**ARCH 6030**

**CORE III Architectural Design Studio**

School of Architecture | College of Design | Georgia Institute of Technology | Hinman Research Building

Studio MF 1:10-5:10pm W 1:10-3:10pm

Instructors: Keith Kaseman. Assistant Professor

Studio Critic: Keith Kaseman

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### COURSE DESCRIPTION

**ATLANTA BUREAU OF AIR AND SPACE (ABAS}** is an experimental studio and architectural think-tank geared to consider the advanced potentialities tied to an imminent future when small unmanned aerial systems (**sUAS**) constitute various forms of ubiquitous utility beyond the current state of our collective imagination. Anticipating a time when the airspace below 400’ is variably granular, dynamically regulated and thick with newly formed protocols, rights and opportunities, this studio will rapidly map such working relationships onto a large swath of Atlanta and develop manifold typological building components seamless with the projected air space systems at hand. **ABAS** provides an opportunity to critically imagine and develop new architectural configurations and types within this thickened air space through a mode of practice that utilizes design motivation, iterative exploration and refinement at every step along the way. Studio participants can expect to unleash a wide array of digital and physical production tools, working both rapidly and precisely with a strong bias towards producing physical evidence through advanced means.



DRONOPOD (KBAS, 2016-2017) Knoxville Bureau of Air and Space (KBAS, 2017) Amazon Fulfilment Center (Patented 2017)

**SUPER-UTILITY DRONOTYPES** provides an opportunity to **synthesize** key principles and operations developed in *Core I* and *Core II* studios into heightened design agility, incorporating and intertwining both analog approaches and digital techniques through an array of architectural explorations. This *Core III* studio is set up as an architectural think- tank and experimental studio format, which relies upon a varied and rigorous working regimen. It provides an opportunity to develop and critically refine spatial configurations as architectural opportunities (and *especially* vice- versa) through a mode of practice that utilizes digital design motivation and physically fabricated output at every step along the way. Studio participants can expect to unleash a wide array of digital and physical production tools, work both rapidly and precisely with a strong bias towards producing physical evidence (models, constructs, drawings, etc.) through advanced means.

**COURSE OBJECTIVES**

Working through a mode that will be both cumulative and open-source, studio participants will cultivate design decisions and trajectories from matrices of iterative explorations set in motion by the work schedule outlined below. Ultimately, the point of this studio is not to “solve problems” in a traditional sense, but rather identify, invent, incubate, refine, develop and deliver versions of refined architectural configurations in various ways that only such an exploratory format can afford. This studio will collectively navigate a vast cloud of spatial ideas, culminating in a diverse array of drawings, diagrams, matrices, digital-physical models and spatial constructs, ranging in size from small to (very) large.

### SUPER-UTILITY DRONOTYPES

Participants in this studio are setting out to design and broadcast **SUPER-UTILITY DRONOTYPES**: meticulously articulated spatial utility components and spatial / material configurations to be iteratively explored, refined, modified, produced and projected as architectural typologies and urban scenarios embedded within various drone futures.

Working progressively through varying scales of design and scopes of deployment, a collective catalog of individually designed DRONOTYPES will be methodologically developed, documented and curated over the course of the semester.

**LEARNING OBJECTIVES**

* Identify, invent, incubate, refine, develop and deliver versions of articulated spatial imaginaries in various ways that only such an exploratory format can afford
* To develop a methodology of iterative making and to understand its role in creating and developing synthetic ideas.
* To develop the ability to critically describe the environment through visual observation, techniques of representation, and verbal/written description.
* To develop an understanding of architectural program relating activity and use to space and form.
* To develop a precise vocabulary to communicate visual and spatial ideas.
* To develop honesty, clarity and confidence in the presentation of your work.

**EXHIBITION: FAB CITY SUMMIT | PARIS**

Resultant work developed in this studio will be exhibited at the Fab City Summit in Paris this summer (July 11-14, 2018). Participants will be working towards this privileged method and venue for delivery at every step of the semester, with iterative developments, finalized (digital and physical) models, drawings and other assorted media to be formatted with standards and templates provided within studio at weekly intervals. As such, the final deliverable for this studio is the exhibition material itself. Final exhibition formats and deliverables will be determined as the studio progresses, in accordance to the parameters to be established in ongoing communication with Fab City Summit | Paris organizers.

Please note that unfortunately, there is no funding to support studio participants to travel to Fab City Summit | Paris.

### SOFTWARE / TOOLS / MATERIALS

Students will use a wide range of software and associated plugins for the development of their design project, which is available in the PC Laboratories at Georgia Tech and also through the GT Software interface for use with personal laptops. Students will also engage in rigorous physical model making at every step and will need to acquire materials, including:

MATERIALS: Chipboard / Bristol Board / Museum Board’/ High-quality colored paper(s); Plastic sheet materials;

White artist tape; Hot glue gun;

¼” Baltic plywood;

Aluminum sheets;

Misc. MDF / Plywood;

EPS foam;

Copper-coated welding rods (1/16” diam.); [http://www.mcmaster.com/#rg45-gas-welding-and-brazing-rods/=13kz896](http://www.mcmaster.com/%23rg45-gas-welding-and-brazing-rods/%3D13kz896) Zip-ties (small sizes, large quantities);

Spray paint; Specialized hardware;

Scaled 3d people, vehicles, accessories (to be purchased / produced individually).

TOOLS: DFL Arsenal;

Safety Glasses / Goggles;

Cutting Mat / Blades / Straight edges / Scissors, etc. ( standard model making tools);

SOFTWARE: Rhino / Grasshopper

Monolith AlphaCam Adobe CC Aurasma

### ATTENDANCE

Attendance at all class meetings is mandatory and crucial to successful completion of this course. If you do not present your work or participate in class your course grade will be affected. Attendance will be taken at the beginning of each class period and punctual arrival is required. Late arrivals or early departures from class will be counted as absences; more than two unexcused absences or three total absences will be grounds for reduction of your course grade by one full letter grade. Absences will be excused only for medical or family emergencies documented in writing. Don’t jeopardize your overall performance and course grade by skipping class. You are not allowed to work on assignments for other courses during class meeting times for this course.

### GRADING

Your grade for this course will be determined based upon the quality of the work you produce, your improvement over the course of the semester, completion of required course assignments, quality of class participation, attendance, attitude and ethical conduct, in relation to the following key criteria:

PARICIPATION & PROGRESS 25% CHECKPOINT DELIVERABLES 35%

FINAL DELIVERABLES 45%

Evaluation of a student’s performance in each course is the responsibility of the instructor for that course. If the grade is disputed, a student may appeal to the instructor for a review. If, after the review, the student still believes that a grade has been assigned unfairly, the student may submit a written request for a grade appeal to the School Chair. The petition must clearly state the reasons for the appeal. A committee of faculty and students will convene to review the work and make a decision as to whether the grade will stand or be changed. Petitions must be settled and a final grade submitted to the registrar no later than three weeks after the end of the term in which the course was completed. The School Chair will inform the student of the committee’s decision regarding the grade appeal, and their decision is final. A student may receive a grade of incomplete (I) by requesting permission from the instructor prior to the date of the final examination or presentation. Permission will be granted only under extraordinary circumstances and usually for medical reasons. Incompletes must be fulfilled to the satisfaction of the instructor no later than six weeks after the end of term.

### ACADEMIC INTEGRITY AND CONDUCT

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. All Georgia Tech students should familiarize themselves with and abide by the Georgia Tech Honor Code [http://www.catalog.gatech.edu/rules/18/.](http://www.catalog.gatech.edu/rules/18/)

Student work that presents the ideas or words of others as the student’s own adversely impacts the whole school and may lead to immediate dismissal. Academic dishonesty, including cheating, plagiarism, commissioning academic work by others, or performing academic work on behalf of another student, is strictly prohibited. All persons in the classroom are expected to behave with courtesy towards others and in a way that does not interfere with the regular conduct of the class. Cell phones are to be turned off when students enter the classroom and should remain off for the duration of class: <http://www.catalog.gatech.edu/rules/19/>

### ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Anystudentwithadisability,thatmayrequireaccommodation, shouldcontactThe Office of Disability Services at 404- 894-2564 or v i s i t [h t t p : / / d i s a b i l i t y s e r v i c e s . g a t e c h . e d u](http://disabilityservices.gatech.edu/) to make an appointment to discuss his or her special needs and obtain an accommodations letter. He or she should also schedule an appointment to speak with the course instructor.

### EMERGENCIES

In case of emergency (e.g., fire, accident, or criminal act), please call the Georgia Tech Police at 404-894-2500.

### CAMPUS CARRY INFORMATION

For information on Georgia Campus Carry HB 280 (effective as of July 1, 2017), please visit:

[:http://police.gatech.edu/campuscarry](http://police.gatech.edu/campuscarry)

### OWNERSHIP

Physical copies of student work submitted to the school to satisfy course requirements—including, but not limited to digital files, papers, drawings, and models—become the property of the school. It is assumed as no obligation to safeguard such materials and may, at its discretion, retain them, return them to the student, or discard them.

### ARCHIVING

In some courses, selected students may be required to submit physical examples of their work or digital examples no later than one week after the end of term, to their instructors or administration for archiving. By enrolling, each student grants a license to reproduce and display his or her work. This is a chance for students to have their work shown online and potentially featured in forthcoming publications.

### CoDESIGN Facility Rules and Guidelines

Please consult the Georgia Tech Student Handbook regarding the use of facilities and all Institute policies. Aerosol sprays of any kind are strictly banned from the studio and surrounding areas.

Shop Use: All students using shop facilities must first have completed an orientation. Safety first, always! Noise should be kept to a minimum. Music may be listened to only through headphones, including evenings and weekends.

## WORKING SCHEDULE\*

\* Students are responsible for material acquisition, costs, storage and handling. Further, all physical operations are to be in strict accordance with DFL protocols. Full attendance is mandatory, three unexcused absences (of more than 4 hours per day) will result in a drop in letter-grade.

## WEEK 1: DRONOTYPE 01.xx

OBJECTIVE: Develop

#### MONDAY

**May 14** Introductions + Overview GH Interface Intro

Lunch

1:30pm – 3:00pm Media & Modeling @ DFL

#### TUESDAY

**May 15 DRONOTYPES 01.xx KICK-OFF**

Physical Models: Rapid working session 1:30pm – 3:00pm Media & Modeling @ DFL Physical Models: Rapid working session

#### WEDNESDAY

**May 16 DIGITAL-PHYSICAL DRONOTYPES**

Digital kick-off + iterations

Media & Modeling 4:30pm – 6pm (Flexing Versions w/ Danny @ Hinman)

#### THURSDAY

**May 17** CHECKPOINT 01: **DIGITAL-PHYSICAL DRONOTYPES**

Digital refinement / Iterations Media & Modeling: Rhino Burst

## WEEK 2: DRONOTYPE 02.xx

OBJECTIVE: Extract and sharpen DRONOTYPES, **THICKEN AND REFINE** geometric frames, laser-cut physical model iterations. Work towards **SUPER-UTILITY**.

#### MONDAY

**May 21** 9am – 12pm Media & Modeling @ Hinman

1pm – 4pm DRONOTYPE 02.xx Iterate, Refine, Extract CHECKPOINT 01: Collective Model Catalog Session 4:30pm – 6pm

#### TUESDAY

**May 22** DRONOTYPE 02.xx Construction Geometry: Upgrade and Refine

Media & Modeling (3pm, location TBD): Spatial Signatures + Surface Articulations:

Blend curves, tangent curves, associative geometry, patterns, attractor points, perforations, points in / out, dispatch, gradient.

**May 23** LASER-CUT ITERATIONS (All Day) DRAW CATALOG+ (All Day)

Media / Modeling (4pm – 6pm @DFL): INSTALL AT PONCE!

#### THURSDAY

**May 24** WORK SESSION: Laser-cut models

Media / Modeling (time TBD @Hinman): Studio working session.

## WEEK 3: DRONOTYPE 02.zz + 03.xx

OBJECTIVE: Finalize DRONOTYPE 02.xx: Laser-cut refinements, final models. Catalog iterations and types.

Aggregate explorations, jump scale into M, L, XL projections (aka DRONOTYPES 03.xx). DFL prep for Weeks 4 & 5.

#### MONDAY

**May 28** MEMORIAL DAY: No Studio Session

#### TUESDAY

**May 29 12pm Start-time**

Finalize DRONOTYPE 02.xx Laser-cut model(s) @ ½” = 1’-0” DRAW DRONOTYPE 02.xx – Catalog iterations / types.

Media / Modeling (4:30pm – 6pm @ Hinman): Catalog Drawing Standards / GH Gradient, 3d Proximity, OC Tree, etc.

#### WEDNESDAY

**May 30** 9am CHECKPOINT 02: DRONOTYPE 02.xx Laser-cut model(s) @ ½” = 1’-0” + Catalog Prints I DRONOTYPE 03.xx Kick-off / Demo / Brainstorm / Work Session

Collective Resource Workshop 1pm – 3pm

Media / Modeling (4:30pm – 6pm @ Hinman): Monolith

#### THURSDAY

**May 31** 9am @ DFL: CNC Foam cutting + 2d AlphaCam

DRONOTYPE 02.zz\* digital-physical models (scale(s) TBD) + 03.xx digital models Media / Modeling (2:30pm – 4pm): Aurasma

## WEEK 4: DFL WORK WEEK

OBJECTIVE: Large scale models / chunks of DRONOTYPE 02.zz. Small scale models of DRONOTYPES 03.xx. DFL intensive, model + making. Media / Modeling will primarily focus on drawing + AR production.

#### MONDAY

**June 4** Work Session

Media / Modeling: 4:30pm – 6pm

#### TUESDAY

**June 5** Work Session

Media / Modeling: 2:30pm – 4pm

**June 6** CHECKPOINT 03

Work Session

Media / Modeling: 4:30pm – 6pm

#### THURSDAY

**June 7** CHECKPOINT 04

Media / Modeling: 2:30pm – 4pm

## WEEK 5: DFL WORK WEEK / FINALIZE

OBJECTIVE: Refine / Produce / Document / Catalog

#### MONDAY

**June 11** Work Session

#### TUESDAY

**June 12 CHECKPOINT 04: FINAL REVIEW WEDNESDAY**

**June 13** MODIFY / ADJUST / REFINE FINAL DELIVERABLES

**THURSDAY**

**June 14** MODIFY / ADJUST / REFINE FINAL DELIVERABLES

# WEEK 6: FINAL SESSION & SUBMISSIONS: MONDAY, JUNE 18th

**10am – 1pm**