



Involuted Figures and Black Holes

PennDesign 700 Advanced Studio, Spring 2015

Studio Meetings: W and F or Su, 2-6pm

Instructor: Tom Wiscombe (tom@tomwiscombe.com)

Assistant Teacher: TBA

"The thing's hollow — it goes on forever — and — oh my God! — it's full of stars!"

-Arthur C. Clarke, 2001: A Space Odyssey

"The object can be viewed as a kind of black hole whose interior has receded infinitely from view, but which also leaks a certain amount of radiant energy...the adjective 'black' indicating that this noise is at all times object oriented, not formed of loose universal qualities."

-Graham Harman, Guerilla Metaphysics

"The Hyperobject is a liar...we see the shadows of the hyperobject, gigantic patches of darkness that slide across the landscape... The time of Hyperobjects is the time we discover ourselves on the insides of some very big objects...Hyperobjects are Tardis-like, bigger on the inside than the outside"

-Timothy Morton, Hyperobjects

"There is no outside... the outside is another inside"

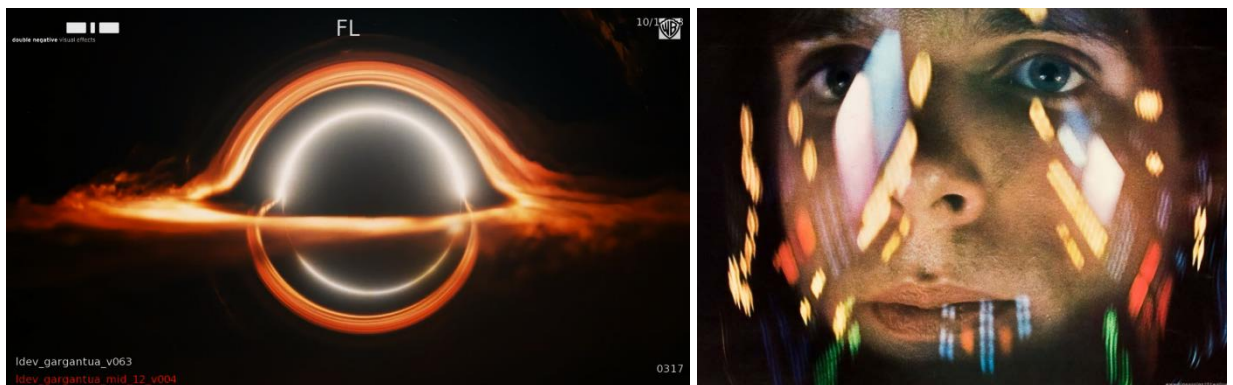
-LaTour (on Slotterdijk)

This studio will continue work on the problem of near-figuration, which is a form of resolution of the polarizing discourse of form versus shape of the last ten years. Near figuration is defined as the appearance of distinct, legible objects from illegible or fluid conditions, that is, as the simultaneity of things which have both graphic and formal features. This semester, we will extend that problem to include involuted figures, which can simultaneously create exterior depth effects but also interior spatial figuration. One of the fundamental things architecture

does is characterize the threshold between exterior and interior. In this, it must take an ontological position with regards to the state of existence of “outside” and “inside”, and the degree to which they might be illusions. LaTour captures that indeterminacy so well when he says “there is no outside...the outside is just another inside.” In this studio, we will define this threshold as elastic but not blurred. We will assume boundaries and limits to understanding rather than the illusion of a world of chatter and flows.

Rather than smooth topological holes, as in Reimann’s or Klein’s diagrams of curved space manifolds so prevalent in the relational era of the late 20th century, we will favor strange, primitive holes made from either subtracting or pushing chunky figures into crystalline containers or into one another. The interplay between figures which push out, push in, or remain hidden will be used to create mysterious formations which defy access, although they may appear to have multiple ‘doorways’.

Like black holes, these involutions may not constitute literal points of entry but rather moments of allure and *lack* of access. In *Interstellar* (2014), Chris Nolan goes to great lengths to represent the most “real” black hole possible, based on scientific calculation and state of the art rendering techniques, producing never-before seen phenomena at the event horizon. Despite how it is presented by Nolan -- as a form of knowledge and plausibility-- what resonates in the film is the mysteriousness of the object and its seeming *impossibility*. Stanley Kubrick, that film’s greatest influence, knew this innately, choosing not to burden his monolith from *2001: A Space Odyssey* (1968) with being “real” in the sense of accurate or concrete, but rather making it even more alluring as a matter of speculation on the real. When Dave Bowman, rocketing across the expanse of the monolith, utters “my God, It’s full of stars”, we are confronted with a vexing entity that is delimited in scale on its exterior, yet seems to contain the universe. Its contents are bigger than the container-- something Timothy Morton associates with “hyperobjects”, or entities that are vast yet withdrawn. In this studio, we will speculate on new container/contained and inside/out relations in architecture, and seek to produce strange new forms of interiority.



Nolan's *Interstellar*/ Kubrick's *2001: A Space Odyssey*

A key part of this work will be the exploration fake and real shadows, reflections, and halos, in terms of how they may emanate from objects and deep involutions and then be *reified* into physical features. These features may exist as surface effects, such as changes of material or

sheen (matte, gloss, mirror), or they may be used to transform the three-dimensional mass more aggressively. The goal will be to create flattening, depth, or obscuring effects that heighten the mystery and irresolution of the building object. Rendering will not be used to represent finished designs or produce 'special effects' or other phenomena, but rather as a tool to study possible configurations and patterns of lightness and darkness in service of noumena, or the thing-in-itself.

At stake, ultimately, is the status of objects, their qualities, and our lack of access to them as they withdraw into their dark interiors. Qualities, for us, will begin to slip off objects, making them more abstract and ineffable. This marks a turn away from universally 'articulating' objects and surfaces in ultra-high fidelity, a disciplinary interest of the 2010s (sometimes referred to as the neo-Baroque) which now seems exhausted. While contemporary object-oriented philosophy may offer us windows into this problem, it will be important for us to operate within the discipline of architecture. We must generate our own lexicon and basis for success and failure, and no doubt invent new forms of subjectivity, without which architecture cannot exist.



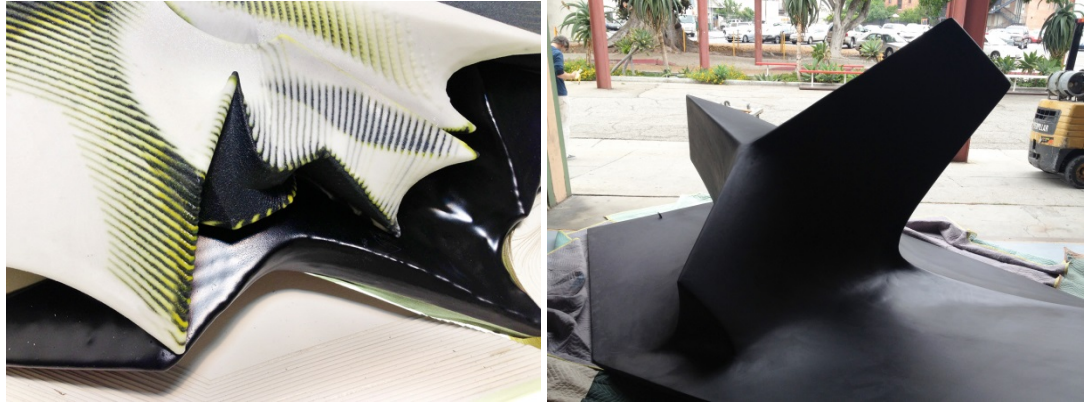
Reified shading effects/ Stoppages of Baccarat Crystal/ Black-hole of Eisenman's Max Reinhardt Haus

Five Points of Architecture

- I. Mystery over scientism
- II. Architecture constructs its own worlds and cannot be 'drawn forth' from information or context
- III. Mute the tools. Break the tools
- IV. Tectonics based on strange scalar and graphic effects
- V. Imagination and the search for authenticity

A Child's Story (from *Hyperobjects*)

Cartons are houses for crackers,
Castles are houses for kings,
The more I think about houses,
The more things are houses for things.



Blackness/ Involution/ Near-Figuration Studies

Studio Organization

The studio agenda, overall concepts, tools and techniques will be a knowledge base that should be shared across the whole studio. Students are expected to be at all class meetings which will be twice a week, and on weekends as needed. The studio space must be organized to show the state of development of each students work on the wall and in physical model form, in order to foster an interactive environment. Students will work in teams of two and will be expected to produce detailed 3D printed models for the final review.

Techniques and Languages

Chunky figures: diamonds, crystals, jacks, ziggurats, hybrids, stepped, voxels

Strange holes: Booleans and polygon squishing

Slicing and glance-cutting

Piles of crystals and jacks with some positive and some negative

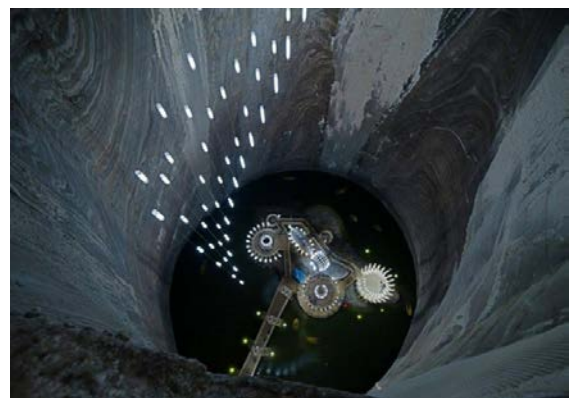
Razor thin flaps and partially obscured holes

Shadow, reflection, halo production- the “light effects studio”

Maya, ZBrush unfolds, Rhinoscript, Photoshop effects for mapping (outer glow, half-tones)

Representation: No photoreal renders: Non-human viewpoints (axo, iso, long focal)

Models: 3D printing is core of the studio, use as development tool, not only for final



Hyperobjects: Diamond Mines and Salt Mines

Studio Project

The Studio Project will be a re-dux of the Renzo Piano Downtown NYC Whitney Museum, which is located on the Highline in the Meat-packing District. This 200,000 SF. project was designed in 2005, greatly increasing the area available in the 1966 Marcel Breuer building uptown. The Metropolitan Museum of Art has agreed to take over the Breuer building. The final design was chosen after more than two decades of on-again off-again expansion plans, from Michael Graves's 1985 Po-mo design, to OMA's aggressive cantilevered design in 2001, to Renzo Piano's original blank design for the old site.

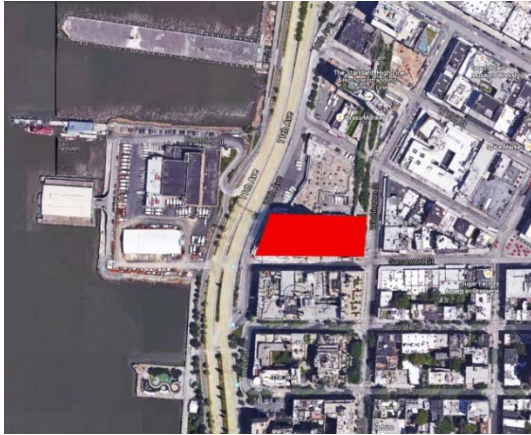
The new project is considered a "safe bet" by the Museum, using an architect who consistently delivers appropriate museum designs worldwide. The Museum director recently went on record that the building was intended to be a background piece, and that the project is "*not about architecture*". Some artists have come forward in support of this claim, and architects are beginning to sense a creeping mediocrity in the Museum world. Of particular note in Piano's design is the sectional inversion of the building, playing off the Breuer design, which ties it back to its point of origin, ostensibly giving the project a story the community can support. Our proposals will seek to do the opposite, and actively avoid revealing the architecture's origins in order to avoid its reduction to outside relations. We will seek to make new worlds and new realities that cannot be undermined, but rather estrange the viewer, much as the original Breuer design did in its own time.



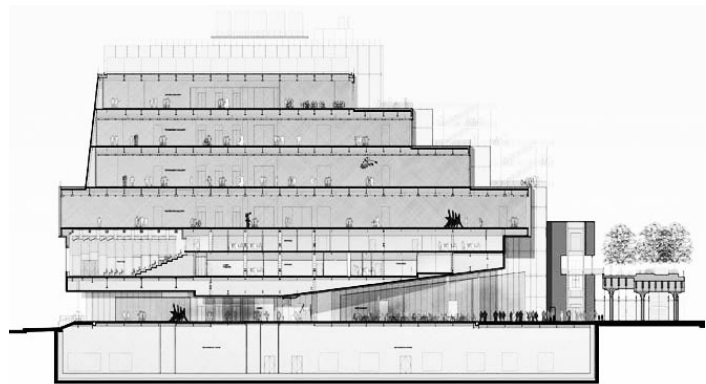
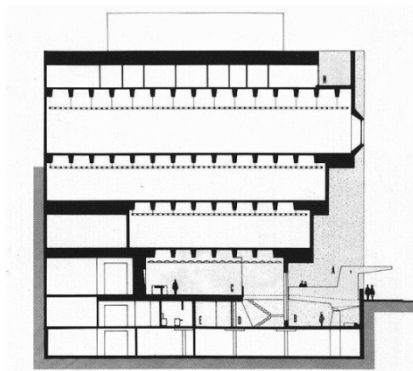
Breuer's Whitney (1966)/ Michael Graves's Whitney Expansion (1985)



OMA's Whitney Expansion (2001)/ Renzo Piano's Whitney Expansion (2001)



Renzo Piano's Downtown Whitney (2014)



Breuer vs. Piano: Homage vs. Revealing the Origin of Things

Course Objectives

- I. Investigate the "Object Turn" in architecture
- II. Explore formal models that produce mystery and depth
- III. Explore sectional complexity
- V. Explore poché and suppression of circulation
- VI. Explore cross-over models of tectonics and graphics
- VII. Contend with the Museum Typology
- IX. Investigate forms of representation tied to the agenda
- X. Large Building Design
- XI. Strategic Thinking and Communication Skills
- XII. Use of Precedents

Schedule (Subject to Revision)

Week 1	JAN 13	Studio Lottery
		Introductory Discussion
	JAN 14	Warm-Up Project
	JAN 18	Warm-Up Project
Week 2	JAN 19	Warm-Up Project

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Wiscombe

	JAN 21	Warm-Up Project
Week 3	JAN 25	Studio Pinup
		Introduce Exercise II
	JAN 26	Desk Crits
	FEB 1	Warm-Up Project
Week 4	FEB 2	Warm-Up Project
	FEB 4	Warm-Up Project
Week 5	FEB 8	WARM-UP PROJECT REVIEW
		Introduce Building Design
	FEB 9	Desk Crits
		Lecture: Reiser Umemoto
	FEB 13	Warm-Up Project/ Building Design
	FEB 15	Warm-Up Project/ Building Design
Week 6	FEB 18	Warm-Up Project/ Building Design
	FEB 20	Warm-Up Project/ Building Design
Week 7	FEB 20	Travel to NYC Site (travel week)
	FEB 21	NYC Travel Day
	FEB 22	NYC Travel Day
	FEB 23	Studio Pinup at Penn
		Charette on Building Design
Week 8	FEB 27	Building Design
	MAR 2	Building Design
	MAR 6	Studio Pinup
		Pre-Midterm Review
Week 9	MAR 9-13	<i>Spring Break- Midterm Charette</i>
Week 10	MAR 16	MID-REVIEW
	MAR 17	Mid-Review Recap Meeting
		(TW on Other Mid-Reviews)
	MAR 20	Building Design
Week 11	MAR 23	Building Design
	MAR 27	Building Design
Week 12	MAR 30	Building Design
		Open House
	APR 3	Studio Pinup
	APR 4	Desk Crits
Week 13	APR 8	Building Design
	APR 10	Building Design

Week 14	APR 13	<i>Begin Production</i>
	APR 17	Studio Pinup
	APR 18	Production
Week 15	APR 22	Production
	APR 26	Production
Week 16	APR 29	Production
		SKYPE with TW in LA
	APRIL 30	Pre-Final Editing
Week 17	MAY 4	FINAL REVIEW
	MAY 5	Other Reviews
	MAY 6	Other Reviews
	MAY 15	<i>Year End Show</i>

Readings

Graham Harman, "The Road to Objects"
Graham Harman, Portions of Guerrilla Metaphysics
Timothy Morton, Portions of Hyperobjects
WIRED Magazine: Chris Nolan, Guest Editor
Levi Bryant, "Mereologies and Objects" (Larval Subjects Blog)
Gannon, Harman, Ruy, Wiscombe, "OOO and Architecture: A Conversation" (LOG #33)
Selections from LaTour, Slotterdijk, and Aurelli TBD

Background Readings

Graham Harman, "Evocative Objects"
Levi Bryant, Portions of The Democracy of Objects
Somol, Robert. Time to Get Back Into Shape: Mass vs. Form vs. Shape (VOLUME)
Jason Payne, "Variations on the Disco Ball, or, The Ambivalent Object" (PROJECT #2)
Tom Wiscombe, "Discreteness, or Towards a Flat Ontology of Architecture" (PROJECT #3)
David Ruy, "A Return to (Strange) Objects" (TARP)

Assessment Methods

Students will be required to be present at all scheduled course meetings, and contribute to class discussions. Grading will be based on a combination of active participation in the life of the studio, the Midterm Review, and the Final Review as follows:

Class participation: 10%

Warm-up Exercise Grade: 15%

Midterm Grade: 25%

Final Project Grade: 50%

PennDesign Academic Performance and Grading

Course Attendance

PennDesign reserves the right to withdraw students from courses for failure to attend the first class meeting. Policies regarding absence from classes are determined by the instructor(s) responsible for the course. A course instructor may choose to base part of the course grade on attendance and participation, or may present material in class that cannot be found in the readings. If it is necessary to miss a class, the student should seek permission from the course instructor in advance. Upon request of the instructor, written documentation must be submitted for an excused absence. Attendance policies do not apply to recognized religious holidays.

Grading

PennDesign instructors, with the exception of the Department of Fine Arts, apply a grading system of letter grades:

A+	=	4.0	
A	=	4.0	
A-	=	3.7	
B+	=	3.3	
B	=	3.0	
B-	=	2.7	
C+	=	2.3	
C	=	2.0	
C-	=	1.7	
F	=	0.0	Failure
I	=	0.0	Incomplete

Students enrolled in the Master of Fine Arts program are graded on a Pass/Fail system for required studio and seminar courses. When a course is taken as Pass/Fail, the grade of P (pass) is NOT calculated into the grade point average. However, if an F (fail) is received in a Pass/Fail course, it is calculated into the GPA.

PennDesign students, who receive a grade of F (fail) in a required course, must repeat the course for credit. If a student receives a grade of F (fail) in an elective course, the course must be repeated or a course of equivalent course units meeting the degree requirements must be taken. However, the F (fail) remains on the student's official transcript even if the student has repeated the course and obtained a satisfactory grade. The F (fail) is still calculated in the cumulative GPA. Any courses for which the failed course is a prerequisite may not be taken until a satisfactory grade in the prerequisite course has been achieved.

The Grade Point Average (GPA) is tabulated at the end of each semester. The GPA is calculated by multiplying the course unit for each course (usually 1 C.U.) by the numerical equivalent for the grade received in the course, adding the total number and dividing by the total number of credits taken. Averages are tabulated for each semester on a cumulative basis. The notations of NR and GR indicate that the grade has not been received by the Registrar. All NRs (instructor did not submit grades for the course) and GRs (instructor did not enter a grade for the student in question) must be cleared from the student's transcript before graduation. The notation "W" indicates an approved withdrawal from a course.

Grade Reports and Transcripts

At the end of each term, students can access their grades via PennInTouch. Through PennInTouch, students can request to receive their grade report by mail from the University Office of the Registrar. Official transcripts are maintained by the University Office of the Registrar NOT by PennDesign. The University's definition of an official transcript is completed (graded) coursework. In progress coursework will not appear on a student's

official transcript. Students can request official transcript electronically, by US mail and in person. For details on how to request an official transcript please consult the University Registrar's [website: http://www.upenn.edu/registrar/student-services/transcripts.html](http://www.upenn.edu/registrar/student-services/transcripts.html)

Incomplete Course Work

A grade of "I" (incomplete) shall be given only in cases of illness or family emergencies. No faculty member is required to give a grade of incomplete. If a permanent grade is not submitted by the end of the second semester, a permanent "F" (fail) grade will be issued. It is the student's responsibility to find out how much time the faculty member requires to review course work and submit a grade. Students must give the faculty member at least three weeks to read late assignments and submit a grade. More time may be required by individual faculty members, particularly at the end of the semester. Faculty are not required to review student work during the summer unless a prior agreement has been reached between the student and faculty member.

In rare instances where the faculty member believes there are important educational purposes to be served by having the student do further work, and where this will not compromise further studies, a provisional grade of "S" may be given. If a permanent grade is not submitted by the end of the following semester, a permanent "F" (fail) grade will be issued. Department chairs may decide in which, if any, courses "S" grades may be given.

The departments of Architecture and Landscape Architecture do NOT permit the assignment of "S" grades. For an "S" to be recorded in other department, (1) the student's work should be substantially complete by the end of the semester, (2) the faculty member must submit in writing to the student and the PennDesign Registrar what work must be done, and (3) the faculty member must agree to work with the student to help ensure its completion, regardless of their location or status during the following semester.

Grade Appeals

Evaluation of a student's performance is the responsibility of the instructor. Should a final grade in a course be disputed, the student must submit a written appeal to the instructor within the first two weeks of the semester immediately following the semester in which the grade was received. The instructor must respond in writing to the student within two weeks of receiving the written appeal from the student. If, after receiving the written response to the appeal from the instructor, the student still believes that the grade has been unfairly assigned, the student must submit a written appeal to the Chair of the student's Department. If the Chair believes the appeal demonstrates evidence of negligence or discriminatory behavior, an advisory committee will be formed to review the student's appeal and make a recommendation to the Chair. The decision of the Chair is final.

Academic Probation

A student who receives a grade of "F" (fail) in a course or a grade of "C" or lower in any two courses in any term will be placed on academic probation for the following semester. The student's record will be reviewed at the end of the semester of probation to evaluate if satisfactory academic performance has been maintained. If a student has not maintained a 3.0 grade point average in any semester, the student may be asked to withdraw. PennDesign reserves the right to withdraw any student whose GPA is below a 2.0 in any semester. Students who are withdrawn for unsatisfactory academic performance are NOT eligible for readmission.

Dismissal

Receipt of a second "F" or failure to maintain a satisfactory level of academic performance while on academic probation may result in the student's dismissal from PennDesign. Students who are dismissed from the school for unsatisfactory academic performance are NOT eligible for readmission. Questions regarding PennDesign Academic Performance and Grading Policies should be directed to Andrea M. Porter, Director of Student Services / Registrar: Email: anporter@design.upenn.edu, Phone: 215-898-6210, Office: 110 Meyerson Hall.

PennDesign's Code of Academic Integrity

Since the University is an academic community, its fundamental purpose is the pursuit of knowledge. Essential to the success of this educational mission is a commitment to the principles of academic integrity. Every member of the University community is responsible for upholding the highest standards of honesty at all times. Students, as members of the community, are also responsible for adhering to the principles and spirit of the following Code of Academic Integrity.*

Academic Dishonesty Definitions

Activities that have the effect or intention of interfering with education, pursuit of knowledge, or fair evaluation of a student's performance are prohibited. Examples of such activities include but are not limited to the following definitions:

Cheating

Using or attempting to use unauthorized assistance, material, or study aids in examinations or other academic work or preventing, or attempting to prevent, another from using authorized assistance, material, or study aids. Example: using a cheat sheet in a quiz or exam, altering a graded exam and resubmitting it for a better grade, etc.

Plagiarism

Using the ideas, data, or language of another without specific or proper acknowledgment. Example: copying another person's paper, article, or computer work and submitting it for an assignment, cloning someone else's ideas without attribution, failing to use quotation marks where appropriate, etc.

Fabrication

Submitting contrived or altered information in any academic exercise. Example: making up data for an experiment, fudging data, citing nonexistent articles, contriving sources, etc.

Multiple Submissions

Multiple submissions: submitting, without prior permission, any work submitted to fulfill another academic requirement.

Misrepresentation of Academic Records

Misrepresentation of academic records: misrepresenting or tampering with or attempting to tamper with any portion of a student's transcripts or academic record, either before or after coming to the University of Pennsylvania. Example: forging a change of grade slip, tampering with computer records, falsifying academic information on one's resume, etc.

Facilitating Academic Dishonesty

Knowingly helping or attempting to help another violate any provision of the Code. Example: working together on a take-home exam, etc.

Unfair Advantage

Attempting to gain unauthorized advantage over fellow students in an academic exercise. Example: gaining or providing unauthorized access to examination materials, obstructing or interfering with another student's efforts in an academic exercise, lying about a need for an extension for an exam or paper, continuing to write even when time is up during an exam, destroying or keeping library materials for one's own use., etc.

* If a student is unsure whether his action(s) constitute a violation of the Code of Academic Integrity, then it is that student's responsibility to consult with the instructor to clarify any ambiguities.