

Visualizing the Past/Peopling the Past

CIS 106 / ANTH 258

Fall Semester 2020

MWF 11am – 11:50am
(synchronous & asynchronous learning)

Dr. Norman Badler, Rachleff Professor of Computer & Information Science: badler@seas.upenn.edu
Dr. Clark Erickson, Professor of Anthropology & Curator, Penn Museum: cerickso@sas.upenn.edu

TA	Felicity Yick	feliyick@seas.upenn.edu
TA	Emilia Soto	saguay@seas.upenn.edu
TA	Samantha Lee	smlee18@sas.upenn.edu
TA	Donna Liu	donnaliu@seas.upenn.edu
TA	Samantha Seyler	sseyler@sas.upenn.edu

DESCRIPTION

CIS 106 / ANTH 258 is an interdisciplinary course that approaches fundamental issues in Anthropology and Computer Science. Using an anthropological perspective, this course focuses on the history, theory, and methods of how archaeology and visualizations of the past are created, presented and used in scholarly media (e.g., traditional publications, conference papers, and project databases), and popular culture (e.g., artist's reconstructions, movies, TV documentaries, museum exhibits, games, the internet, and art), and contemporary computer technology (e.g., 3D modeling, animation, virtual reality, and simulation). From the computer science perspective, the challenge becomes how we [can best] transform known and often incomplete information into engaging digital models and plausible of a past culture and its people. They also learn to use modern 3D modeling tools (such as Autodesk Maya 3D Model & Animation Software©) and some students will explore animation engines (such as Unreal Game Engine©). The course assignments include writing essays critiquing popular media depictions of the past, in-class oral presentations with visual aids, programming labs, 3D model development, and a final project that utilizes contemporary computational tools to explain and visualize culturally relevant questions, knowledge, or hypotheses. Presentations by the instructors include relevant anthropological background materials and tutorials on the computational tools to be used, and the thought processes needed to connect the two. The course material is broad and requires additional conceptual integration by the student. To reach these goals, the instructors will use 1) our course Canvas website for announcements, required readings, assignments, and some discussion and blog postings; 2) asynchronous and synchronous class meetings on Mondays, Wednesdays, and Fridays for exercises, discussion and some lectures; 3) the Penn Museum to explore relevant online artifact collections through Object-Based Learning and visit and evaluate public exhibits (either physically or virtually depending on access due to the pandemic). The course materials therefore extensive original visual materials, archaeological objects, and bibliography of the Penn Museum curated by Dr. Erickson and cutting-edge

virtual reality, simulation, and computer software developed by Dr. Badler's ViDi Center for Digital Visualization. The course is open to all undergraduates across UPenn.

OFFICE HOURS

Dr. Norm Badler	by appointment
Dr. Clark Erickson	Wednesdays 3:00-5:00 or by appointment
TAs	to be announced

All email correspondence must use official UPenn email addresses (no exceptions).

COURSE MATERIALS & SUPPLIES

Our course does not require any purchases of a textbook, software, or other course material. Students will have access to Maya modeling software (free student version). We expect students to have access to a basic desktop or laptop computer with internet access; Word, PowerPoint (or equivalent); Adobe Reader or Adobe Acrobat; a Google Docs; built in video camera, and microphone or equivalent (for synchronous and asynchronous class, group, and one-on-one meetings with the professors); and a basic 2 button mouse for 3D modeling in Maya during Friday laboratory and for individual Final Research Projects (built in laptop touch pads and navigation keys are not sufficient).

REQUIRED TEXTBOOKS

No textbook is assigned.

REQUIRED READINGS

Required and optional readings will be posted on the Canvas for CIS 106/ANTH 258 organized in folders by date of reading assignment. These include many articles, book chapters, and books about presenting the past in various media (theory, methods, issues, debates, methods, case studies, and other relevant material). Specialized materials relating to your individual Final Research Projects will also be available on labeled folders on Canvas and Penn Box.

REQUIRED COMPUTER PROGRAMS

We will use at least two computer programs for the studio-seminar project. Check to be sure that you have space on your laptop or notebook drive for installing the programs (a two button mouse is essential for 3D modeling in Maya© software). These programs can be downloaded for free from the following websites (select Mac or PC versions):

Required software

Google Earth©

<http://earth.google.com/>

Maya© Student Edition

<https://www.autodesk.com/education/edu-software/overview?sorting=featured&page=1>

Word© (or equivalent)

PowerPoint© (or equivalent)

Adobe Reader© or *Adobe Acrobat*©

Google Docs©

Symantec© UPenn approved anti-virus program (that is regularly manually updated)

Optional software

(most students will probably not need this program requires considerable computer speed, disk space, and memory)

Unreal© Game Engine

<https://www.unrealengine.com>

READING SYLLABUS

Weekly required readings and assignments will be posted on Canvas in advance. We expect students do the readings and come prepared to discuss them in our synchronous class (and some discussions and critiques done outside of class time). A theme and reading syllabus is provided and may be periodically updated throughout the semester. A copy of the syllabus and any revisions will be announced and available on Canvas in advance.

COURSE FORMAT & ATTENDANCE

We encourage everyone to join the professors and TAs in our Zoom class meetings on Mondays, Wednesdays, and Fridays 11:00 – 11:50am. We do realize that some students may not be able to attend those meetings for whatever reason but will be expected to complete equivalent work asynchronously as students who did attend class. Dr. Erickson, Dr. Badler, and the TAs will record and post their lectures prior to discussions in class so that they can be viewed in advance and used for questions and note-taking. All in class activities will be recorded on Zoom (with the exception of breakout group activities).

Students are expected to be prepared in advance to discuss required readings and the recorded lectures by the professors for each theme in our regular synchronic class meetings on Mondays and Wednesdays (either as an entire class or in breakout groups with rotating “first responder” and “second responder” to lead each session). Using Canvas and/or Google Docs, individual students will be required to add brief summary and discussion content to a certain number of required readings, lectures, and/or graded assignments. Lectures and readings provide the scholarly content for framing the written assignments and built towards completion of the Final Research Project). Some synchronous class meetings will be dedicated to specific questions and/or short ungraded assignments that build skills and knowledge about the technical and digital tools used to represent the past.

Most Fridays will be dedicated to a laboratory where all students learn how to create 3D models in Maya software working with our TAs. All modeling exercises will be scheduled for 50 minutes on Fridays. No outside homework related to 3D modeling will be assigned except for individual student preparation and 3D modeling for their Final Research Project. TAs will hold synchronous office hours to assist students outside class time and recorded tutorials will be made available.

We use Zoom for hosting online class meetings and some individual student meetings, Panopto for lecture recordings, Zoom for class recordings, Google Docs for some breakout group assignments, and

other course technology to provide the same content and level of instruction as a regular course in non-pandemic times (with additional substantial flexibility for students as required and needed). Any additional asynchronous coursework will be carefully balanced with reduction of online synchronous coursework in the regular class time. Details for each week will be available in advance on our Canvas website.

GRADING

The final grade will be based on a series of 4 short graded assignments (involving preparation for class and/or breakout group discussion by preparing and submitting a list of relevant issues, positions, and questions to guide our discussion (40%); completion of the computer modeling and/or animation projects (10%); general participation (10%); and a series short graded written assignments that progressively lead to completion of your Final Research Project and a short recorded presentation of a Final Research Project to share with the class (40%). A Canvas course webpage will be created to provide detailed guidelines for each assignment and for submission and/or posting of lectures, specific guidelines for each assignment, student documents, discussions, and visual materials generated throughout the semester. A folder on Penn Box will be used for submissions of Final Research Project.

We will meet synchronously for most class days of the semester. In the first half of the semester, class will be devoted to discussion of readings and lectures and some student breakout group presentations of discussions. In the second half of the semester, class meetings and assignments focus on small progressive, positive steps toward deciding on, preparing for, and completing the Final Research Project (some meetings will involving the entire class; most meetings will be with smaller groups and/or individual students meeting with the professors and TAs to discussion project progress and instructor consultation, guidance, and feedback.

What you need to pass the course

Students who show an honest effort to complete all the graded assignments, complete the 3D modeling, which is mandatory, and actively participate (either synchronously or asynchronously) will pass. The first 4 short assignments focus on preparation for class and breakout group discussion in class of the topics covered in the readings and lectures (what UPenn refers to as “low-stakes assignments”). These short assignments involve preparing a short list of relevant question submitted as text before each class meeting. By the time we begin working on the Final Research Project (approximately mid-semester), grades for the first 4 short assignments will have been assigned. Thus, each student will know where they stand and what needs be done to reach certain level of performance on the Final Research Project to Pass.

VISUALIZING THE PAST/PEOPLING THE PAST: STUDENT RESEARCH WEBSITE

Our new public website proudly highlights, celebrates, and publishes our students’ research and modeling in past semesters of ANTH 258/CIS 106 and our undergraduate Summer Interns projects: 3D models, animations, videos, bibliography, and text (2016-2019). The Fall 2020 student completed projects will be posted after the semester ends.

Visualizing the Past/Peopling the Past
<http://cg.cis.upenn.edu/VTP/>

ACADEMIC INTEGRITY

Students should be familiar with and respect the Academic Code of Integrity of the University of Pennsylvania. Any cheating or plagiarism in this course will be dealt with severely. We use Turnitin LTI© software to detect plagiarism. Please see the Penn websites below for definitions of what constitutes plagiarism and cheating and how to avoid them:

UPenn Code of Academic Integrity

<https://catalog.upenn.edu/pennbook/code-of-academic-integrity/>

Plagiarism - What it is and how to avoid it:

<http://gethelp.library.upenn.edu/guides/engineering/ee/plagiarize.html>

WELLNESS RESOURCES

Penn Wellness Resources

<https://www.wellnessatpenn.com/>

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

The University of Pennsylvania is committed to providing access and equal educational opportunities to all students, including students with disabilities. Penn does not discriminate against students with disabilities. The University provides reasonable accommodation to a student's known disability in order to afford that student an equal opportunity to participate in University-sponsored academic and extracurricular programs, activities and services.

CIS 106-ANTH 258 has no quizzes nor exams that would require accommodation.

Student Frequently Asked Questions

https://wlrc.vpul.upenn.edu/sds-ps_faq/

SUMMARY SYLLABUS

- September 2: Visualizing the Past/Peopling the Past: Introduction, Overview, Philosophy, Assignments, and Expectations [Norm & Clark]
[Assignment \(ungraded\): 2 short surveys & short student biography text and images for sharing with other students \(due before Friday class\)](#)
- September 4: Research & Cultural Context for Presentations & Visualizations of the Past [Clark]
- September 7: Labor Day Holiday (no class)
- September 9: Computers and Representation: Google Map Deconstruction [Norm]
- September 11: Introduction to Computer Graphics I: Perception, Color, Transformations [Norm; [prerecorded lecture; live discussion and Q/A](#)]
- September 14: Introduction to Computer Graphics II: Viewing, 3D Modeling [Norm; [prerecorded lecture; live discussion and Q/A](#)]
- September 16: Introduction to Computer Graphics III: Rendering and Lighting [Norm; [prerecorded lecture; live discussion and Q/A](#)]
- September 18: Laboratory: Maya basics & Creating a simple spoon in 3D [Donna & Milly]
- September 21: A Brief Introduction to Archaeology & The Archaeologist in Popular Culture [Clark [prerecorded lecture; live discussion and Q/A](#)]
[Assignment Material Culture \(graded\)](#)
- September 23: Introduction to Computer Graphics IV: Realistic Lighting and Materials [Norm; [prerecorded lecture; live discussion and Q/A](#)]
- September 25: Laboratory: Maya Basics & creating a colorful textile rug in 3D [Felicity]
- September 28: Short History of Traditional Media in Archaeology & Archaeology and the Public(s) [Clark [prerecorded lecture; live discussion and Q/A](#)]
[Assignment: Evaluation of a popular movie about archaeology \(graded\)](#)
- September 30: Reconstructions of the Past Human Body [Clark [prerecorded lecture; live discussion and Q/A](#)]
- October 2: Laboratory: creating a simple symmetric pottery vessel in 3D [Sam]
- October 5: Introduction to Computer Graphics V: Animation methods [Norm; [prerecorded lecture; live discussion and Q/A](#)]
- October 7: Virtual Humans in Cultural Contexts [Norm; [prerecorded lecture; live discussion and Q/A](#)]
- October 9: Laboratory adding handles to a pottery vessel (the Inca aryballo) [Sam]

- October 12: Artists & Archaeologists: collaborations in presenting the past
 Assignment: discussion of an artist(s) whose work focuses on reconstructions of the past through imagery (graded)
- October 14: Introduction to the Ceremonial Center of Pachacamac (Course Project Case Study) [Clark prerecorded lecture; live discussion and Q/A]
- October 16: Laboratory: adding textures & materials to a pottery vessel [Sam]
- October 19: Cultural Heritage Modeling and Reconstruction case studies [Norm]
- October 21: Archaeology & the Past in Popular Print Media [Clark]
 Assignment: Evaluation of archaeology and the Past in *National Geographic Magazine*.
- October 23: Laboratory: creating the body of a dugout canoe [Felicity]
- October 26: Clothing the Past; Gender and the Past I [Clark prerecorded lecture; live discussion and Q/A]
- October 28: Clothing the Past; Gender and the Past II: The Women of Pachacamac [Anne Tiballi & Sam Seyler prerecorded lecture; live discussion and Q/A from Penn Museum]
 Assignment: Selection of 3 possible topics of interest Final Research Project and why these topics are interesting and relevant (ungraded)
- October 30: Laboratory: Adding benches to the dugout canoe [Felicity]
 Assignment: Individual discussions with professors & TAs about Final Research Project topics and relevant 3D modeling (ungraded)
- November 2: Digital Modeling of Architecture, Sites, and Landscapes to Query the Past [Clark prerecorded lecture; live discussion and Q/A]
 Assignment: Individual or Two-Person Team Final Research Project Proposal (text)
- November 4: Computer Graphics: Illumination Studies; Cordoba and Godin Tepe [Norm; prerecorded lecture; live discussion and Q/A]
- November 6: Laboratory: Adding textures & materials to our dugout canoe & rendering our dugout canoe [Felicity]
- November 9: Games, Virtual Reality, and Augmented Reality [Norm; prerecorded lecture; live discussion and Q/A]
- November 11: Final project explorations [Norm, Clark, & TAs]
 Assignment: Draft of Abstract, Introduction, Background Research, References Cited, & 3D models to be used in Final Research Project.
- November 13: Laboratory: Maya tutorial: modeling Pachacamac buildings [Milli & other TAs]

- November 16: Indigeneity, Indigenous Self-Representation, and other *People's Pasts*; Penn Museum Exhibit tour of *Native American Voices* [Dr. Lucy Fowler-Williams prerecorded lecture; live discussion and Q/A]
- November 18: 3D Scanning and Cultural Preservation [Norm; prerecorded lecture; live discussion and Q/A]
- November 20: Laboratory: Maya Modeling, Unreal, Individual Projects [Norm, Clark, & TAs]
- November 23: Final Research Project discussions & consultations; guidelines for Final Research Project Presentation (due December 4)
- November 25: Final Research Project discussions & consultations
- November 26-29: Thanksgiving Holiday; no class
- November 30: Final Research Project discussions & consultations
- December 2: Final Research Project discussions & consultations
Assignment: Draft of Final Research Project Presentation due
- December 4: Final Research Project discussions & consultations
Assignment: Final Research Project Presentation due
- December 7: Final Research Project discussions & consultations
Assignment: Student discussion and comments for their peers posted Final Research Project Presentations (asynchronous) due
- December 9: Final Research Project discussions & consultations
Assignment: Complete Draft Final Research Project Text & Figures due
- December 21: Final Research Project
Assignment: Final version of Final Research Project Text, Figures, & 3D models due