Materials Conservation: Field Methods

ARC 385T | Monday 9:00a–12:00p
Location: WMB 3.116

Instructor: Racheal Lute
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Office: WMB 3.112
Office Hours: Monday 2:00p–4:00p
or by appointment

Overview

This course provides an introduction to architectural materials conservation, focusing on on-site examination and testing of historic structures. In addition to reading assignment and classroom lectures, students will gain practical experience in conducting conditions surveys and on-site testing. Each student will work on an independent project that includes research and survey work.

Prerequisites

Construction I or equivalent and Materials Conservation: Lab Methods, or with permission of instructor

Readings

A list of the required reading assignments will be provided during the first class session. Reading assignments will include excerpts from the required text as well as articles uploaded to Canvas. Reading assignments for each session should be completed prior to class. Additional readings may be assigned throughout the semester.

Text

Conserving Buildings: A Manual of Techniques and Materials by Martin E. Weaver (Revised Edition 1997)

Building Pathology: Principles and Practice (2nd Edition 2008) by David Watt. **An electronic copy of this text is available through the University Library.**

Recommended References

For the assignments and class discussion, you will need to be familiar with terminology relating to architectural design, history and technology. The recommended reference is A Visual Dictionary of Architecture by Francis D.K. Ching (New York: Van Nostrand Reinhold: 1995).

Supplies and Equipment

Digital camera, binoculars and a clipboard for 18" x 24" elevation drawings are recommended.

ACADEMIC COURSE GOALS

Students completing the Field Methods course will gain the following:

- Understanding of the materials and systems of historic structures
- Understanding of the deterioration processes that affect those materials
- Terminology for describing resulting conditions
- Experience in conducting surveys of existing conditions and in identifying sources of deterioration
- Knowledge of non-destructive evaluation methods

GRADING POLICY

The final grade will be based on the weekly assigned reading questions, preliminary project, midterm exam, independent research project and class participation. Grading percentages are:

- Weekly questions 25%
- Preliminary Project 15%
- Midterm 25%
- Final Project 25%
- Attendance and participation 10%

GRADES

- A 93 - 100
- A- 90 - 92
- B+ 87 - 89
- B 83 - 86
- B- 80 - 82
- C+ 77 - 79
- C 73 - 76
- C- 70 - 72
- D+ 67 - 69
- D 63 - 66
- D- 60 – 62
- F 59 and below

Make-up examinations and grades of “Incomplete” are given only in cases of illness or other personal emergencies.

ASSIGNMENTS

Weekly Questions

Each week 3-5 questions pertaining to the reading assignments for that week will be posted to Canvas. Answers to the posted questions will be due at the beginning of each class. Each question set will be posted one week in advance of the due date.

Preliminary Project

This exercise involves identifying building materials and conditions of the Littlefield Home, a 19th century residence located on the University of Texas campus. Elevation drawings will be provided. Requirements for this project include:

- Identification of materials and conditions on the elevation drawings
- Written description of the building, including character defining features, materials and conditions. This project will be due on **March 4th**.

Independent Research Project

For this semester-long project, you will study the materials and conditions of an historic building in Austin. The independent research project requires researching the history of the building and investigating factors related to existing conditions. Requirements for this project include:

- Identification of materials and conditions on elevation drawings. Format: Adobe InDesign or Illustrator, or CAD.
- Illustrated glossary of materials and conditions. Format: digital images, approximately 1 MB in size, saved as jpg files.
- Written description of the building's history, character defining features, materials and conditions, factors related to deterioration, treatment and work recommendations. Format: 6-8 pages of single-spaced text (10-12 size fonts) with references cited.
- Presentation of your work in class. Format: PowerPoint

Elevation drawing pin-ups and presentations are scheduled for **April 22nd** and completed projects are due on **May 10th**.

EXAMINATION

There will be a midterm examination on **March 25th**. There will be no final exam for this course.

ATTENDANCE

Punctual and regular attendance is mandatory. Participation is expected. With three (3) unexcused absences, the student's final grade for the course will be lowered by a full letter grade. The final grade will be lowered by a full letter grade for each unexcused absence thereafter. Aside from religious observances, absences are only excused with written documentation of a medical issue or family emergency. The student is responsible for completing work missed due to excused absences and initiating communication

with the instructor to determine due dates. If a student is late (5 minutes after the start of class) three (3) times, it will be counted as one (1) unexcused absence. Students should notify the instructor prior to class if lateness or absence is known in advance. Students must notify instructors directly regarding lateness or absences; Asking a classmate to inform the instructor is not acceptable.

RELIGIOUS OBSERVANCES

A student shall be excused from attending classes of other required activities, including examinations, for the observance of a religious holy day, including travel for the purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence. University policy requires students to notify each of their instructors as far in advance of the absence as possible so that arrangements can be made. By UT Austin policy, you must notify the instructor of the pending absence at least fourteen days prior to the date of a religious holy day. If you must miss a class, an examination, an assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

ACADEMIC INTEGRITY

Students who violate University policy on academic integrity are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on academic integrity will be strictly enforced. Refer to the Student Conduct and Academic Integrity website for official University policies and procedures on academic integrity: http://deanofstudents.utexas.edu/conduct/academicintegrity.php.

University Code of Conduct:
http://catalog.utexas.edu/general-information/the-university/#universitycodeofconduct

MENTAL HEALTH AND SUPPORT SERVICES

Taking care of your general well-being is an important step in being a successful student. If stress, test anxiety, racing thoughts, feeling unmotivated, or anything else is getting in your way, there are options available for help:

- In-house CARE counselor (see below)
- For immediate support
    - Visit/call the Counseling and Mental Health Center (CMHC):
      M-F 8am-5pm | SSB, 5 th floor | 512-471-3515 | cmhc.utexas.edu
    - CMHC Crisis Line:
      24/7 | 512-471-2255 | cmhc.utexas.edu/24hourcounseling.html

- Free services at CMHC:
    - Brief assessments and referral services: cmhc.utexas.edu/gettingstarted.html
    - Mental health & wellness articles: cmhc.utexas.edu/commonconcerns.html
    - MindBody Lab: cmhc.utexas.edu/mindbodylab.html

- Classes, workshops, and groups: cmhc.utexas.edu/groups.html

CARE PROGRAM

Counselors in Academic Residence (CARE) Program places licensed mental health professionals within the colleges or schools they serve in order to provide better access to mental health support for students who are struggling emotionally and/or academically. Abby Simpson (LCSW) is the assigned CARE counselor for the School of Architecture. Faculty and staff may refer students to the CARE counselor or students may directly reach out to her. Please leave a message if she is unavailable by phone.

Abby Simpson, LCSW | BTL 114B | 512-471-3115 (M-F 8am-5pm)

https://cmhc.utexas.edu/CARE_simpson.html

STUDENTS WITH DISABILITIES

Students with disabilities who require special accommodations must obtain a letter that documents the disability from the Services for Students with Disabilities area of the Office of the Dean of Students (471-6259 voice or 471-4641 TTY for users who are deaf or hard of hearing). This letter should be presented to the instructor in each course at the beginning of the semester and accommodations needed should be discussed at that time.

http://diversity.utexas.edu/disability/

BCAL

Concerns regarding the safety or behavior of fellow students, Teaching Assistants (TA), or Professors can be reported to the Behavior Concerns Advice Line (BCAL): 512-232-5050. Calls can be made anonymously. If something doesn't feel right, it probably isn't. Trust your instincts and share your concerns.

EMERGENCY EVACUATION

In the case of emergency evacuation:

- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.
- Students should familiarize themselves with all exit doors of each classroom and building they may occupy. Remember that the nearest exit door may not be the one used when entering the building.

- Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class. In the event of an evacuation, follow the instruction of faculty or class instructors.
- Reentry into a building is prohibited unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services offices.
  Information regarding emergency evacuation routes and emergency procedures can be found at: www.utexas.edu/emergency.

COURSE SCHEDULE

Week 1, January 28
Introduction
This introductory session will include an overview of the course and a review of resources that are available. We'll discuss course requirements and assignments. We will also review the concept of the building envelope and its functions.

Week 2, February 4
Materials, and Deterioration: Part I – Wood, Metals and Glass
This session will focus on the material properties and deterioration processes affecting architectural metals, wood, and glass in historic structures. We will also discuss conditions that result from exposure to weathering and how these "symptoms" are related to deterioration processes. There will also be discussion on how these materials relate to specific building systems.

Week 3, February 11
Materials, and Deterioration: Part II – Masonry and Cementitious Materials
This session is a continuation of the previous session on materials and weathering. This week we will focus on masonry and cementitious materials.

Week 4, February 18
On-site Investigation
This session will focus on surveying existing conditions of historic buildings. Our discussion will cover project planning, including background information, materials and methods or recording conditions, and recognizing deterioration patterns. We will conclude the class with a visit to the Littlefield Home in preparation for the preliminary project.

Week 5, February 25
Outdoor Sculpture
During this session, objects conservator Catherine Williams of Silver Lining Art Conservation will discuss materials and existing conditions of outdoor sculpture and her work in maintaining and treating the UT Landmarks collections. We'll consider the differences and similarities between conserving works of art and historic buildings. A brief tour will follow the classroom lecture.

Week 6, March 4
Developing a Conservation Plan
This session will provide information about the development of a conservation plan. Topics will include conservation ethics, practical matters such as scheduling and project budgets and the importance of preventative maintenance. We'll discuss mock-ups and test areas to evaluate materials and

workmanship as well as cleaning, conservation treatments and repair work.

This session will begin with a pin-up of Littlefield Home projects.

Week 7, March 11
Modern Heritage
After a discussion of building materials and systems of buildings constructed in the recent past we will review several case studies and the philosophical and practical issues related to preservation.

Week 8, March 18
Spring Break
No Class

Week 9, March 25
Mid-term Exam

Week 10, April 1
Non-destructive Evaluation
During this session, Principal Engineer Juan Carlos Araiza, PhD, PE, of DeSimone Consulting Engineers' Forensic Practice will review nondestructive methods for evaluating historic structures. Discussion will include the advantages and limitations of various methods, including thermography, impulse radar and acoustical methods.

Week 11, April 8
Report Writing
In this session we will review the information that is obtained during field evaluation and testing and discuss methods for reporting the data. Our discussion will include Historic Structure Reports and how the results of field evaluation and testing are used to develop project specifications and maintenance procedures for historic buildings.

Week 12, April 15
Field Trip
A field trip to the Texas State Capitol will be scheduled for this session. Kevin Koch, architect for the Capitol, will discuss past preservation efforts and ongoing maintenance needs at the Capitol.

Week 13, April 22
Student Presentations
During this session, there will be a review of elevation drawings, and students will provide presentations of their independent projects.

Week 14, April 29
Substitute Materials
While it is considered undesirable, the use of substitute materials is sometimes necessary in preservation projects. The historic and contemporary use of substitute materials as well as the practical problems and philosophical implications of this practice will be discussed.

Week 15, May 6

Historic Resources Surveys

In this session we will review the practice of conducting large-scale historic resources surveys. Topics covered will include planning and execution of historic resources surveys and overall value of the information collected.

May 10

Final submission of Independent Projects due