CIVE 5603: ADVANCED BUILDING CHARACTERIZATION, CONSERVATION AND REHABILITATION

COURSE SYLLABUS – FALL 2020

INSTRUCTOR: Dr. **Mario Santana Quintero,** Professor
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Office: Canal Building, Office 5207 (5th floor)
Lab: Carleton Immersive Media Studio (CIMS)
Visualization & Simulation (VSIM) Building, 4th floor

CLASS LECTURES: Wednesday 6:05 pm – 8:55 pm

Course description

This course will provide graduate students with an understanding of the fundamental concepts and techniques for the identification, documentation and conservation of heritage buildings and existing buildings. The course includes lectures and workshops by experts representing the key disciplines and practice areas involved in heritage conservation and documentation.

The course comprises three hours per week of lectures, plus additional activities assigned by the course instructor. The course will be delivered using a blended approach (synchronous and asynchronous sessions), all the lectures will be recorded for students who are unable to tune-in live and this course will be made suitable for distance students.

At the completion of the course, the student will be able to:

- Discuss and apply the fundamental concepts involved in the identification and conservation of heritage places in Canada and internationally;
- Understand digital workflows for identifying, recording, modelling, assessing, analyzing and interpreting existing buildings and sites;
- Apply and adopt ethical obligations when applying digital tools to capture and disseminate information about heritage sites;
- Apply and conduct research to identify heritage values and attributes of buildings and sites;
- Apply and conduct techniques for recording and modelling existing buildings and sites;
- Apply and conduct techniques for energy modelling;
- Apply and conduct research on construction materials, assemblies and building envelopes for rehabilitation and preventative maintenance purposes;
- Understand the role of monitoring systems in improving the maintenance and care of existing buildings;
- Understand and apply heritage conservation approaches such as heritage impact assessments and conservation plans;

- Understand the roles of different disciplines, government authorities and organizations in heritage conservation and rehabilitation; and
- Understand and apply ethical principles in heritage decision making.

Prerequisites: open to all graduate students with a particular interest in heritage buildings.

Biographical sketch of instructor

Mario Santana-Quintero, is a full professor at department of Civil and Environmental Engineering Carleton University. He is also the Director of the NSERC Create program Heritage Engineering based at the Carleton immersive Media Studio Lab (CIMS). He is also a guest professor at the Raymond Lemaire International Centre for Conservation (University of Leuven). Along with his academic activities, he serves as Vice President of the International Council of Monuments and Sites (ICOMOS) and he is the past president of the ICOMOS Scientific Committee on Heritage Documentation (CIPA). Furthermore, he has been a Getty Conservation Institute scholar and he collaborated in several international projects in the field of heritage documentation for The Getty Conservation Institute, UNESCO, Bahrain Authority for Culture and Antiquities, ICCROM, World Monuments Fund, UNDP, Welfare Association, and the Department of Culture and Tourism of Abu Dhabi.

Course Website & Communication

All course information, including lecture videos, notes, readings and other resources, will be available through cuLearn. All assignments must be submitted through cuLearn. All students are responsible for ensuring that they are correctly registered through cuLearn and are receiving messages properly through their official university email address. Students are responsible for checking the cuLearn course management site and their official email account frequently.

Students are also expected to follow a number of online courses relevant to their assignments that are offered by LinkedIn Learning (https://carleton.ca/learninganddevelopment/linkedinlearning/) , which is free for the Carleton Community. A list will be provided in CU Learn.

Given that this is an online course, 13 class forums are available, Forum 1 will be open on Sept 9 at 6:05 pm to talk about the class. Forums 2 through 13 will be open at 7:00 pm of the scheduled class. Students are expected to review all online videos ahead of this time, questions will eb answered by the instructor online during the Forum times.

The instructor is happy to answer questions related to course content or administration via email. Replies to emails will be expected within 48 hours and do not expect a response on Saturday or Sunday. Emails must come from official Carleton University email addresses or through cuLearn.

Organization of video calls to discuss course content or administration can be arranged, provided that the student set up an appointment by email.

Class schedule

Please note that this schedule is subject to change.

Date	Session	Title	Delivery
Sept 9	Week 1	**Lectures:** **1. Course Introduction, Outline and available Historic Sites** **2. Introduction to Digital Workflows for the conservation of built heritage** **3. Introduction to Photogrammetry** **4. Introduction to 3D Scanning** **Class Forum 1**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 6:05 PM for one hour.**
Sept 16	Week 2	**Lectures:** **5. Developing a Digital Workflows for Heritage Recording** **6. Statements of Significance (Laurie Smith)** **7. UNESCO World Heritage Convention** **8. Graduate research seminar 1 on heritage conservation (*Jamie Marrs)*** ***Quiz 1 on* Conservation of Heritage Places concepts** **Class Forum 2 (7 PM) (Laurie Smith and Jamie Marrs will attend)** **Assignment 1 due.**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**
Sept 23	Week 3	**Tutorial:** **9. Photogrammetry** **Lectures:** **10. Presentation of case studies in photogrammetry & 3D scanning for recording Historic Buildings (***Guest lecture)*** **Assignment 2 due.** **Class Forum 3**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**
Sept 30	Week 4	**Lectures:** **11. Recognizing Existing and Historic Buildings** **12. Scientific Research Approach for Dissertation on Studying Buildings** ***Quiz 2 on* Photogrammetry** **Class Forum 4**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**
Oct 7	Week 5	**Lectures:** **13. Digitally assisted Condition Assessment of Historic Buildings** **14. Graduate research seminar 2: Digital heritage Recording workflow (Stephen Vickers)** **Class Forum 5 (7 PM) (Stephen Vickers will attend)**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**

Oct 14	Week 6	**Lectures:** **15. Case studies in Heritage Conservation Practice (***Guest lecture)* **16. Graduate research seminar 3: Digital heritage Recording workflow (***Adam Weigert)* **Assignment 3 Example** **Class Forum 6 (7 PM) (Adam Weigert will attend)**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**
Oct 21	Week 7	**Lectures:** **17. Case studies in Heritage Conservation Practice (***Kelley Murchison, Building Sciences Consultant at WSP)* **18. 3D Modeling and Historic Building Information Modelling (HBIM) (*Nicolas Arellano, CIMS)*** **Class Forum 7 (7 PM) (Kelley Murchison and Nicolas Arellano will attend)**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**
Nov 4	Week 8	**Lecture:** **19. Digitally Assisted Storytelling of Historic Buildings (***Katie Graham)* **Assignment 3 due.** **Quiz 3 on HBIM** **Class Forum 8 (7 PM) (Katie Graham will attend)**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**
Nov 11	Week 9	**Lecture:** **20. Digitally Assisted Structural Assessment of Historic Buildings,** *Natalie Smith, NSERC CREATE Heritage Engineering Researcher* **Class Forum 9 (7 PM) (Natalie Smith will attend)**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**
Nov 18	Week 10	**Lecture:** **21. Case studies in Heritage Conservation ,** *Golnaz Karimi, Parks Canada* **Class Forum 10 (7 PM) (Golnaz Karimi will attend)**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**
Nov 25	Week 11	**Lecture:** 22. **Digitally Assisted Energy Performance Simulation of Historic Buildings (***Guest lecture)* (**Assignment 4 - DRAFT**). **Quiz 4 on Conservation Practices.** **Class Forum 11 (7 PM)**	**Video recordings are available a week ahead of this session. Forum will be Synchronous at 7PM for one hour.**
Dec 2	Week 12	**Session: Student presentations** (**Assignment 5).** **Class Forum 12 (7 PM)**	**Synchronous and Asynchronous.**
Dec 9	Week 13	**Session: Emerging trends in conservation of historic buildings and course feedback** **Class Forum 13**	**Video recordings are available a week ahead of this session.**

			Forum will be Synchronous at 7PM for one hour.

Bonus Activities

Attendance at the following bonus activities is required for NSERC CREATE students, optional for other students (see grading for Bonus Assignment). Activities to be announce on the first day of the course September 9.

Participation in any of these activities and submitting a report will be considered a bonus assignment (worth 5% of the course´s final grade). The report should not exceed 1,000 words, which is about 2 pages single spaced 4 pages double spaced. It should be illustrated with figures and also adequate referencing should be provided. The Deadline is Dec 16 at 6:05 pm.

Grading

Item	Weight for final grade	Due date
Course compliance - Students are expected to watch all lectures, attend synchronous meetings (Class Forums), participate in class discussions and provide feedback about assignments. Absences will generally be excused only for emergencies or remote access issues. Also, this includes successfully completing LinkedIn Learning courses.	20%	
Assignment 1 (mandatory) – This is an individual assignment. Online courses can feel isolating and anonymous, so let's get to know one another! Please post a short, 200-word paragraph introducing yourself to your classmates. Feel free to be creative. You are welcome to include a picture of yourself (or your pet!) in your post. You are also welcomed to record your introduction as a video rather than text. Your introduction should answer the following questions: • Basic Info – Your preferred name and hometown • Where are you located during this course (e.g. Ottawa, Canada, elsewhere) • Course Info – Why are you interested in Heritage Conservation? • Career/Life Goals – What do you want to do after university? What do you want to achieve?	5%	**Sept 16, 2020, 6:05 pm**

• Fun Fact – Tell us a fun fact about yourself! Please include the following statement at the end of your post: "I (insert name), confirm that I have read and understood the entire syllabus for this course. If I have questions about the course, I promise to check the syllabus, the online material (assignment guides, tutorials, examples, etc.), before emailing the Professor Santana ****** Also, in CULearn, fill the following forms and submit your answer: 1. Student Consent to Publish **2.** Informed Consent agreement		
Assignment 2 (mandatory) – Photograph a building/site for the photogrammetry workshop to be used in Assignment 4 and 5. The instructor is also providing datasets of historic buildings in Canada´s National capital that can be accessible through Carleton's Dataverse system, information can be found on CU Learn.	5%	**Sept 23, 2020, 6:05 pm**
Assignment 3 (mandatory) – Working alone, review an academic article or research a technical treatment. Submit a Draft article in scientific format about the conducted review using a Academic Journal as example.	20%	**Oct 21, 2020, 6:05pm**
Assignment 4 (mandatory) – Report: working in pairs, create a heritage conservation workflow for a site, with at least six components.	15%	**Draft due Nov 18, 2020, 6:05 pm. Final due Dec 9, 2020, 6:05 pm**
Assignment 5 (mandatory) – Presentation: working in pairs, present a heritage conservation workflow for a site, with at least six components. Each team should submit a video of 5 minutes that will be played during class	15%	**Dec 1, 6:05 pm**
Quizzes (1 – 4) (mandatory) – these CU Learn quizzes will evaluate the understanding of concepts, best practices and procedures presented in course activities	20%	**Q1 Sept 16** **Q2 Sept 30** **Q3 Nov 4** **Q4 Nov 25**
TOTAL	100%	
Bonus Assignment (optional) – attend and report on one of the suggested activities – Submit a report of 2,000 words. Use academic writing and referencing	5%	**Dec 16, 2020, 6:05pm**

Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy obligation: Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website.

Religious obligation: Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website.

Academic Accommodations for Students with Disabilities: "The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). Requests made within two weeks will be reviewed on a case-by-case basis. After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website (www.carleton.ca/pmc) for the deadline to request accommodations for the formally-scheduled exam (if applicable). "

Survivors of Sexual Violence: As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit carleton.ca/sexual-violence-support.

Accommodation for Student Activities: Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond

the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, see the policy.

Academic Integrity

The University Senate defines plagiarism as "presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one's own." This can include:

- reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source;
- submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
- using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another's data or research findings;
- failing to acknowledge sources through the use of proper citations when using another's works and/or failing to use quotation marks;
- handing in "substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs.

Plagiarism is a serious offence that cannot be resolved directly by the course's instructor. The Associate Dean of the Faculty conducts a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They can include a final grade of "F" for the course.

FINAL GRADES

Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

COURSE COPYRIGHT

The lectures and course materials (including all Indesign, PowerPoint presentations, handouts, and similar materials) are protected by copyright. The instructor is the exclusive owner of copyright and intellectual property of all course materials. Students may take notes and make copies of course materials for their own educational use. Also, students may not allow others to reproduce or distribute lecture notes and course materials publicly for commercial purposes without the instructor's express written consent.