

August 29, 2018

Visualizing the Past/Peopling the Past

CIS 106 / ANTH 258

Fall Semester 2018

MWF 11am-noon
Room 401B, 3401 Walnut Street

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DESCRIPTION

CIS 106 / ANTH 258 is a highly 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® and MotionBuilder®) and 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 itself is broad and requires additional conceptual integration by the student. To facilitate this process, the instructors will use the Laboratory in Room 401B, 3401 Walnut Street for hands-on exercises and will utilize the Penn Museum to explore artifact collections through Object-Based Learning and evaluate public exhibits. The course materials therefore include extensive original visual materials and objects 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.

OFFICE HOURS

Dr. Norm Badler Mondays 1:00-3:00 (or by appointment)
Dr. Clark Erickson Wednesdays 3:00-5:00 (or by appointment)

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 (theory, methods, debates, methods, case studies, and other relevant material).

REQUIRED COMPUTER PROGRAMS

We will use at least two computer programs for the studio-seminar project. Make sure that you have space on your laptop or notebook drive for installing the programs (a mouse is essential for properly running Maya.) These programs can be downloaded for free from the following websites (select Mac or PC versions):

Google Earth©

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

Maya© Student Edition

<http://students.autodesk.com/>

Unreal© game engine [optional]

<https://www.unrealengine.com>

READING SYLLABUS

Weekly reading assignments will come from the textbooks and readings posted on Canvas. We expect students do the readings and come prepared to discuss them in class. 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 available on Canvas in advance.

COURSE FORMAT

The course is a combination of lecture, seminar, studio, presentations, and practicum. Each week, in general, one class will focus on the presentation and discussion of a theme(s) of the readings, another class will introduce computer graphics concepts and software tools for visualization and presentation of archaeological evidence, and the third is a hands-on laboratory exercise.

Each week, a series of articles and book chapters will be read before class and discussed in class. Each student will write a series of short papers on a number of themes and exercises and prepare short presentations (to be announced). Each student will also create and maintain his/her own webpage containing all their coursework, reading notes, presentations, work in progress, images, and models. All 3D modeling exercises will be done in the laboratory setting during class times, though further development outside of class is strongly encouraged since the software needed is freely available. 3D models developed during the course are meant to be shared and will therefore be uploaded to the course project integration website. A Final Project involving individual or group research will be presented as a PowerPoint in class and submitted as a written paper (integrated text, references, and imagery) and digital files by the end of the semester.

Group projects will require additional meetings outside the regular course meeting.

GRADING

The course grade will be based on a series of 5 short writing/oral presentation assignments (40%), completion of the computer modeling and animation projects (10%), and a longer written and oral presentation of a final project (40%). In addition, Each student will also create and maintain his/her own webpage containing all their coursework, reading notes, presentations, work in progress, images, and models. The instructors will periodically review these websites for content, progress, and completeness. The remaining 10% of the grade addresses overall class participation (attendance, discussion, leadership, teamwork, and personal website documenting progress). 3D modeling projects will generally be due by the end of the laboratory session in which they are assigned. A course webpage will be created for public documents, reports, useful web links, and visual materials generated in class. Part of class time will be devoted to periodic student presentation of exercises, discussion of readings, and project progress for group and instructor feedback.

Assignment #1: Evaluation of a popular movie about archaeology.

Due 9/17/2018

Assignment #2: Presentation of an artist(s) whose work focuses on reconstructions of the past.

Due 9/24/2018, 9/26/2018, or 10/1/2018 (depending on your assigned artist).

Assignment #3: Evaluation of archaeology and the Past in *National Geographic Magazine*.

Due 10/22/2018

Assignment #4: Individual or Group Final Project Summary Proposal (text)

Due 11/5/2016

Assignment #5: Presentation: Archaeology and Games

Due 11/12/2018, 11/14/2018, or 11/19/2018 (depending on your assigned game or reading)

Assignment #6a: Final Project Presentation: In-class PowerPoint presentation of Final Project.

Due 12/5/2018, 12/7/2018, or 12/10/2018 depending on your assignment on the presentation list)

Assignment #6b: Final Project Paper: Submission of 1) revised PowerPoint presentation and 2) complete draft of paper summarizing the Final Project (integrated text, references, and imagery) and relevant digital files; student websites should be up to date.

Due 12/16/2018

Assignment #6c Final Project Paper: Submission of final version of paper about the Final Project (integrated text, references, and imagery), models, and digital files.

Due 12/19/2018

ATTENDANCE

Students are expected to show up for all class meetings (except religious holidays). Please let us know if you will be absent. Missing a class or two could negatively affect your grade. Please get the notes from other students if you have to miss a class meeting. Dr. Erickson does not provide copies of lecture notes

to students. Dr. Badler will upload all his PowerPoint slides prior to his lectures so that they can be viewed in advance and used for questions and note-taking.

Laptops may be used to take notes and refer to readings under discussion during class. Laptops, phones, and other electronic devices are NOT to be used for email, texting, social media, or web browsing during class. Turn off all cell phones during class.

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:

Academic Code of Integrity:

<http://www.vpul.upenn.edu/osl/acadint.html>

Plagiarism - What it is and how to avoid it:

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

USEFUL REFERENCES Canvas and/or at the Museum Library (Penn Museum 3rd Floor).

Mol, Angus A.A., Csilla E. Ariese-Vandemeulebroucke, Krijn H.J. Boom and Aris Politopoulos (editors) *The Interactive Past: Archaeology, Heritage & Video Games*. Sidestone, Leiden.

Der Manuelian, Peter 2017 *Digital Giza: Visualizing the Pyramids*. Harvard University Press, Cambridge.

Averett, E. W. 2016 *Mobilizing the Past for a Digital Future: The Potential of Digital Archaeology*. Digital Press at The University of North Dakota, Grand Forks, ND.

Frischer, Bernard, Jane Webb Crawford and David Koller (editors) 2010 *Making History Interactive. Computer Applications and Quantitative Methods in Archaeology (CAA)*. Proceedings of the 37th International Conference, Williamsburg, Virginia, United States of America, March 22-26 (BAR International Series S2079). Archaeopress, Oxford.

Pillsbury, Joanne (editor) 2012 *Past Presented: Archaeological Illustration and the Ancient Americas*. Harvard University Press, Cambridge.

Van Dyke, Ruth M. and Reinhard Bernbeck (editors) 2015 *Subjects and Narratives in Archaeology*. University Press of Colorado, Boulder.

Bonde, Sheila and Stephen Houston (editors) 2013 *Re-Presenting the Past: Archaeology through Text and Image*. Joukowsky Institute Publication 2, Providence.

Schablitsk, Julie M. (editor) 2006 *Box Office Archaeology: Refining Hollywood's Portrayals of the Past*. Left Coast Press, Walnut Creek, CA.

Zimmerman, Larry J. 2003 *Presenting the Past*. AltaMira Press, Walnut Creek, CA.

Holtorf, Cornelius 2009 *Archaeology Is a Brand!: The Meaning of Archaeology in Contemporary Popular Culture*. Left Coast Press, Walnut Creek, CA.

Holtorf, Cornelius 2005 *From Stonehenge to Las Vegas: Archaeology as Popular Culture*. AltaMira Press, Walnut Creek CA.

Lovata, Troy 2007 *Inauthentic Archaeologies: Public Uses and Abuses of the Past*. Left Coast Press, Walnut Creek.

Davison, Brian 1997 *Picturing the Past: Through the Eyes of Reconstruction Artists*. English Heritage, London.

Ambrus, Victor and Mick Aston 2001 *Recreating the Past*. Tempus Publishing, Stroud.

Sorrell, Mark (editor) 1981 *Alan Sorrell: Reconstructing the Past*. Rowman & Littlefield, Batsford.

Molyneaux, Brian Leigh (editor) 1997 *The Cultural Life of Images: Visual Representations in Archaeology*. Routledge, London.

Carter, Alice 1999 *The Art of National Geographic: A Century of Illustration*. National Geographic, Washington DC.

National Geographic Society 1998 *Inside Out: The Best National Geographic Diagrams and Cutaways*. National Geographic Society, Washington DC.

Moser, Stephanie and Sam Smiles (editors) 2004 *Envisioning the Past: Archaeology and the Image*. Blackwell Publishers, Oxford.

Ambrus, Victor 2006 *Unearthing History: Bringing Archaeology to Life*. Tempus, Stroud.

Lovata, Troy 2000 *An Exploration of Archaeological Representation: People and the Domestic Dog on the Great Plains of North America*. Unpublished Dissertation, Department of Anthropology, University of Austin, Texas.

de Boer, Trent 2004 *Shovelbum: Comix of archaeological field life*, Alta Mira Press, Walnut Creek, CA.

Gosciny, R. and A. Uderzo 1969 *Asterix the Gaul*. (Translation: Bell, A., Hockridge, D.), Hodder and Stoughton, London.

Swogger, J.G. with S. Atalay and B. Tung 2005 *Nedir Çatalhöyük? Çatalhöyük Research Project*.

Swogger, J.G. with S. Fitzpatrick, M. Kappers, and Q. Kaye 2012 *Archaeology in the Caribbean, Grenadian Voice* (forthcoming; select pages online at: <http://johnswogger.wordpress.com/archaeology-in-the-caribbean/>)

Shanower, Eric 2004 *Age of Bronze: A Thousand Ships, Sacrifice and Betrayal* (three separate volumes). Image Comics, Orange, California.

[Two volumes have been published so far, *A Thousand Ships* and *Sacrifice*, the third volume, *Betrayal*, is in progress]

Clack, Timothy and Marcus Brittain (editors) 2009 *Archaeology and the Media*. University College London Institute of Archaeology Publication, London.

Fagan, Brian 2005 *Writing Archaeology: Telling Stories about the Past*. Left Coast Press, Walnut Creek, CA.

Champion, Erik 2011 *Playing with the Past*. Springer, London. [available as PDF in Penn Library website]

Champion, Erik (editor) 2018 *The Phenomenology of Real and Virtual Places*. Routledge, New York.

Champion, Erik 2015 *Critical Gaming: Interactive History and Virtual Heritage*, Digital Research in the Arts and Humanities Series, Ashgate Publishing, UK.

Champion, Erik 2012 (editor) *Game Mods: Design, Theory and Criticism*, Entertainment Technology Center Press, Pittsburgh. ISBN 9781300540618. Free download pdf
<http://www.etc.cmu.edu/etcpres/content/game-mods>

Llewellyn, Sasha and Richard Sorrell (editors) 2013 *Alan Sorrell: A Life Reconstructed*. Sansom & Company.

Green, Jack, Emily Teeter, and John A. Larson (editors) 2012 *Picturing the Past: Imaging and Imagining the Ancient Middle East*. Oriental Institute Museum Publications, vol. 34. The Oriental Institute of the University of Chicago, Chicago.

Bodil Petersson and Cornelius Holtorf (editors) 2017 *The Archaeology of Time Travel: Experiencing the Past in the 21st Century*, Archaeopress, Oxford.

Card, J. J., D.S. Anderson, C. Begley, and S. Dunn (editors) 2016 *Lost City, Found Pyramid: Understanding Alternative Archaeologies and Pseudoscientific Practices*, The University of Alabama Press, Tuscaloosa.

Atalay, Sonia, Jen Shannon, and John Swogger 2018 *Journeys to Complete the Work* (NAGPRA Repatriation Comic). Creative Commons.

Hunt, Alice and John Swogger 2018 *Unlocking the Past! Radiocarbon Dating*. Center for Applied Isotope Studies. Athens, GA.

Morgan, Colleen L. 2012 *Emancipatory Digital Archaeology*. Unpublished Dissertation, Department of Anthropology, University of California-Berkeley.

Barceló, Juan A. and Castillo, Florencia Del (editors) 2016 *Simulating Prehistoric and Ancient Worlds*. Springer-Verlag, Berlin.

Various 2018 Special Issue: Interpreting and Presenting Archaeology. *Advances in Archaeological Practice*. 6(3):181-274.

Piccoli, Chiara 2018 *Visualizing Cityscapes of Classical Antiquity: from early modern reconstruction drawings to digital 3D models*. Archaeopress, Oxford.

Journal: *Digital Applications in Archaeology and Cultural Heritage*.

ARCHAEOLOGICAL FILMS AND DOCUMENTARIES

The Museum Library has many excellent films (Penn Museum 3rd Floor).
Search Penn Library for titles and availability.

YouTube & Vimeo

SUMMARY SYLLABUS

- August 29: Visualizing the Past/Peopling the Past: Introduction, Overview, Philosophy, Assignments, and Expectations
- August 31: The Archaeologist in Popular Culture
- September 3: Labor Day Holiday
- September 5: Computers and Representation: Google Map Deconstruction
- September 7: Introduction to Computer Graphics: 3D, Perception, Color, and Transformations
- September 10: Archaeology and the Public(s)
- September 12: Introduction to Computer Graphics: Viewing, Cameras, 3D Modeling
- September 14: Laboratory: Making narrated, timed PowerPoint presentations; download Maya software
- September 17: Reconstructions of the Past Human Body
- September 19: Introduction to Computer Graphics: Lighting and Materials
- September 21: Laboratory: Maya Basics: Making a textured “rug”
- September 24: Artists and Archaeologists I: Traditional Media
- September 26: Artists and Archaeologists II: Non-Traditional Media
- September 28: Laboratory: Maya: making a symmetric pottery vessel
- October 1: Artists and Archaeologists III: Non-Traditional Media
- October 3: Laboratory: Computer Graphics Topics: Physics-based Materials
- October 5: Fall Break, no class
- October 8: Laboratory: Maya modeling, making an asymmetrical archaeological pottery vessel
- October 10: Introduction to Computer Graphics: Illumination Studies (Cordoba)
- October 12: Clothing the Past; Gender and the Past I: The Aqlla of Pachacamac (Collections Study Room, Mainwaring Wing, first floor Penn Museum), Guest lecture Anne Tiballi
- October 15: Clothing the Past; Gender and the Past II
- October 17: Modeling of Pre-Columbian Water Management and Hydrologic Engineering in the Bolivian Amazon
- October 19: Laboratory: Maya: Making a canoe
- October 22: Animation and Motion Capture I (SIG Laboratory)
- October 24: Animation and Motion Capture II (SIG Laboratory)
- October 26: Laboratory: Maya: Additional features, lighting, and model export
- October 29: Use of Digital Modeling of Architecture, Sites, and Landscapes to Query the Past
- October 31: Indigeneity, Indigenous Self-Representation, and other *People’s Pasts: Native American Voices* Exhibit Tour, 2nd Floor, Penn Museum with Dr. Lucy Fowler-Williams
- November 2: Laboratory: Unreal: Introduction, model import, and navigation
- November 5: Virtual Humans in Cultural Contexts
- November 7: Games: Virtual and Augmented Reality
- November 9: Laboratory: Maya Modeling, Unreal, Individualized Project
- November 12: Archaeology and Games I
- November 14: Archaeology and Games II
- November 16: Laboratory: Maya Modeling, Unreal, Individualized Project
- November 19: Archaeology and Games III
- November 21: Final Project Consultations
- November 23: Thanksgiving Holiday; no class
- November 26: Role of the Archaeology Museum and Exhibits about the Past
- November 28: Archaeology, Tourism, and Interpretation
- November 30: Laboratory: Maya Modeling, Unreal, Individualized Project
- December 3: Computer Graphics: Illumination Studies (Godin site) Guest Lecture by Virginia Badler
- December 5: Final Project Presentations I

December 7: Final Project Presentations II
December 10: Final Project Presentations III [Last Class]
December 16: Draft of Final Project Paper due
December 19: Final version of Final Project Paper due

READING AND ASSIGNMENT SYLLABUS

Short readings about general themes and case studies for lecture and discussion are assigned each week. The required readings for the course are available as PDF files on Canvas. Readings are placed in dated folders and should be read before that class meeting. The list of readings will be updated as needed.

August 29: Visualizing the Past/Peopling the Past: Introduction, Overview, Philosophy, Assignments, and Expectations

August 31: The Archaeologist in Popular Culture

Assignment #1: Evaluation of a popular movie about archaeology **Due 9/17/2018**

DeBoer, Warren B. 1999 Metaphors we dig by. *Anthropology News* October:7-8.

Holtorf, Cornelius 2008 Popular Culture and Archaeology. *Encyclopedia of Archaeology*, edited by Deborah Pearsall, pp. 1859-1868. Academic Press, New York.

Russell, Miles 2002 No more heroes any more:” The dangerous world of the pop culture archaeologist. In *Digging holes in popular culture: archaeology and science fiction*, edited by Miles Russell, pp. 38-54. Oxbow, Oxford.

Membury, Steven 2002 The Celluloid Archaeologist: An X-rated expose. In *Digging holes in popular culture: archaeology and science fiction*, edited by Miles Russell, pp. 8-18. Oxbow, Oxford. pp. 8-18.

Choose two of the readings below and be prepared to discuss them.

Hall, Mark 2004 Romancing the Stones: Archaeology in Popular Cinema. *European Journal of Archaeology* 7(2):159–176.

Schablitsky, J. M. and N. J. Hetherington 2012 Archaeology on the screen. In *Archaeology in Society: Its Relevance in the Modern World*, edited by M. Rockman and J. Flatman, pp. 139-152. Springer, New York.

Seidemann, Ryan M. 2013 Maybe Indiana Jones isn't so bad after All Survey Results of Media Influences on Liberal Arts Students. *The SAA Archaeological Record* 13(4):23-25.

OPTIONAL:

Smith, Stuart Tyson 2007 Unwrapping The Mummy: Hollywood Fantasies, Egyptian Realities. In *Box Office Archaeology: Refining Hollywood's Portrayals of the Past*, edited by Julie M. Schablitsky, pp. 16-33. Left Coast Press, Walnut Creek.

Holtorf, Cornelius 2006 Archaeology and the Dream Society. In *Images, Representations and Heritage. Moving beyond Modern Approaches to Archaeology*, edited by Ian Russell, pp. 161-176. Springer-Kluwer, New York.

Holtorf, Cornelius 2007 An archaeological fashion show: how archaeologists dress and how they are portrayed in the media. In *Archaeology and the Media*, edited by Timothy Clack and Brittain, Marcus pp. 69-88. Left Coast Press, Walnut Creek, CA.

September 3: Labor Day Holiday

September 5: Computers and Representation: Google Map Deconstruction

Assignment #2: Artists and Archaeologists: Each student will be assigned one artist to summarize and evaluate as an in-class Presentation (a 4-5 minute timed slide and audio PowerPoint presentation). **Due 9/24/2018, 9/26/2018, or 10/1/2018** (depending on your assigned artist).

Exercise (complete before class): “Visit” and explore a famous archaeological site using Google Earth (be sure to try vertical, oblique, and ground views with Terrain turned on) 1) save some Google Earth views as jpg photographs (File > Save > Save Image on menu bar), 2) open linked terrestrial photographs by clicking on the symbols, and 3) measure a few buildings or other features at the site using the Ruler Tool on the main menu bar. Use “N” key to re-orient to North and use “U” key to bring scene back to vertical view.

September 7: Introduction to Computer Graphics: 3D, Perception, Color, and Transformations

September 10: Archaeology and the Public(s)

Gero, Joan and Dolores Root 1990 Public presentation and private concerns: Archaeology in the pages of National Geographic. In *The Politics of the Past*, edited by P. Gathercole and D. Lowenthal, pp. 19-37. Routledge, New York.

Parker, Evan A. 2016 The Proliferation of Pseudoarchaeology through “Reality” Television Programming. In *Lost City, Found Pyramid Understanding Alternative Archaeologies and Pseudoscientific Practices*, edited by J. J. Card and David Anderson, pp. 149-166. University of Alabama Press, Tuscaloosa.

Pyburn, K. Anne and Richard R. Wilk 1995 Responsible Archaeology is Applied Archaeology. In *Ethics in American Archaeology: Challenges of the 1990s*, edited by Mark Lynott and Alison Wylie, pp. 71-76. Society for American Archaeology. Washington DC.

OPTIONAL

Finn, Christine 2001 Mixed messages: Archaeology and the media. *Public Archaeology* 1(4):261-268.

Society for American Archaeology 2015 Archaeological Practice on Reality TV (Theme Issue). *SAA Archaeological Record* 15(2).

Morgan, Colleen 2014 Archaeology and the Moving Image, *Public Archaeology* 13(4):323-344.

Sabloff, Jeremy 2008 Chapter 8: Epilogue [Writing for the Public]. In *Archaeology Matters: Action Archaeology in the Modern World*, Left Coast Press, Walnut Creek, pp. 103-110.

Sabloff, Jeremy 1998 Communication and the Future of American Archaeology. *American Anthropologist* 100(4):869-875.

September 12: Introduction to Computer Graphics: Viewing, Cameras, 3D Modeling

September 14: Laboratory: Making narrated, timed PowerPoint presentations; download Maya software

September 17: Reconstructions of the Past Human Body

Assignment #1 Due Today: Evaluation of a popular movie about archaeology.

Choose four articles from list below and be prepared to discuss them in class.

Mann, Alan E. 2003 Imagining prehistory: Pictorial reconstructions of the way we were. *American Anthropologist* 105(1):139-148.

Moser, Stephanie 2001 Archaeological Representation: The Visual Convention of Constructing Knowledge About the Past. In *Archaeological Theory Today*, edited by Ian Hodder, pp. 262-283. Polity Press, Cambridge

Koepfer, Diana L. 2003 Representation and Aesthetics in Paleo-Art: An Interview with John Gurche. *American Anthropologist* 105(1):146-148

Gifford-Gonzalez, Diane 1993 You Can Hide, But You Can't Run: Representations of Women's Work in Illustrations of Palaeolithic Life. *Visual Anthropology Review* 9(1): 22-41.

Moser, Stephanie and Clive Gamble 1997 Revolutionary Images: The Iconic vocabulary for Representing Human Antiquity. In *The Cultural Life of Images: Visual Representations in Archaeology*, edited by Brian Leigh Molyneaux, pp. 184-212, Routledge, London.

September 19: Introduction to Computer Graphics: Lighting and Materials

September 21: Laboratory: Maya Basics: Making a textured "rug"

September 24: Artists and Archaeologists I: Traditional Media

Assignment #2 Due Today: Artists and Archaeologists (1/3 of the student presentations today, 1/3 present on following days). Each student designated to present today will be assigned one artist to summarize and evaluate as an in class Presentation (a 5 minute timed slide and audio PowerPoint presentation).

In addition, everyone should read at least two other readings and be prepared to discuss them in class.

Ambrus, Victor and Mick Aston 2001 *Recreating the Past*. Tempus Publishing, Stroud, Gloucestershire, England.

Davison, Brian 1984 *Picturing the Past: Through the Eyes of Reconstruction Artists*. English Heritage Gatekeepers Series, Cadw.

Redknap, Mark 2002 *Re-Creations: Visualizing Our Past*. National Museums & Galleries of Wales and Cadw, Cardiff.

Sorrell, Mark ed. 1981 The Artist and the Reconstruction. In *Alan Sorrell: Reconstructing the Past*. Batsford, London, pp. 20-26. [plus misc. images from 1980 *Alan Sorrell: Early Wales Reconstructed*. National Museum of Wales, Cardiff.]

Sorrell, Mark 2013 Sorrell on Sorrell Memories of the Art and Life of Alan Sorrell (1904-74). *British Art Journal* 14(2):81-85.

Perry, Sara and Matthew Johnson 2014 Reconstruction Art and Disciplinary Practice: Alan Sorrell and the Negotiation of the Archaeological Record. *The Antiquaries Journal* 94:323-352.

Schober, Theresa M. (editor) 2013 *ArtCalusa: Reflections on Representation* [exhibit catalog] Lee Trust for Historic Preservation, Naples, FL.

Phillips, James E. 2006 "To make the dry bones live": Amédée Forestier's Glastonbury lake village. In *Envisioning the Past: Archaeology and the Image*, edited by Smiles, Sam and Stephanie Moser, pp. 72-91. Blackwell, Malden MA.

Pate, Martin 2003 Archaeology in Two Dimensions: The Artist's Perspective. In *Ancient Muses: Archaeology and the Arts*, edited by John H. Jameson, Jr., John E. Ehrenhard, and Christine A. Finn, pp. 49-56. University of Alabama Press, Tuscaloosa. [plus images].

Lovata, Troy 2008 People Make Fire: Archaeology and the Art of Sonja Stiefel. *Public Archaeology* 7(2):101-113.

James, Simon 1996 Drawing Inferences: Visual Reconstructions in Theory and Practice. In *The Cultural Life of Images: Visual Representation in Archaeology*, edited by B. L. Molyneaux, pp. 22-48. Routledge, London.

Piggott, Stuart 1950 *Antiquity Depicted: Aspects of Archaeological Illustration*. Thames and Hudson, London.

Carter, Alice 1999 *The Art of National Geographic: A Century of Illustration*. National Geographic, Washington DC.

National Geographic Society 1998 *Inside Out: The Best National Geographic Diagrams and Cutaways*. National Geographic Society, Washington DC.

James, Simon 2015 'Visual competence' in archaeology: a problem hiding in plain sight. *Antiquity* 89(347):1189-1202.

September 26: Artists and Archaeologists II: Non-Traditional Media

Assignment #2 Due Today: Artists and Archaeologists (1/3 of the student presentations today). Each student designated to present today will be assigned one artist to summarize and evaluate as an in class Presentation (a 5 minute timed slide and audio PowerPoint presentation).

In addition, everyone should read at least two other readings and report on and discuss them in class.

Atalay, Sonia, Jen Shannon, and John Swogger 2018 *Journeys to Complete the Work* (NAGPRA Repatriation Comic). Creative Commons.

Hunt, Alice and John Swogger 2018 *Unlocking the Past! Radiocarbon Dating* (Radiocarbon Dating Comic). Center for Applied Isotope Studies. Athens, GA.

Swogger, John G. 2000 Image and Interpretation: The Tyranny of Representation? In *Towards Reflexive Method In Archaeology: The example at Çatalhöyük / by members of the Çatalhöyük teams*; edited by Ian Hodder. Cambridge: McDonald Institute for Archaeological Research, University of Cambridge; Oxford : Distributed by Oxbow Books, pp. 143-153.

Swogger, John G. 2015 Ceramics, Polity, and Comics: Visually Re-Presenting Formal Archaeological Publication. *Advances in Archaeological Practice* 3(1):16–28.

Swogger, John G. 2016 *Archaeological Illustration and Comics* (homepage and blog). <https://johnswogger.wordpress.com/>

Allen, Mitch 2005 Charlie Brown in the Classroom: Comics and other Incendiary Devices for Teaching Archaeology. *The SAA Archaeological Record* 5(5):9-12.

de Boer, Trent 2006 The Archaeological Zine Shovel Bum. *The SAA Archaeological Record* 5(5) 19–21. [Also look at the book *Shovel Bum* by T. de Boer at Penn Museum Library].

Lovata, T R 2004 Putting Shovel Bum in Context: Why a View from the Shovel Handle Matters. In *Shovel Bum: Comix of Archaeological Field Life*, edited by Trent de Boer, pp. 115-127. AltaMira Press, Walnut Creek CA. [Also look at the book *Shovel Bum* by T. de Boer].

Loubser, Jannie 2005 Beyond the Cartesian Grid, or, Between the Comic Cells. *The SAA Archaeological Record* 5(5): 13-18.

Lovata, Troy 2007 Chapter 5 Three Artists on Archaeology: Interview Number Two: Visualizing the Bronze Age (Eric Shanower). In *Inauthentic Archaeologies: Public Uses and Abuses of the Past*. Left Coast Press, Walnut Creek, pp. 112-122.

Parno, Travis G. 2010 Snapshots of History and the Nature of the Archaeological Image. *Archaeologies: Journal of the World Archaeological Congress* 6(1):115-137.

Collart, Bartley [date] *The Secret in the Cellar: A Written in Bone forensic mystery from colonial America*. Smithsonian National Museum of Natural History, Washington DC.

<http://anthropology.si.edu/writteninbone/comic/>

and

Smithsonian National Museum of Natural History n.d. *Written in Bone: Forensic Files of the 17th - Century Chesapeake. Educator's Manual*. Smithsonian National Museum of Natural History, Washington DC. [pdf file]

Roveland, Blythe E. 1993 Visual Child the Creator: Children as Agents of Change in Juvenile Prehistoric Literature. *Anthropology Review* 9(1): 147–153.

Brinkmeier, Dan 2003 *Art in the service of science: Using art to explain archaeology and field research*. Unpublished document.

de Boer, Trent 2004 *Shovelbum: Comix of Archaeological Field Life*, Alta Mira Press, Walnut Creek, CA. Penn Museum Library

de Boer, Trent 2004 Afterword. In *Shovelbum: Comix of archaeological field life*, Alta Mira Press, Walnut Creek, CA.

Gosciny, R. and A. Uderzo 1969 *Asterix the Gaul*. (Translation: Bell, A., Hockridge, D.), Hodder and Stoughton, London.

Swogger, J.G. with S. Atalay and B. Tung 2005 Nedir Çatalhöyük? Çatalhöyük Research Project.

Swogger, J.G. with S. Fitzpatrick, M. Kappers, and Q. Kaye 2012 *Archaeology in the Caribbean*, Grenadian Voice (forthcoming; select pages online at: <http://johnswogger.wordpress.com/archaeology-in-the-caribbean/>)

Shanower, Eric 2004 *Age of Bronze: A Thousand Ships, Sacrifice and Betrayal* (three separate volumes). Image Comics, Orange, California.

[Two volumes have been published so far, *A Thousand Ships* and *Sacrifice*, the third volume, *Betrayal*, is in progress]

Museum Library and PDF file excerpt “ShanowerAgeOfBronzeComic2003Excerpt”

Shanower, Eric 2005 The Art of the Graphic Novel. *The Alan Review* Winter (2005):32-36.

Shanower, Eric 2005 Archaeology of the Trojan War. *The SAA Archaeological Record* 5(5)::30-35.

OPTIONAL

Erickson, Clark and Daniel Brinkmeier 2007 *Pre-Columbian Fishermen of the Bolivian Amazon: Indigenous Technology and the Transformation of the South American Landscape*. Harris Loan Department, Field Museum of Natural History, Chicago.

Brinkmeier, Daniel, Clark Erickson, and Ignacio Garaycochea 1986 *Como construir waru waru*. Consejo Nacional de Ciencia y Tecnología, Lima.

Brinkmeier, Daniel, Clark Erickson, and Kay Candler 1986 *Antonio and the Waru Waru*. (bilingual manual about raised fields in English and Quechua), Consejo Nacional de Ciencia y Tecnología, Lima.

September 28: Laboratory: Maya: making a symmetric pottery vessel

Assignment #3: Evaluation of archaeology and the Past in *National Geographic*. **Due 10/22**

October 1: Artists and Archaeologists III: Non-Traditional Media

Assignment #2 Due Today: Artists and Archaeologists (1/3 of the student presentations today). Each student designated to present today will be assigned one artist to summarize and evaluate as an in class Presentation (a 5 minute timed slide and audio PowerPoint presentation).

October 5: Fall Break (no class)

October 8: Laboratory: Maya modeling, making an asymmetrical archaeological pottery vessel.

October 10: Introduction to Computer Graphics: Illumination Studies (Cordoba)

October 12: Clothing the Past; Gender and the Past I: The Aqlla of Pachacamac (Collections Study Room, Mainwaring Wing, first floor Penn Museum) Guest Lecture Anne Tiballi.

Tiballi, Anne 2014 Weaving the Body Politic: The integration of Technological Practice and Embodied Social Identity in the Late Prehispanic Andes. In *Textiles, Technical Practice, and Power in the Andes*, edited by Denise Y. Arnold with Penelope Dransart, pp. 140-158. Archetype Publications, London.

October 15: Clothing the Past; Gender and the Past II

Clados, Christiane

2004 *Christiane Clados: Reconstructing the Pre-Columbian World*. University of Wisconsin, Madison.

Clados, Christine 2004 *Christiane Clados: Reconstructing the Pre-Columbian World: Teachers Guide*. University of Wisconsin, Madison (online) [excellent example of how archaeological data informs art] <http://www.lindakreft.com/home.html>

Solometo, Julie and Joshua Moss 2013 Picturing the Past: Gender in National Geographic Reconstructions of Prehistoric Life. *American Antiquity* 78(1):123-146.

Mortensen, Lena 2004 The “Marauding Pagan Warrior” Women. In *Ungendering Civilization*, edited by K. Anne Pyburn, pp. 94-116. Routledge, New York.

October 17: Modeling of Pre-Columbian Water Management and Hydrologic Engineering in the Bolivian Amazon.

Erickson, Clark 2017 Pre-Columbian Water Management in Lowland South America. In *Water History and Humanity*, edited by Vernon Scarborough, UNESCO Publishing, Paris.

October 19: Laboratory: Maya: Making a canoe

Assignment #4: Individual or Group Final Project Summary Proposal. Students may work individually or in small groups. The professors will provide detailed feedback on these projects. The quality and completeness of these project proposals and descriptions will be considered in the final grade. Due 11/5/2018

October 22: Animation and Motion Capture I (SIG Laboratory)

Assignment #3 Due Today: Evaluation of archaeology and the Past in *National Geographic Magazine*.

October 24: Animation and Motion Capture II (SIG Laboratory)

October 29: Use of Digital Modelling of Architecture, Sites, and Landscapes to Query the Past

Berggren, Åsa, Nicolo Dell'Unto, Maurizio Forte, Scott Haddow, Ian Hodder, Justine Issavi, Nicola Lercari, Camilla Mazzucato, Allison Mickel and James S. Taylor 2015 Revisiting reflexive archaeology at Çatalhöyük: integrating digital and 3D technologies at the trowel's edge. *Antiquity* 89:433-448.

Choose one of the two articles below:

Coben, Larry 2006 Incallajta, Performance Center of the Inkas: A Digital Reconstruction and Virtual Reality Analysis. In *From Space to Place*, edited by Stefano Campana and Maurizio Forte, pp. 401-405. BAR International Series, Oxford.

Johanson, Chris and Bernard Frischer 2008 Digital Model of the Inca Sanctuary of the Sun. In *Beyond Illustration: 2D and 3D Digital Technologies as Tools for Discovery in Archaeology*, Edited by Bernard Frischer and Anastasia Dakouri-Hild, pp. 299-315. BAR International Series 1805, Archaeopress, Oxford.

OPTIONAL

Coben, Larry 2006 Other Cuzcos: Replicated Theaters of Inka Power. In *Archaeology of Performance: Theaters of Power, Community, and Politics*, edited by Takeshi Inomata and Lawrence S. Coben, pp. 223-260. Altamira Press, Lanham, MD.

October 31: Indigeneity, Indigenous Self-Representation, and other People's Pasts: Native American Voices (Exhibit Tour 2nd floor, Penn Museum)

Kehoe, Alice B 2016 Can Native Voices Be Heard in Museums? *Current Anthropology* 57(2):241-242.

Harjo, Suzan 2013 Protecting Sacred Places. *Expedition* 55(3):13-17.

OPTIONAL

Atalay, Sonya 2006 No sense of the struggle: creating a context for survivance at the NMAI. *American Indian Quarterly* 30(3-4):597-618.

Murray, Tim 2011 Archaeologists and Indigenous People: A Maturing Relationship? *Annual Review of Anthropology* 40:363-78.

November 2: Laboratory: Unreal: Introduction, model import, and navigation

Assignment #5: Presentation: Archaeology and Games **Due 11/12/2018, 11/14/2018, or 11/19/2018** (depending on your assigned game or reading)

November 5: Virtual Humans in Cultural Contexts

Assignment #4 Due Today: Assignment #4: Individual or Group Final Project Summary Proposal. Students may work individually or in small groups. The professors will provide detailed feedback on these projects. The quality and completeness of these project proposals and descriptions will be considered in the final grade.

Choose 3 articles from list below to read and be prepared to discuss them in class.

Rensberger, Boyce 1981 Facing the Past. *Science* 81 October:40-51.

Kähler, Kolja, Jörg Haber, and Hans-Peter Seidel 2003 Reanimating the Dead: Reconstruction of Expressive Faces from Skull Data. *ACM TOG (SIGGRAPH Conference Proceedings)* 22(3):554–561.

Neave, R. A. H. and A. J. N. W. Prag 2005 The Skull as the Armature of the Face: Reconstructing Ancient Faces. In *Images and Artefacts of the Ancient World*, edited by Alan K. Bowman and Michael Brady, pp. 131-143. Oxford University Press for the British Academy, Oxford. [skim]

Linney, Alf, Joao Campos and Ghassan Alusi 2005 Reconstruction of a 3D Mummy Portrait from Roman Egypt. In *Images and Artefacts of the Ancient World*, edited by Alan K. Bowman and Michael Brady pp. 145-150. Oxford University Press for the British Academy, Oxford. [skim]

November 7: Games: Virtual and Augmented Reality

Chalmers, Alan, David Howard, and Christopher Moir Real 2009 Virtuality: A step change from Virtual Reality. *SCCG 2009 Budmerice, Slovakia*, April 23 – 25, 2009, pp. 9-16.

Choose three of the following articles and be prepared to discuss them in class:

Morgan, Coleen 2009 (Re)Building Catalhoyuk: Changing Virtual Reality in Archaeology. *Archaeologies: Journal of the World Archaeological Congress* 5(3):469-487.

Champion, Erik 2011 Chapter 2: Virtual Environments. In *Playing with the Past*. Springer, London, pp. 17-26.

Champion, Erik 2011 Chapter 5: Game-style Interaction. In *Playing with the Past*. Springer, London, pp. 83-128.

Helling, Harry, Charlie Steinmetz, Eric Solomon, Bernard Fischer 2004 The Port Royal Project. A Case Study in the Use of VR Technology for the Recontextualization of Archaeological Artifacts and Building Remains in a Museum Setting. *Acts of the 2004 Annual Meeting of CAA2004 (Computer Applications and Quantitative Methods in Archaeology)*, Prato, Italy, April 13-16, 2004

Chen, Shengnan, Zhigeng Pan, Mingmin Zhang, and Huaqing Shen 2011 A Case Study of User Immersion-based Systematic Design for Serious Heritage Games. *Multimedia Tools and Applications manuscript No.?*

Bogdanovych, A., J. A. Rodriguez, S. Simo, and A. Cohen 2009 *Virtual Agents and 3D Virtual Worlds for Preserving and Simulating Cultures*. IVA09.

Gillings, M. 2005 The real, the virtually real, and the hyperreal: The role of VR in archaeology. In *Envisioning the past: Archaeology and the Image*, edited by S. Moser and S. Smiles, pp. 223-239. Blackwell, New York.

Favro, Diane 2006 In the Eyes of the Beholder: Virtual Reality Re-Creations and Academia. *Journal of Roman Archaeology* 61:322-334.

November 9: Laboratory: Maya Modeling, Unreal, Individualized Project

November 12: Archaeology and Games I

Assignment #5 Due Today: Presentation: Archaeology and Games **Due 11/12/2018, 11/14/2018, or 11/19/2018** (depending on your assigned game or reading)

Mol, Angus A.A., Csilla E. Ariese-Vandemeulebroucke, Krijn H.J. Boom and Aris Politopoulos (editors) 2017 *The Interactive Past: Archaeology, Heritage & Video Games*. Sidestone, Leiden.[various individual chapters]

Champion, Erik 2011 Chapter 6: Playing with the Past. In *Playing with the Past*. Springer, London, pp. 129-155.

Champion, Erik 2011 Chapter 7: Augmenting the Present With the Past. In *Playing with the Past*. Springer, London, pp. 157-176.

Gutierrez, Diego and Bernard Frischer 2006 AI and Virtual Crowds: Populating the Colosseum

Arnold, David, et al. 2008 Tools for Populating Cultural Heritage Environments with Interactive Virtual Humans. In *EPOCH Conference on Open Digital Cultural Heritage Systems*.

Morgan, Colleen 2009 (Re)Building Çatalhöyük: Changing Virtual Reality in Archaeology. In *Archaeologies: Journal of the World Archaeological Congress* 5(3):469-487.

Society for American Archaeology 2016 Special Section: Video Games and Archaeology Part 1. *SAA Archaeological Record* 16(5).

- Colleen Morgan: "Video Games and Archaeology"
- Angus Mol, Csilla Ariese-Vandemeulebroucke, Krijn Boom, Aris Politopoulos, and
- Vincent Vandemeulebroucke: "Video Games in Archaeology: Enjoyable but Trivial?"
- Shawn Graham: "The Archaeologist Who Studied Video Games, and the Things He Learned There"
- Andrew Reinhard: "Toward Archaeological Tools and Methods for Excavating Virtual Spaces"
- Watrall, Ethan 2014 Red Land/Black Land: Teaching Ancient Egyptian Archaeology through Digital Game-Based Learning. *Advances in Archaeological Practice* 2(1):38-49.
- Edward González-Tennant: "Archaeological Walking Simulators"
- L. Meghan Dennis: "Archaeogaming, Ethics, and Participatory Standards"
- Juan F. Hiriart: "Surviving the Middle Ages: Notes on Crafting Gameplay"

Society for American Archaeology 2017 Special Section: Video Games and Archaeology Part 2. *SAA Archaeological Record* 17(2).

- Erik Champion: “Bringing Your A-Game to Digital Archaeology: Issues with Serious Games and Virtual Heritage and What We Can Do About It”
- Colleen Morgan: “An Unexpected Archaeology: An Interventionist Strategy for Video Games and Archaeology”
- Tara Coplestone: “Adventures in Archaeological Game Creation”

Watrall, Ethan 2014 Red Land/Black Land: Teaching Ancient Egyptian Archaeology through Digital Game-Based Learning. *Advances in Archaeological Practice* 2(1):38-49.

Champion, Erik 2011 Chapter 5: Game-style Interaction. In *Playing with the Past*. Springer, London, pp. 83-128.

Rua, Helena and Pedro Alvito 2011 Living the past: 3D models, virtual reality and game engines as tools for supporting archaeology and the reconstruction of cultural heritage: the case-study of the Roman villa of Casal de Freiria. *Journal of Archaeological Science* 38:3296-3308.

November 14: Archaeology and Games II

Assignment #5 Due Today: Presentation: Archaeology and Games **Due 11/12/2018, 11/14/2018, or 11/19/2018** (depending on your assigned game or reading)

November 16: Laboratory: Maya Modeling, Unreal, Individualized Project

November 19: Archaeology and Games III

Assignment #5 Due Today: Presentation: Archaeology and Games **Due 11/12/2018, 11/14/2018, or 11/19/2018** (depending on your assigned game or reading)

November 21: Final Project Consultations

November 23: Thanksgiving Holiday

November 26: Role of the Archaeology Museum and Exhibits about the Past.

Two short readings to provide context for the lecture about designing an archaeological exhibit *Beneath the Surface: Life, Death, and Gold in Ancient Panama* on Friday (in a single pdf file in readings folder):

Fowler-Williams, Lucy 2014 Beneath the Surface: Excavations at Sitio Conte. *Expedition* 56(3):17-20.

Hickman, Jane 2014 Peopling the past: A behind-the-scenes look at the making of Beneath the Surface: Life, Death, and Gold in Ancient Panama (interview with Clark Erickson and Kate Quinn) *Expedition* 56(3):21-25.

Choose 3 of the following articles to read and be prepared to discuss them in class:

Barker, Alex W. 2010 Exhibiting Archaeology: Archaeology and Museums. *Annual Review of Anthropology* 39:293-208.

Williams, Michael and Margaret Heawth 2003 Art and Archaeology: Conflict and Interpretation in a Museum Setting. In *Ancient Muses: Archaeology and the Arts*, edited by John Jameson Jr., John Ehrenhard, and Christine Finn, pp. 109-119. University of Alabama Press, Tuscaloosa.

Hodder, Ian 2003 The past as passion and play: Çatalhöyük as a site of conflict in the construction of multiple pasts. In *Archaeology beyond Dialogue*. Salt Lake City: the University of Utah Press, 11-22. [reprinted in 2010 by Preucel and M in Reader] PDF

Shanks, Michael and Christopher Tilley 1987 Chapter 4: Presenting the Past: Towards a Redemptive aesthetic for the museum. In *Reconstructing Archaeology: Theory and Practice*, Cambridge, London, pp. 68-99.

Haas, Jonathan 1996 Power, Objects, and a Voice for Anthropology. *Current Anthropology* 37(Supplement):S1-S21 (with comments/response).

November 28: Archaeology, Tourism, and Interpretation

Silverman, Helaine 2005 Embodied Heritage, Identity Politics, and Tourism. *Anthropology and Humanism* 30(2):141–155.

Champion, Erik 2011 Chapter 1: Introducing Virtual Travel. In *Playing with the Past*. Springer, London, pp. 1-16.

Clarkson, Chris and Ceri Shipton 2015 Teaching Ancient Technology using “Hands-On” Learning and Experimental Archaeology. *Ethnoarchaeology* 7:2, 157-172.

Silverman, Helaine 2005 Two Museums, Two Visions: Representing Cultural Heritage in Cusco, Peru. *The SAA Archaeological Record* May:29-32.

OPTIONAL

Silverman, Helaine 2002 Touring Ancient Times: The Present and Presented Past in Contemporary Peru. *American Anthropologist* 104(3):881-902.

November 30: Laboratory: Maya Modeling, Unreal, Individualized Project

Assignment #6a: In-class PowerPoint presentation of Final Project.

Due 12/5/2018, 12/7/2018, or 12/10/2018 depending on your assignment on the presentation list)

Assignment #6b: Submission of 1) revised PowerPoint presentation and 2) complete draft of paper summarizing the Final Project (integrated text, references, and imagery) and relevant digital files; student websites should be up to date.

Due 12/16/2018

Assignment #6c: Submission of final version of paper about the Final Project (integrated text, references, and imagery) and digital files.

Due 12/19/2018

December 3: Computer Graphics: Illumination Studies (Godin site) Guest Lecture by Virginia Badler

Badler, V., J. Kider Jr., M. Moore, B. Walter, and N. Badler. Accurate Soil and Mudbrick BRDF Models for Archaeological Illumination Rendering with Application to Small Finds. Paper presented in the EUROGRAPHICS Workshop on Graphics and Cultural Heritage, 2017, T. Schreck and T. Weyrich (Editors)

December 5: Final Project Presentations I

Assignment #6a: In-class PowerPoint presentation of Final Project.

Due 12/5/2018, 12/7/2018, or 12/10/2018 depending on your assignment on the presentation list)

December 7: Final Project Presentations II

Assignment #6a: In-class PowerPoint presentation of Final Project.

Due 12/5/2018, 12/7/2018, or 12/10/2018 depending on your assignment on the presentation list)

December 10: Final Project Presentations III

Assignment #6a: In-class PowerPoint presentation of Final Project.

Due 12/5/2018, 12/7/2018, or 12/10/2018 depending on your assignment on the presentation list)

December 16: Draft of Final Project Paper due

Assignment #6b due today: Submission of 1) revised PowerPoint presentation and 2) complete draft of paper summarizing the Final Project (integrated text, references, and imagery) and relevant digital files; student websites should be up to date.

December 19: Final version of Project Paper due

Assignment #6c due today: Submission of final version of paper about the Final Project (integrated text, references, and imagery) and digital files.