

Built Heritage Documentation II

DCP 4930 / 6715

Academic Term: Spring 2021

Class Periods: Tuesday, Period 3-5 (9:35 AM – 12:35 PM)

Location: ARCH0213 & Online

ZOOM Link: <https://ufl.zoom.us/j/94656630620>

ZOOM Meeting ID: 946 5663 0620

Instructors

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Course Description

The course (3 credit hours) trains future documentation specialists in digital technologies, from 3D digital imaging to website design, that can be used for recording and communicating cultural resources, including built heritage. For those who seek careers in built environment disciplines, historic preservation, and other cultural heritage fields, this course helps boost and showcase their professional skillsets. Digital documentation training includes terrestrial laser scanning, photography, and 3D photogrammetry (the technique of capturing and generating 3D objects by overlapping 2D photographs). The course also requires students to design and produce their website using Esri ArcGIS StoryMaps. The website contents can include digital imaging products from this course and students' other course and thesis projects. The instructors provide training in graphic design basics as well as the software tool.

Course Objectives

- Learn 3D digital documentation, from data acquisition to data processing (data use/application is covered in *Built Heritage Documentation I*).
- Gain and enhance the graphic design and online platform development skills to share place-related research with the public.

Skills, Devices, and Software to Learn

- Graphic design basics and Esri ArcGIS StoryMaps
- Digital photography for buildings (exterior and interior)
- Photogrammetry – DSLR or any digital camera and Agisoft Metashape
- Terrestrial laser scanning – FARO scanner, Autodesk ReCap Pro, and CloudCompare

Course Pre-Requisites / Co-Requisites

There are no pre-requisites or co-requisites for this course. The completion of *Built Heritage Documentation I* (DCP 6714) is not required.

Required Travel, Textbooks, Devices, and Software

- Course material will be on e-learning/Canvas, including readings, lecture slides, assignments, announcements, and grades (<https://elearning.ufl.edu/>).
- The course may include a daylong training workshop on campus. The instructor and student can meet individually (one student a day) or in a small group (TBD).
- A computer and a digital camera (any between a phone camera and DSLR) are required.
- Students can access the above-listed software through educational licenses, trials, and open-source software. More instructions will be provided in class.

Materials and Supply Fees

Material and supply fees (M&S) are assessed for certain courses to offset the cost of materials or supply items consumed during instruction. A list of approved courses and fee information is available from the academic departments or the Schedule of Courses (UF-3.0374 Regulations of the University of Florida; Florida Statutes 1009.24). You can find more information at <https://registrar.ufl.edu/soc/>.

The total M&S for this class is \$0.

Course Presentation and Requirements

Course contents are presented in PowerPoint presentations, class discussions, guest speakers, and training workshops, among others. Course requirements include participation in class discussions and training and the completion of assignments and presentations on time.

A Note on Team Work

For team assignments, you are expected to abide by the Honor Code, plus conduct yourself in the following manner:

- Be a good team member.
 - Be on time. Be respectful. Be responsive with group communication.
- Participate and contribute equally in each assignment.
 - If there are problems with group dynamics or participation/effort levels, please talk to the instructor.

Course Policies

Evaluation of Grades Grading Policy

Assignment	Total Points	Percentage of Final Grade
Individual Assignments	100	30%
Team Assignments	100	30%
Mid-Term Presentation	100	15%
Final Presentation	100	15%
Participation	100	10%
		100%

Percent	Grade	Grade Points
93.0 - 100.0	A	4.00
90.0 - 92.9	A-	3.67
88.0 - 89.9	B+	3.33
83.0 - 87.9	B	3.00
80.0 - 82.9	B-	2.67
78.0 - 79.9	C+	2.33
73.0 - 77.9	C	2.00
70.0 - 72.9	C-	1.67
68.0 - 69.9	D+	1.33
58.0 - 67.9	D	1.00
55.0 - 57.9	D-	0.67
0 - 54.9	E	0.00

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Attendance Policy, Class Expectations, and Make-Up Policy

Attendance in class and on field trips is mandatory. Role will (typically) be taken each class. Students will need to provide written excuse for missing class. More than three unexcused absences will result in the final grade being dropped one letter. You are expected to come to class on time, prepared, and ready to participate.

Requirements for class attendance and make-up assignments are consistent with university policies.

Excused absences must be consistent with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>) and require appropriate documentation. Additional information can be found here: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Work Product

Instructor will keep copies of all participants' work products.

Classroom Climate

Equitable participation in this class requires the use of inclusive language, methods, and materials. Students are expected to use inclusive language in written and oral work, and to respect diversity in viewpoints expressed by others. Students are also encouraged to identify language, methods, and materials used in this course that do not contribute to an inclusive classroom climate.

Netiquette Communication Courtesy

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. More information can be found at:

<http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>

Class Demeanor

Students are expected to arrive to class on time and behave in a manner that is respectful to the instructor and to fellow students. Please avoid the use of cell phones and restrict eating to outside of the classroom. Opinions held by other students should be respected in discussion, and conversations that do not contribute to the discussion should be held at minimum, if at all.

UF Policies

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:

<http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://gatorevals.aa.ufl.edu/>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://gatorevals.aa.ufl.edu/>.

Campus Resources

Health and Wellness

In response to Covid-19, all course participants should consult the UF Health site for current policies and requirements that are in place, at this link. <https://coronavirus.ufhealth.org>

Schedule a Covid-19 test through ONE.UF:

<https://coronavirus.ufhealth.org/screen-test-protect-2/frequently-asked-questions/covid-19-exposure-and-symptoms-who-do-i-call-if/>

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS) Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus:

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.

Course Schedule and Assignments

Schedule Note and Disclaimer

The syllabus and the details of the course schedule are subject to change as the need arises. All changes will be notified during class times and through email and eLearning announcements.

Week 1 (January 12th) – Course Introduction and Building Photography

- 1) Overview of the course objectives, training approaches, deliverables, and final assignment
- 2) Introduction to devices, software, UF eLearning, etc.
- 3) Introduction to digital imaging technology and its applications in historic preservation
- 4) Photography basics for building surveys

Assignment – Photographic survey of a building(s), including exteriors and interiors. Schedule an individual meeting with the instructor for review on Week 2.

Week 2 (January 19th) – ArcGIS StoryMaps and Graphic Design 1

- 1) Graphic design basics
- 2) Training in Esri ArcGIS StoryMaps

Assignment – StoryMaps layout. The semester's final project is the StoryMaps representation of students' learning activities, projects, and deliverables from UF, including this course.

Week 3 (January 26th) – ArcGIS StoryMaps and Graphic Design 2

- 1) Graphic design basics
- 2) Training in Esri ArcGIS StoryMaps

Assignment – StoryMaps layout. Presentation on Week 5 (February 9th).
Software Installation – Agisoft Metashape Professional. Schedule an individual meeting with the instructor to check software operability.

Week 4 (February 2nd) – Photogrammetry 1: Photo Overlap and Processing

- 1) Photographic techniques for 3D photogrammetry
- 2) Training in Agisoft Metashape to generate a 3D model from sample photos

Assignment – Small object photogrammetry model. Presentation on Week 5 (February 9th).

Week 5 (February 9th) – StoryMaps Review & Photogrammetry 2: Good and Bad Subjects

- 1) Review on StoryMaps and photogrammetry assignments
- 2) Introduction to SketchFab
- 3) Material surface conditions that better and less work for photogrammetry

Assignment – Experimentation with different surface conditions (good and bad subjects for photogrammetry). Presentation on Week 6 (February 16th).

Week 6 (February 16th) – Presentation & Photogrammetry 3: Scale

- 1) Presentation on photogrammetry experiments
- 2) Training in adding scale to the photogrammetry processing

Assignment – Photogrammetry applied to buildings. Presentation on Week 7 (February 23rd).

Week 7 (February 23rd) – Photogrammetry 4: Building Documentation

- 1) Presentation on photogrammetry experiments

Week 8 (March 2nd) – Terrestrial Laser Scanning: Virtual Training 1

- 1) Overview of terrestrial laser scanning fieldwork and processing
- 2) Introduction to a virtual experience platform and CloudCompare
- 2) Three-dimensional, spatial analysis of pre-recorded sites through a virtual experience

Assignment – Analysis of XYZ planes' overlaps between different scanning positions.
Presentation on Week 9 (March 9th)

Week 9 (March 9th) – Terrestrial Laser Scanning: Virtual Training 2

- 1) Analysis of XYZ planes' overlaps between different scanning positions.

Assignment – Schedule a field training day with the instructor. Read the tutorial of Autodesk ReCap Pro for laser scan data processing.

Week 10 & 11 (March 15th to 26th) – Terrestrial Laser Scanning: Field Training

- 1) One daylong, on-campus field training in laser-scan data acquisition and data processing
- 2) Students choose a day of either week to meet and have no meeting on the other week.

Assignment (final) – StoryMaps to showcase students' learning activities and deliverables

Week 12 & 13 (March 29th to April 9th) – Advanced Training

- 1) Advanced training and project using either photogrammetry, laser scanning, and StoryMaps
- Option 1: Photogrammetry – Training in a DSLR camera and other considerations
Option 2: Laser Scanning – Complete building documentation
Option 3: StoryMaps – Development of the student's thesis or other projects

Week 14 (April 13th) – StoryMaps Follow-Up Training and Preliminary Critique

- 1) Final assignment preliminary review

Week 15 (April 20th) – Final Presentation

- 1) StoryMaps to showcase students' learning activities, projects, and deliverables from UF, including this course. Option 3 students can present the course and personal project separately.

References and Resources

Cultural Heritage Imaging. "Photogrammetry."

<http://culturalheritageimaging.org/Technologies/Photogrammetry/>

Historic England. *3D Laser Scanning for Heritage: Advice and Guidance on the Use of Laser Scanning in Archaeology and Architecture*. 3rd edition. February 8, 2018.

<https://historicengland.org.uk/images-books/publications/3d-laser-scanning-heritage/>.

LeBlanc, François and Rand Eppich. "Documenting Our Past for the Future." *Conservation: The Getty Conservation Institute Newsletter*, Fall 2005.

http://www.getty.edu/conservation/publications_resources/newsletters/20_3/feature.html.

Matthews, Neffra A. *Aerial and Close-Range Photogrammetric Technology: Providing Resource Documentation, Interpretation, and Preservation*. Technical Note 428. U.S. Department of the Interior, Bureau of Land Management, National Operations Center, Denver, Colorado.

Mudge, Mark et al. "Principles and Practices of Robust, Photography-based Digital Imaging Techniques for Museums." The 11th International Symposium on Virtual reality, Archaeology and Cultural Heritage VAST, 2010.

(http://culturalheritageimaging.org/What_We_Do/Publications/vast2010/vast2010_tutorial_final_print.pdf)

Sherin, Aaris. *Design elements, color fundamentals: a graphic style manual for understanding how color impacts design*. Beverly, Mass.: Rockport Publishers, 2011.