IAN CAINE
University of Texas At San Antonio
I am very pleased to submit the following materials in support of my nomination for the AIAS/ACSA New Faculty Teaching Award. I am a registered architect, urban designer and assistant professor in the College of Architecture, Construction and Planning at the University of Texas at San Antonio (UTSA). My path into academia has been a non-traditional one: before joining the faculty at UTSA, I practiced architecture for more than ten years while teaching design studios as an adjunct instructor at Washington University in Saint Louis. In 2010, I decided to transition into academia full-time, leaving professional practice to enter a post-professional degree program in urban design at the Massachusetts Institute of Technology. Upon graduation, I accepted my first tenure-track appointment at UTSA in the fall of 2012.

Over a decade of professional practice allows me to present UTSA students with a broad and deep view of contemporary architectural issues. The entirety of my academic effort—in design studios, seminars, lectures and research—is united by an emphasis on the form, processes and impacts of urban sprawl. The students and I often focus on the metropolitan landscape of San Antonio, one of three legs in the Texas Triangle along with Dallas-Fort Worth and Houston. This expanding megaregion will add another ten million people in the next four decades, a scenario that leaves its inhabitants in a precarious balance: seduced by the spoils of growth while scrambling to evade ecological peril.

During my first seven semesters on tenure-track, I have enjoyed the opportunity to develop two new graduate seminars, nine unique design studios, and teach a freshman core lecture that enrolls up to 150 students. These efforts have generated consistently high teaching evaluations and positive student comments, as well a 2016 UTSA President’s Distinguished Teaching Award, which recognizes a single tenure-track faculty across all university disciplines for excellence in early career teaching.

During my first four years on tenure-track, I’ve made a concerted effort to align my teaching, research and design efforts, believing that the confluence propels my students to more substantial and integrated intellectual results. The specific pedagogical approach that I’ve developed encompasses three core principles: I pursue innovation at the intersection of teaching and research, maximize public discourse inside and outside the classroom and remain deeply committed to environmental sustainability at all scales.

**INNOVATION IN TEACHING AND RESEARCH**

Substantial synergies emerge when a pedagogical and scholarly project align. I therefore seek course innovation at the intersection of teaching and research, where I’ve witnessed the benefits of this convergence on multiple occasions. The incorporation of research into the studio and classroom provides multiple benefits to students: fueling learning within a given course structure, propelling them towards advanced academic endeavors at the graduate or post-graduate level and improving professional prospects after graduation. The latter outcome has become particularly important in recent years, as architecture firms increasingly seek graduates who are capable of generating new knowledge related to building performance and urban systems.

**Methods.** In order to maximize the possibility for synergy between teaching and research, I strive to implement investigative methodologies on the first day of each new class. I am able to incorporate research at the conceptual level—for example with the introduction of new drawing and mapping techniques—or at the technical level, with the introduction of Geographic Information Systems software like ArcGIS.

**Outcomes.** In the past several years a significant number of my students have leveraged research methodologies to achieve powerful results: In a 2013 graduate course titled *Traveling on Fredericksburg Road: 120 Years In 12 Miles*, thirteen students utilized advanced research tools including ArcGIS, digital photography, digital drawing and archival explorations to produce a 33-foot long by 9-foot high timeline of suburban expansion in San Antonio. The timeline tracked the street’s growth along two trajectories, time and distance, allowing the students to reconsider preconceptions about the historical development of urban sprawl in San Antonio. In subsequent semesters, several students and I built on the research, initiating a collaboration with the Spatial History Project at Stanford University in Palo Alto, CA. Through this relationship I’ve engaged additional students from both universities, leveraging support from Stanford University and UTSA research and scholarship programs.

Yet another group of UTSA undergraduates accompanied me to the 2014 National ACSA Conference in Miami to present their research and design on the adaptive reuse of Walmart structures. Such arrangements are typical of my efforts to achieve a positive feedback loop between teaching and research in the classroom.

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INVESTMENT IN PUBLIC DISCOURSE

As a dedicated urbanist, I feel obliged to create connections between the academy and the city. I therefore seek to generate academic discourse that resonates far beyond the boundaries of the university. These efforts are critical to the development of new architectural leaders, as today’s students will design tomorrow’s built environment. This approach impresses upon students the fact that truly meaningful architectural practice is inseparable from broader political and cultural discourse.

Methods. A commitment to dialogue manifests itself in the structure of my courses, which regularly include the production of some type of exhibition or public presentation. Our activities always involve research, analysis, drawing and negotiation. In some cases they require exhibition design, physical construction and direct dialogue with a target community beyond UTSA. I am continually on the lookout for external venues—public competitions, conferences, exhibitions and press—that allow us to do so. Sometimes these venues are local, other times national and international; sometimes I organize the outlet, other times it’s put together by others; at times our submission is invited, other times it’s peer-reviewed.

Outcomes. During the past seven semesters my students have generated or contributed to six public exhibitions; received extensive local, regional and national press coverage; submitted dozens of entries to international blind peer-reviewed competitions; presented three projects at a peer-reviewed research conference, earned a national AIA/ACSA COTE Top Ten award and won a design award from the San Antonio American Institute of Architects.

Again, the seminar titled Traveling on Fredericksburg Road: 120 Years in 12 Miles demonstrates the potential impact of public outreach: the class culminated with a 2013 public research exhibition at the Institute of Texan Cultures (ITC), a subsidiary of the Smithsonian Institute in Washington D.C. that attracts 130,000 annual visitors. The effort also garnered press coverage from multiple national and local outlets including the New York Times, Texas Public Radio, Texas Monthly, and the San Antonio Express-News.

Similarly, two teams of students from a 2013 undergraduate design studio exhibited their design proposals for the peer-reviewed International Flat Lot Competition, sponsored by Flint Public Art Project and the Flint Chapter of the American Institute of Architects. The two UTSA design proposals were among 57 projects selected from 220 total submissions from 35 countries.

COMMITMENT TO ENVIRONMENTAL SUSTAINABILITY AT ALL SCALES

Today’s architectural education, at its core, must train students to confront the environmental challenges that increasingly define life in the twenty-first century city. The most pressing urban issues of our time—phenomena like sprawl, water, infrastructure, carbon and housing—will define the professional and personal lives of our students.

Methods. The best way to help students engage sustainable design is through the successful incorporation of technical coursework and studio efforts. It’s only through successful integration that students are able to utilize the technical skills related to building performance and put them into the service of their architectural designs. During my first four years on tenure-track, I’ve pursued this assimilation both alone and in collaboration with UTSA faculty colleagues.

Outcomes. A range of products can emerge from this approach, including but not limited to case-study analyses of existing buildings, environmental analyses that measure the performance of proposed buildings and explorations of the behavior and impact of urban systems. I’ve implemented 2015 and 2016 undergraduate studios in collaboration with Dr. Rahman Azari, a colleague who works with building performance and technology. This arrangement permits us to run the studio as 10 parallel performance and design labs. In the first iteration of the studio, two of our students produced a winning entry in the 2016 AIA/ACSA COTE Top Ten Competition for Students. Our curriculum has also been selected for the 2030 Pilot Curriculum Project, sponsored by Architecture 2030, which issued a call for curriculums that “transform the culture of sustainable design education not only within their own schools, but in architecture and planning programs nationwide.”

My advanced graduate seminar Theorizing Sprawl represents another example of environmentally innovative coursework. Unlike the AIA COTE Top Ten competition, this class operates at San Antonio’s metropolitan scale. I began the class by asking students to select one aspect of sprawl in San Antonio—such as Boundary, Density, Money, Mobility, Ecology or Infrastructure—and generate both written and graphic analysis using ArcGIS. We then present the work in a large-scale public exhibition titled What is Sprawl? Since 2014 we’ve mounted two separate iterations of this exhibition in the CACP.

As I continue on tenure-track at UTSA, I remain confident that an emphasis on student research in the classroom, public discourse in the community and sustainability at all scales in the environment will continue to nourish the intellectual, personal and professional growth of emerging architects at UTSA.
THE VIEW FROM 2500 FT
SECOND YEAR UG STUDIO | INTRO TO DIGITAL DESIGN STUDIO

THE VIEW FROM 5000 FT
THIRD AND FOURTH YEAR UG STUDIO | ADAPTIVE RE-USE OF WALMART BIG BOXES

THE VIEW FROM 20 MILES
GRADUATE SEMINAR | TRAVELING ON FREDERICKSBURG ROAD: 120 YEARS IN 12 MILES

THE VIEW FROM 50 MILES
GRADUATE SEMINAR | SAN ANTONIO 360° | THEORIZING SPRAWL

THE VIEW FROM 100 MILES
GRADUATE STUDIO | I-35 UNBOUND
This core sophomore studio provides young designers with an intense introduction to the digital culture of architecture. Each of the 5 studio exercises introduces a new design methodology, paired with a new piece of software or technology such as digital photography, film, Photoshop, Illustrator, Google Earth, Autocad, Rhino, laser cutting and Indesign.

The content of the studio explores the relationship between architecture and phenomenology, an approach that concentrates on the study of consciousness and the objects of direct experience.

The studio breaks down into five discreet actions, each executed using a specific software or technology:

1. Observe (digital film + photography)
2. Analyze (Photoshop + Illustrator)
3. Locate (Google Earth + ArcGIS)
4. Develop (Rhino + laser cutter)
5. Compose (InDesign)

PERCEIVING DISTANCE AND SPEED

The analysis reveals that distance and speed impact an observer’s perception of an automobile’s color. The proposed viewing platform allows the viewer to calibrate the position of their eye and body with approaching and retreating cars.
This third-year undergraduate studio utilizes the growth of big boxes and specifically Walmart Supercenters as a case-study for studying change in the post-sprawl landscape. An increment is an increase in quantity or amount, either fixed or variable. The term “increment” is a useful way to denote change in the contemporary city because--geographically speaking--this landscape only grows and never shrinks. Students consider change increments at 3 scales, each relating to the design, development and construction of a Walmart Supercenter in the United States.

**SCALE 1: THE PARKING LOT**
Time: 8 hours, 24 hours, 1 week, 1 year
Scale: Parking space, Parking lot
Sequence: Pavilion assembly, Disassembly, Storage in 9 spaces, 25K

**SCALE 2: THE BIG BOX**
Time: 1 year, 5 years, 10 years
Scale: Little box, big box, parcel, development, commercial/residential cluster
Sequence: demonstrate 10 year life

**SCALE 3: THE METROPOLIS**
Time: 25 years, 50 years, 100 years
Scale: cluster, town, city, metropolis, region
Sequence: demonstrate 100 year life

**SEQUENCING CHANGE**
Different morphological sequences emerge in urban, suburban and exurban contexts.

ACSA 102 URBANISM SESSION
Ian Caine and five studio members present their design and research at the peer-reviewed ACSA National Conference in Miami, Florida.
This third- and fourth-year undergraduate studio calls for the adaptive reuse of a Walmart Market into a neighborhood branch library, adopting the structure of the 2016 AIA COTE Top Ten for Students Competition. This studio is accepted into the 2030 Curriculum Project, a national pilot that recognizes innovative teaching efforts that focus on energy use, emissions and resiliency.

The two studio instructors—one with a background in building performance and the other in architectural design—initiate a critical feedback loop, creating dialogue between issues of analysis and design, performance and form. The studio integrates advanced performance modeling software and traditional design pedagogy.

In order to facilitate dialogue between these often-separate discourses, the instructors led 10 parallel and interactive lab sequences: 5 performance labs covered critical topics including climate analysis, passive systems, life-cycle analysis, energy performance and daylighting; 5 parallel design labs focused on city infrastructure, site infrastructure, building envelope, program and space.
The studio emphasizes the early and continuous application of performative design tools throughout the design process. As part of the 5-part performance lab sequence, the instructors introduce student designers to analytical software packages including Climate Consultant, Safeira, and Athena IE. These tools allow students to quickly evaluate their initial design alternatives for passive strategy adoption, climate-responsiveness, form-generation, daylight and energy modeling, and material selection. The instructors also emphasize using tangible performance metrics such as Energy Use Index (EUI), Annual Sunlight Exposure (ASE), spatial Daylight Autonomy (sDA), and Global Warming Potential (GWP) for design evaluation purposes.
**[M3] Land Use and Site Ecology**

Introducing bioswales and rain gardens reduces runoff into the storm sewers. Plants were chosen on their ability to adapt to bioclimatic conditions, drought tolerance, and blooming patterns. Trees were chosen to reduce noise, filter water, and to provide shading.

- **48** × **120** = **5760**

  - Absorbed lb of CO₂ per tree
  - Number of trees
  - Total lb of CO₂ absorbed by final design

**Plant Palette**

- Spring
- Summer
- Fall
- Winter

**[M2] Regional / Community Design**

Transportation options in the area are limited. The site is just the 159th most walkable neighbourhood in the city.

**[M9] Long Life, Loose Fit**

The final design proposal takes advantage of the embodied energy that exists in the structure, mechanical systems, and site.
This advanced graduate seminar investigates the historical foundations of suburbia in the United States by studying the life of a single street: Fredericksburg Road in San Antonio, TX. The class produces a timeline that projects Fredericksburg Road across two axes: one marking time and one marking distance.

In the fall of 2013, the students installed a large-scale timeline at the Institute of Texan Cultures (ITC), a large museum in San Antonio that is associated with the Smithsonian Institution. The exhibition also included two short films: one focusing on the oral histories of residents and business owners, and the other simulating a drive along Fredericksburg Road.

The class offers students a wide range of learning outcomes including:

1. GIS training
2. an historical survey of suburban expansion in the United States
3. an historical survey of urban history in San Antonio, TX
4. an introduction to timelines as instruments for historical research
5. an introduction to the history of street design and analysis
6. an opportunity to design/install an exhibit

THE VIEW FROM 20 MILES
GRADUATE SEMINAR | TRAVELING ON FREDERICKSBURG ROAD: 120 YEARS IN 12 MILES

Exurban: 1980-2010

Edge City: 1960-1980

Post-war: 1945-1960

Inter-war: 1920-1945

Streetcar: 1890-1920

NARRATING TIME AND DISTANCE ALONG FREDERICKSBURG ROAD
MOUNTING THE EXHIBITION AT ITC:
Students had the opportunity to interact with museum staff during the design and install of the exhibition.

OPENING NIGHT AT THE ITC
OPENING NIGHT AT THE ITC

Viewers were able to make connections between their own lived experience and shifting morphologies along Fredericksburg Road.
PRESS
The student’s efforts received significant national, regional and local attention.

COMMUNITY PARTNERSHIPS
The studio also generated multiple relationships between the College and community.
The Fredericksburg Road Project has evolved into a spatial humanities research project chronicling the historical development of suburban life in metropolitan San Antonio. The project, a collaboration between UTSA and the Spatial History Project at Stanford University, is employing multiple undergraduate students (6 to dates) from both schools in paid research positions. It is also providing data for design studios and research seminars at UTSA.

The spatial humanities refer to emerging multidisciplinary efforts to link spatial technologies such as HGIS (historical geographic information systems) and humanities scholarship. The team is utilizing Data Driven Documents (D3) software, which is a javascript library that allows for the production of dynamic, interactive digital data visualizations in standard web browsers. The project integrates HGIS data—which offers decades of demographic and socioeconomic information—with more traditional archival research material including analog documents, oral histories and photographic images. The result will reside on the Spatial History Project’s website http://web.stanford.edu/group/spatial-history/cgi-bin/site/project.php?id=1131.

The timeline provides an interactive tool, allowing users to access spatial, demographic and socioeconomic data while generating a new narrative of suburban growth for San Antonio.
Sprawl is perhaps the most objectionable term in today’s urban lexicon. As architects and planners, we routinely blame sprawl for the most problematic symptoms of our urban malaise including pollution, poor health, cultural dislocation, long commute times. But is this diagnosis correct? This seminar re-positions the sprawl narrative within an accurate theoretical and historical framework.

The advanced graduate seminar asks students to undertake one semester-long graphic-based/applied research project within the most critical emerging mega-region in North America: the Texas Triangle (Dallas, Houston, San Antonio). The seminar is structured around the following themes:

- **Week 01** What is Sprawl?
- **Week 02** GIS Training
- **Week 03** Form
- **Week 04** Aesthetics
- **Week 05** Culture
- **Week 06** Security
- **Week 07** Mobility
- **Week 08** Ecology
- **Week 09** Infrastructure
- **Week 10** Money
- **Week 11** Density
- **Week 12** Boundary
- **Week 13** Region
- **Week 14** Exhibition

The seminar concludes with a public exhibition of the research.

**THE VIEW FROM 50 MILES**
The site for this graduate studio is the I-35 Corridor, one of the longest and most active trade routes in the United States. Beginning in Laredo, Texas, the corridor stretches for over 1,500 miles across six states before ending in Duluth, Minnesota. I-35 Unbound will focus on the landscape between San Antonio and Austin, utilizing the corridor as an armature to study urban growth within the Texas Triangle (San Antonio, Dallas, Houston).

Topics for Studio Research:
Urban Histories and Futures
Urban networks.
Urban infrastructures
Urban Typologies

Principles for Urban Design:
Networks, not form.
Parts, not wholes
Hybrids, not singles
Proto-types, not one-offs
"I think Professor Ian is the best professor I met at UTSA. He is a good instructor and architect. His practice experience is very valuable for students...this is very helpful especially when we think about the gap between architecture education and practice."

"...the class has been an amazing experience. I love the push to perform..."

"Overall really good professor. Will take him again! I like the fact that he pushed the limit of design."

"Great class, great teaching style. Lot’s of outside time commitment....""

"The class is very stimulating. The lectures helped me understand perspectives to city development that I had never considered before."

"Great instructor challenged me to think at a level I had not before. This was probably the most intellectually challenging course I have taken but the knowledge you gain is excellent.""

"Would definitely take the professor again."

"Ian Caine is an outstanding professor, pushing his students everyday and challenges us greatly. He thinks at an urban level and how your work should affect the whole city instead of just its surroundings."

"It [studio] challenged me intellectually and required more than previous years of studio combined...Thank you Ian Caine."

"Professor Caine actually reached out to us students, doing everything he could to help us in class. That shows that he actually wants us to do well."