappaport
Transdisciplinary Models: Research + Teaching + Learning

College Models

Institute Models
Transdisciplinary Models: Research + Teaching + Learning

College Models
Institute Models

Less common at scale of the College.
More common outside of U.S.
More common at scale of the Institute.

Here are twelve models at the scale of the College and Institute…
College Models

Ohio State University
McGill University
Washington State University

University of Strathclyde Glasgow (UK)
University College London (UK)
TU Darmstadt (Germany)
Ohio State University

University Profile

68,262 Students
250+ Bachelor, 171 Master's, and 113 Doctoral
33 or 40 National Academy Members

$929.2 Million in Research and Development Expenditures
$497.6 Million: Federal R&D expenditures
$157.8 Million: Industry-sponsored research expenditures

2,423 Study Abroad Programs

College of Engineering Profile

1 campus
15 major programs

$49 Million Industry R&D expenditures

7,931 Undergraduate, 1812 Graduate Students Enrolled

Degrees Conferred - 1715 Undergraduate, 633 Graduate
# Ohio State University | College of Engineering

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<tr>
<th>Department</th>
<th>T/TT</th>
<th>Emeritus</th>
<th>NTT/Adjunct</th>
<th>Staff</th>
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<tbody>
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<td>Knowlton School of Architecture</td>
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<td>23</td>
<td>37</td>
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</tbody>
</table>
Ohio State University  |  College of Engineering  |  Degrees Conferred

Engineering

Knowlton School of Architecture

Interdisciplinary Programs (Business, Environment, Global Leadership...)
McGill University

University Profile
40,153 Students
Royal Society of Canada: 195
Grand Challenges:
$566.6 Million in Total Research and Development Expenditures
$295.9 Million in Federal Research and Development Expenditures
$44 Million in Industry-sponsored
$920.0 Million in Revenue – Unrestricted Fund
$928.7 Million Expenses and inter-fund transfers – Unrestricted Fund

Faculty of Engineering Profile
1 campus
10 major programs
3,392 Undergraduate, 1,103 Graduate Students Enrolled
## McGill University | Faculty of Engineering Profile

<table>
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<td>Mining &amp; Materials Engineering</td>
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<tr>
<td><strong>School of Urban Planning</strong></td>
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<tr>
<td><strong>The Peter Guo-hua Fu School of Architecture</strong></td>
<td>17</td>
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<td>7</td>
</tr>
</tbody>
</table>
McGill University | Faculty of Engineering | Degrees Conferred

Engineering

School of Urban Planning

Peter Guo-hua Fu School of Architecture

Different Budgeting System
Washington State University

University Profile
20,976 Students
98 Bachelor, 78 Master’s, and 65 Doctoral
11 National Academy Members
Five Grand Challenges: Sustaining Health, Sustainable Resources, Opportunity and Equity, Smart Systems, National Security
$360.5 Million in Total Research and Development Expenditures
$151.1 Million in Federal Research and Development Expenditures
500+ Study Abroad Programs
6-year Graduation Rate (2013 cohort): 60.2%
Retention Rate: 79.0%

Voiland College of Architecture & Engineering Profile
6 campuses
29 fields of study
$20M Donated
$33M in Research Expenditures
6,000 Students Enrolled
Degrees Conferred - 946 Undergraduate, 197 Graduate
<table>
<thead>
<tr>
<th>Washington State</th>
<th>College of Architecture &amp; Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T/TT</td>
</tr>
<tr>
<td>School of Chemical Engineering and Bioengineering</td>
<td>21</td>
</tr>
<tr>
<td>Department of Civil and Environmental Engineering</td>
<td>43</td>
</tr>
<tr>
<td>School and Design + Construction</td>
<td>25</td>
</tr>
<tr>
<td>School of Electrical Engineering &amp; Computer Science</td>
<td>42</td>
</tr>
<tr>
<td>Engineering and Technology Management - Online</td>
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<tr>
<td>School of Mechanical and Materials Engineering</td>
<td>40</td>
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<tr>
<td>School of Engineering &amp; Applied Sciences - Tri-Cities</td>
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<tr>
<td>Civil Engineering (Program)</td>
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<tr>
<td>Computer Science</td>
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<td>Electrical Engineering</td>
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<tr>
<td>Mechanical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>School of Engineering &amp; Computer Science - Vancouver</td>
<td>21</td>
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</tbody>
</table>
School of Chemical Engineering and Bioengineering
School of Design + Construction
School of Electrical Engineering and Computer Science
School of Mechanical and Materials Engineering
School of Engineering and Applied Science
School of Engineering and Computer Science

Joint Degree Civil Engineering and School of D + C
TU Darmstadt | Faculty of Engineering

Civil and Environmental Engineering

Architecture

TU Darmstadt – UTSA Agreement
Transdisciplinary Research Models

Sustainability + Environment
Resilience + Infrastructure
Urbanism + Urban Science
Construction + Material Science
Community Design + Outreach
Energy + Environment
Sustainability + Environment

University of Toronto
Arizona State University
McGill University
Savannah College for Art and Design
U North Carolina Charlotte
University of Arizona
University of Oregon
University of North Carolina Charlotte
University of Virginia
University of Oregon
Birmingham City University
The Ohio State University
University College London
University of Oregon
University of Michigan
University of Michigan
University of Pennsylvania

Brown University
Columbia University
Cornell University
Duke University
Johns Hopkins
Northwestern
Penn State University
Princeton University
Stanford University
Texas A & M
University of Arizona
UCLA
University of Illinois at Urbana-Champaign
University of Michigan
University of Wisconsin-Madison
Vanderbilt University

Institute at Brown for Environment and Society
The Earth Institute
Atkinson Center for Sustainability
Nicholas Institute for Environmental Policy Solutions
Environment, Energy, Sustainability & Health Institute
Institute for Sustainability and Energy
Institutes of Energy and the Environment
Environmental Institute
Woods Institute for the Environment
Energy Institute
Institute of the Environment
Institute on the Environment and Sustainability
Institute for Sustainability, Energy, and Environment
Graham Sustainability Institute
Nelson Institute for Environmental Studies
Institute for Energy and the Environment
Sustainability + Environment

Trottier Institute for Sustainability in Engineering and Design | McGill U.

Research Areas
Sustainable Industrial Processes & Manufacturing
Renewable Energy & Energy Efficiency
Sustainable Infrastructure & Urban Development
Climate Change Adaptation & Resilience

Works across scales and disciplines
<table>
<thead>
<tr>
<th>University of North Carolina Charlotte</th>
<th>The Infrastructure, Design, Environment &amp; Sustainability Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>University College London</td>
<td>Institute for Sustainable Heritage</td>
</tr>
<tr>
<td>University College London</td>
<td>Institute of Communications and Connected Systems</td>
</tr>
<tr>
<td>University College London</td>
<td>EPICentre: An Interdisciplinary Centre for Natural Hazards Resilience</td>
</tr>
<tr>
<td>University of Florida</td>
<td>Florida Institute for Built Environment Resilience (FIBER)</td>
</tr>
</tbody>
</table>
Resilience + Infrastructure

EPICentre | University College London

Research Areas
Risk Representation and Behaviours in Individuals
Post Disaster Recovery and Reconstruction
Vulnerability of Cities and Infrastructure to Natural Hazards
Societal and Engineering Resilience
Heritage Conservation Engineering

Works across scales and disciplines

Addresses technical and cultural issues
Urbanism + Urban Science

Arizona State University
University of Texas at Austin
The New School/Parsons
Massachusetts Institute of Technology
Massachusetts Institute of Technology
Washington University in Saint Louis
Georgia Tech
Virginia Tech
University of Oregon
University of Oregon
University College London
University College London
University of Pennsylvania

School of Geographical Sciences and Urban Planning
School of Design and Creative Technologies
School of Design Strategies: Cities, Services, Ecosystems
School of Constructed Environments
Media Lab
Center for Advanced Urbanism
Civic Data Design Lab
Divided City Initiative
The Center for Spatial Planning Analytics and Visualization
The Super Studio
Human Centered Design
Sustainable Cities Institute
Urbanism Next
Centre for Advanced Spatial Analysis
Development Planning Unit
Center for Environmental Building & Design

University of Pennsylvania
University of Pennsylvania
University of Pennsylvania
University of Michigan
University of Toronto
Howard University
The Bartlett School of Architecture
New York University
Portland State
University of Chicago
Yale University
USC
University of Utah
University of Pennsylvania
University of Oregon
MIT
University of Buffalo
UCLA

Institute for Urban Research
MCHarg Center for Urbanism and Ecology
PennPraxis
Ecosystem Management Initiative
School of Cities
Transportation Research Center (HUTRC)
Space Syntax Lab
The Urban Expansion Program
Sustaining Urban Places Research (SUPR) Lab
Urban Labs Innovation Challenge
Seto Lab
Center for Sustainable Cities
Metropolitan Research Center
Penn Institute for Urban Research
Sustainable Cities Initiative
City Form Lab
Regional Institute
cityLAB
Urbanism + Urban Science

School of Cities  |  University of Toronto

Research Areas
Science of Cities
Cities by Design
Cities of Opportunity
Urban Sustainability

Works across scales and disciplines

City as cultural, environmental, spatial, financial artifact
<table>
<thead>
<tr>
<th>Institution</th>
<th>Center/Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson University</td>
<td>Institute for Intelligent Materials, Systems, Environments</td>
</tr>
<tr>
<td>University of Washington</td>
<td>Center for Integrated Design</td>
</tr>
<tr>
<td>Georgia Tech</td>
<td>The Digital Building Laboratory</td>
</tr>
<tr>
<td>Birmingham City University</td>
<td>Centre for Engineering</td>
</tr>
<tr>
<td>The Ohio State University</td>
<td>Materials and Manufacturing for Sustainability</td>
</tr>
<tr>
<td>University College London</td>
<td>Real Estate Institute</td>
</tr>
<tr>
<td>University of Michigan</td>
<td>Computational Design and Material Systems Innovation Cluster</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Laboratory of Integrated Design</td>
</tr>
<tr>
<td>University of Stuttgart</td>
<td>Integrative Computational Design and Construction for Architecture</td>
</tr>
</tbody>
</table>
Construction + Material Science

Digital Building Lab | Georgia Tech

Research Areas
Data Standards and Interoperability
Design Fabrication, Construction Automation
Project Delivery Systems
Smart Buildings, Infrastructure, Environments

Works across scales and disciplines
<table>
<thead>
<tr>
<th>University</th>
<th>Community Design Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>U North Carolina Charlotte</td>
<td>UNC Charlotte Urban Institute</td>
</tr>
<tr>
<td>U North Carolina Charlotte</td>
<td>Charlotte Action Research Project (CHARP)</td>
</tr>
<tr>
<td>University of Arkansas</td>
<td>Community Design Center</td>
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<tr>
<td>Louisiana State University</td>
<td>Coastal Sustainability Studio</td>
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<tr>
<td>Mississippi State</td>
<td>Community Design Studio</td>
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<tr>
<td>Detroit Mercy</td>
<td>Detroit Collaborative Design Center</td>
</tr>
<tr>
<td>University of Houston</td>
<td>Community Design Resource Center</td>
</tr>
<tr>
<td>University of Texas at Arlington</td>
<td>Arlington Urban Design Center</td>
</tr>
<tr>
<td>University of Idaho</td>
<td>Urban Design Center</td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>The Minnesota Design Center (MDC)</td>
</tr>
<tr>
<td>Kent State University</td>
<td>Cleveland Urban Design Collaborative</td>
</tr>
<tr>
<td>University of Louisville</td>
<td>Urban Design Studio</td>
</tr>
<tr>
<td>University of Louisville</td>
<td>BUDAS, City Solutions Center, City Explorer, Capstone Studios</td>
</tr>
</tbody>
</table>
Community Design + Outreach

Coastal Sustainability Studio | Louisiana State University

Research Areas
Enable new models of integrated research and design applications.
Develop design thinking with a systems approach using performance-based methodologies.
Maintain a studio space fostering openness and collaboration.
Work closely with community-based partners.
Work in support of local, state, and federal initiatives.

Works across scales and disciplines
Energy + Environment

Drexel University
A.J. Drexel Institute of Energy and the Environment (IExE)

University of Oregon
Energy Studies in Buildings Laboratory

University of Oregon
Fuller Center for Productive Landscapes

University of Oregon
High Performance Environments

University College London
Energy Institute

University of Pennsylvania
Kleinman Center for Energy Policy

Howard University
Center for Energy Systems and Control (CESaC)

Boston University
Institute for Sustainable Energy

Washington State University
Center for Environmental Research, Education and Outreach
Energy + Environment

Energy Institute  |  University College London

Research Areas
Energy and Environmental Systems
Energy and Data Analytics
Energy and Transport
Energy and Buildings

Works across scales and disciplines