

**You're ARCH 5354-001 Building Integrated Modeling**  
**Nathan Harvey**

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**INSTRUCTOR:**

Nathan Harvey, Instructor  
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**COURSE DESCRIPTION:**

ARCH 5354 – Advanced Architectural technology I (BIM)  
Provides informed design decision making process over systems of architecture through information model building in architecture.

**COURSE INFORMATION:**

Fall 2021, TR 11-12:20, Arch 601

The course goal for ARCH 5354 requires the student to use critical thinking, analytical modeling, digital tools, and reasoning to development a working model of architecture. This will be done through active learning, demonstrations, and discussion to produce the final product with the goal of being a staple in your graduate portfolio.

Reference Books:

***Architectural Graphic Standards, edition?\****

by the American Institute of Architects

[AIA Book Store](#)

**NAAB EDUCATIONAL GOALS:**

The following NAAB criteria (<http://www.naab.org>) establish the Educational Goal and Primary Learning Outcomes for this course. This course will work to fulfill the following:

- **SC.4 Technical Knowledge** — How the program ensures that students understand the established and emerging systems, technologies, and assemblies of building construction, and the methods and criteria architects use to assess those technologies against the design, economics, and performance objectives of projects.
- **SC.5 Design Synthesis** — How the program ensures that students develop the ability to make design decisions within architectural projects while demonstrating synthesis of user requirements, regulatory requirements, site conditions, and accessible design, and consideration of the measurable environmental impacts of their design decisions.
- **SC.6 Building Integration** — How the program ensures that students develop the ability to make design decisions within architectural projects while demonstrating integration of building envelope systems and assemblies, structural systems, environmental control systems, life safety systems, and the measurable outcomes of building performance.

**INTEGRATED ARCHITECTURAL SOLUTIONS:**

Graduates from NAAB-accredited programs must be able to demonstrate that they have the ability to synthesize a wide range of variables into an integrated design solution. Student learning aspirations for this realm include

- Comprehending the importance of research pursuits to inform the design process.
- Evaluating options and reconciling the implications of design decisions across systems and scales.
- Synthesizing variables from diverse and complex systems into an integrated architectural solution.
- Responding to environmental stewardship goals across multiple systems for an integrated solution.

**STUDENT LEARNING OBJECTIVES:**

Upon the completion of this course, the students will have an understanding of the critical role BIM modeling plays in the practice of architecture. To do this, an understanding of the design and analytical process will be further developed as well the ability to make design decisions based on quantitative data and analytics.

**GRADING:**

Grading for ARCH 5354 will be a culmination of nine separate criteria but may change by the instructor based on course load and content. Any changes to the following metric will be presented in class prior to going into effect.

5%	Introduction assignment, emailed submission, and successful Revit 2021 Download
5%	Quiz, date to be determined
5%	Sketch Modeling
5%	Mass Modeling
10%	Mechanical Model Integration
15%	Analytical Modeling & Analysis
15%	Plans, Sections, & Elevations
20%	Class Participation & Attendance
20%	Final Boards

**REQUIRED TEXTBOOKS:**

*(referenced from Glen Hill's ARCH 5354 Spring 2020 Syllabus)*

The following books have been required text in your undergraduate program at Texas Tech University. These books must be available for you to reference and use in the performance of this class. It is the instructor's recommendation that you have these books in your personal architecture library, but they are available in the reserved section of the College of Architecture library.

***Architects Studio Companion***, Allen & Iano, 5th edition, Wiley, 2012. (Allen&Iano)

***Building Structures Illustrated***, Ching, et.al., Wiley, 2009. (Ching01)

***Building Construction Illustrated***, Ching, et.al., 4th edition, Wiley, 2008. (Ching02)

***Building Codes Illustrated***, Ching, et.al., 3rd edition, Wiley, 2009. (Ching03)

*Heating, Cooling, and Lighting*, N. Lechner, 3rd edition, Wiley, 2009. (Lechner)

**REQUIRED SOFTWARE:**

Autodesk Revit 2021 & suggested plugins

This course will have both digital and printed submissions. Unless stated otherwise, all digital submissions will be as PDF. Please plan ahead and ensure you can print, export, and/or create PDFs on your laptop. Additionally, it is strongly recommended that you maintain a positive print balance and plan around anticipated bottlenecks in the print lab.

**SUBMISSION OF LATE WORK:**

As with project deadlines in an architectural office, assignments are due on the day and time specified. Work not submitted by the deadline will receive a 10% deduction, a further 10% will be deducted for every 24 hours the assignment is late. Late submissions with prior approval are allowed but is up to the instructor discretion.

**ABSENCE DUE TO OFFICIALLY APPROVED TRIPS:**

The Texas Tech University Catalog states that the person responsible for a student missing class due to a university sanctioned trip should notify the instructor of the departure and return schedule in advance of the trip. The student may be allowed to make up work due during the absences, but absences will still count as an absence on their Attendance Grade. Department chairpersons, directors, or others responsible for a student representing the university on officially approved trips should notify the student's instructors of the departure and return schedules in advance of the trip. The instructor so notified must not penalize the student, although the student is responsible for material missed. Students absent because of university business must be given the same privileges as other students (e.g., if other students are given the choice of dropping one of four tests, then students with excused absences must be given the same privilege).

**TEXAS TECH UNIVERSITY POLICY STATEMENTS**

**ADA STATEMENT:**

Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.

**RELIGIOUS HOLY DAY STATEMENT:**

"Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code §11.20. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. A student who is excused under section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

**ACADEMIC INTEGRITY STATEMENT:** Academic integrity is taking responsibility for one's own class and/or course work, being individually accountable, and demonstrating intellectual honesty and ethical behavior. Academic integrity is a personal choice to abide by the standards of intellectual honesty and responsibility. Because education is a shared effort to achieve learning through the exchange of ideas, students, faculty, and staff have the collective responsibility to build mutual trust and respect. Ethical behavior and independent thought are essential for the highest level of academic achievement, which then must be measured. Academic achievement includes scholarship, teaching, and learning, all of which are shared endeavors. Grades are a device used to quantify the successful accumulation of knowledge through learning. Adhering to the standards of academic integrity ensures grades are earned honestly. Academic integrity is the foundation upon which students, faculty, and staff build their educational and professional careers. [Tex-as Tech University ("University") Quality Enhancement Plan, Academic Integrity Task Force, 2010].

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension. The instructor in a course is responsible for initiating action for dishonesty or plagiarism that occurs in his or her class. In cases of convincing evidence of or admitted academic dishonesty or plagiarism, an instructor should take appropriate action. Before taking such action, however, the instructor should attempt to discuss the matter with the student. If cheating is suspected on a final exam, the instructor should not submit a grade until a reasonable attempt can be made to contact the student, preferably within one month after the end of the semester. See the section on "Academic Conduct" in the Code of Student Conduct for details of this policy. As per College and University policy, academic dishonesty or plagiarism may result in an "F" grade for the semester. "Scholastic dishonesty" includes, but is not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an act. "Cheating" includes, but is not limited to, the following:

1. Copying from another student's test paper.
2. Using materials during a test that have not been authorized by the person giving the test.
3. Failing to comply with instructions given by the person administering the test.
4. Possessing materials during a test that are not authorized by the person giving the test, such as class notes or specifically designed "crib notes." The presence of textbooks constitutes a violation only if they have been specifically prohibited by the person administering the test.
5. Using, buying, stealing, transporting, or soliciting in whole or part the contents of an un-administered test, test key, homework solution, or computer program.
6. Collaborating with or seeking aid or receiving assistance from another student or individual during a test or in conjunction with an assignment without authority.
7. Discussing the contents of an examination with another student who will take the examination.
8. Divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructor has designated that the examination is not to be removed from the examination room or not to be returned to or kept by the student.
9. Substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment.

10. Paying or offering money or other valuable thing to, or coercing another person to obtain an un-administered test, test key, homework solution, or computer program, or information about an un-administered test, test key, homework solution, or computer program.
11. Falsifying research data, laboratory reports, and/or other academic work offered for credit.
12. Taking, keeping, misplacing, or damaging the property of the university, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct.

“Plagiarism” includes, but is not limited to, the appropriation of, buying, receiving as a gift, or obtaining by any means material that is attributable in whole or in part to another source, including words, ideas, illustrations, structure, computer code, other expression and media, and presenting that material as one’s own academic work being offered for credit. Any student who fails to give credit for quotations or for an essentially identical expression of material taken from books, encyclopedias, magazines, Internet documents, reference works or from the themes, reports, or other writings of a fellow student is guilty of plagiarism. “Collusion” includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.

#### **DISCRIMINATION, HARASSMENT, AND SEXUAL VIOLENCE STATEMENT**

Texas Tech University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from gender and/or sex discrimination of any kind. Sexual assault, discrimination, harassment, and other Title IX violations are not tolerated by the University. Report any incidents to the Office for Student Rights & Resolution, (806)-742-SAFE (7233) or file a report online at [titleix.ttu.edu/students](https://titleix.ttu.edu/students). Faculty and staff members at TTU are committed to connecting you to resources on campus. Some of these available resources are: TTU Student Counseling Center, 806-742-3674, <https://www.depts.ttu.edu/scc/> (Provides confidential support on campus.) TTU 24-hour Crisis Helpline, 806-742-5555, (Assists students who are experiencing a mental health or interpersonal violence crisis. If you call the helpline, you will speak with a mental health Center, 806-763-7273, [voiceofhopelubbock.org](https://www.voiceofhopelubbock.org) (24-hour hotline that provides support for survivors of sexual violence.) The Risk, Intervention, Safety and Education (RISE) Office, 806-742-2110, <https://www.depts.ttu.edu/rise/> (Provides a range of resources and support options focused on prevention education and student wellness.) Texas Tech Police Department, 806-742-3931, <http://www.depts.ttu.edu/ttpd/> (To report criminal activity that occurs on or near Texas Tech campus.)

#### **CIVILITY IN THE CLASSROOM STATEMENT**

Texas Tech University is a community of faculty, students, and staff that enjoys an expectation of cooperation, professionalism, and civility during the conduct of all forms of university business, including the conduct of student–student and student–faculty interactions in and out of the classroom. Further, the classroom is a setting in which an exchange of ideas and creative thinking should be encouraged and where intellectual growth and development are fostered. Students who disrupt this classroom mission by rude, sarcastic, threatening, abusive or obscene language and/or behavior will be subject to appropriate sanctions according to university policy. Likewise, faculty members are expected to maintain the highest standards of professionalism in all interactions with all constituents of the university ([www.depts.ttu.edu/ethics/matadorchallenge/ethicalprinciples.php](http://www.depts.ttu.edu/ethics/matadorchallenge/ethicalprinciples.php)).

#### **LGBTQIA SUPPORT STATEMENT:**

I am an ally to the lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA) community. I can assist in connecting you with resources on campus to address problems you may face pertaining to sexual orientation and/or gender identity that could interfere with your success at Texas Tech. Please note that additional resources are available through the Office of LGBTQIA within the Center for Campus Life, Student Union Building Room 201, [www.lgbtqia.ttu.edu](http://www.lgbtqia.ttu.edu), 806.742.5433. Office of LGBTQIA, Student Union Building Room 201, [www.lgbtqia.ttu.edu](http://www.lgbtqia.ttu.edu), 806.742.5433 Within the Center for Campus Life, the Office serves the Texas Tech community through facilitation and leadership of programming and advocacy efforts. This work is aimed at strengthening the lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA) community and sustaining an inclusive campus that welcomes people of all sexual orientations, gender identities, and gender expressions.