

SYLLABUS VERSION 1.0
ARTH 3399 / ESCI 4315: Art and the Environment
University of Texas at El Paso
Fall 2019

CRNs: 18363 (ARTH 3399) and 15692 (ESCI 4315)

Class Meeting Times: Tuesdays and Thursdays, 4:30-5:50 p.m.

Classroom: Fox Fine Arts A458 (4th floor)

Professors: Dr. Thomas Gill (ESCI) and Dr. Melissa Warak (ARTH); course is co-taught

Dr. Gill

Email: tegill@utep.edu

Office Hours: Tuesdays/Thursdays 3:00-4:00, or by advance appointment.

Office: Geology 401A

Office Phone: (915) 747-5168

Dr. Warak

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Office Hours: Tuesdays/Thursdays 3:00-4:00, or by advance appointment.

Office: Fox Fine Arts A454

Office Phone: (915) 747-7849

ABOUT YOUR PROFESSORS

Dr. Thomas E. (Tom) Gill is Professor of Geological Sciences and Environmental Science and Engineering. His scientific work focuses on the connections between the different parts of the earth system and the environment, especially the relationship between the solid Earth and the atmosphere, and the geology and environment of deserts and drylands. Dr. Gill earned a B.S. in Atmospheric Science and a Ph.D. in Earth Sciences and Resources from the University of California at Davis. Growing up in Northern California as the son of two artists, he gained his love for landforms and the environment through frequent childhood trips with his parents to sketch and draw the landscapes of the mountains, desert, and Pacific coast. Dr. Gill's primary research emphasis is the study of dust storms, their characteristics, their effects on the environment and people, and the use of remote sensing (satellite technology) in detecting the formation and transport of dust clouds. He has published approximately 70 peer-reviewed papers in scientific journals, and his work has been funded by grants and contracts from NASA, the U.S. Environmental Protection Agency, the National Science Foundation, the National Institutes of Health, and other agencies.

Dr. Melissa Warak is Assistant Professor of Art History and specializes in the relationship of music and sound to art of the twentieth and twenty-first centuries. Dr. Warak earned a B.A. in English literature and art history from Vanderbilt University, an M.A. in art history from the University of Texas at Austin, and a Ph.D. in art history from the University of Texas at Austin. Her current research focuses on the ways that visual artists from the mid-fifties to late sixties employed musical models in their work and she is writing a book about contemporary sound art. Other research interests include the history of abstraction, spirituality in modern and contemporary art, science and technology in modern and contemporary art, and astronomy in art. Her research has been supported by grants and fellowships from the National Portrait Gallery of the Smithsonian Institution, the Getty Research Institute, the Royal Music Association of the United Kingdom, The Menil Collection in Houston, the Crystal Bridges Museum of American Art, the Kress Foundation, the Yale University Art Galleries, and the Tate Modern, among others.

COURSE DESCRIPTION

This course uses interdisciplinary approaches to study intersections between art and science from the Renaissance to the present, with some exploration of modern contact with ancient and prehistoric phenomena. With a focus on the Earth and its environment, students will examine visual and material implications of landscapes, technology, environmental changes, weather, natural hazards and disasters, rocks and soil, the built environment, and human exploration of extreme environments. Each week will explore a specific theme and focus on particularly meaningful innovations in environmental science and technology that affected the ways art looked, was made, and understood, how artists thought about and disseminated these topics, and how environmental studies can learn from visual art, including visual analysis, material culture studies, and works of art as scientific data. Likewise, we will engage the science behind these visual experiments. Among others, students may examine case studies on artists such as Leonardo da Vinci, Joseph Wright of Derby, Charles Willson Peale, Vincent Van Gogh, Edvard Munch, Pablo Picasso, Damien Hirst, James Turrell, Cai Guo-Giang, Georgia O'Keeffe, Ansel Adams, and Olafur Eliasson, as well as present-day artists-in-residence with scientific expeditions. The course is not chronological in nature.

COURSE OBJECTIVES

During this course, students will acquire skills essential to both art historians and scientists, including the following:

1. Developing interdisciplinary writing skills.
2. Learning to find and use resources for answering research questions and problems.
3. Analyzing and critically evaluating ideas and arguments.
4. Developing synthetic thinking skills and understanding methodologies related to interdisciplinary study.

TEXTS FOR CLASS

Selected scholarly articles will be posted to the course's related Blackboard page (see schedule). Students are responsible for downloading these from Blackboard. All readings need to be completed BEFORE the class period for the day.

GRADING POLICY

This course will have **three exams**. In addition, students will complete **one research project**. Students will also be graded on **discussion participation** in class; points will be assigned for both the first and second halves of the semester. A good rule of thumb is to try to contribute *at least* once per class (via ideas, questions, or responses to other students). Lastly, we will have **ten short quizzes** throughout the semester. There will be no makeup quizzes, but the lowest quiz grade will be dropped.

This course will be graded on a **scale of 500 points**.

Quizzes (10, but one dropped): 135 points

Participation I: 25 points

Participation II: 25 points

Exam 1: 75 points

Exam 2: 75 points

Exam 3: 75 points

Research Project: 90 points

Therefore, here is the point breakdown for grades:

448 – 500 points: A

397 – 447 points: B

347 – 396 points: C

297 – 346 points: D

000 – 296 points: F

TAKING NOTES IN CLASS

Note that laptops, tablets, etc. are only allowed for use in taking notes. Students caught using devices in distracting ways will have the privilege revoked.

Exam material will come from both ideas discussed in class and the readings that supplement lectures and discussions. Completing the readings is necessary, but will not take the place of attendance and participation in class. It is critical that students take notes in class. Using bullet points will help you write down more information. Vocabulary and important terms will be written on the Powerpoint presentation slides and you should pay special attention to these terms and the works of art where they may be applicable. Basic identifying information for each work will also be provided on the Powerpoints (artist name, title, date); these will be uploaded to Blackboard for your use. It is a good idea to date your notes so you know what we covered each day. It is also a good idea to take notes on the class readings.

EXAMS

Exams will be open note, so make sure to take notes extensively. Students will be allowed to use only the following resources on the exams: 1) notebook; 2) quizzes; and 3) printouts of readings (which you may highlight and annotate). You **may not** bring copies of the class Powerpoint presentations. The exams are **not** cumulative. See your professors during office hours for help improving your note-taking skills. Electronic devices will not be allowed during exams. Students will not be allowed to leave the room and may be asked to put phones and Apple Watches (or similar) at the front of the room during the exams.

QUIZZES

Students will take short reading quizzes at the beginning of each class on quiz days noted in the syllabus. **Quizzes are NOT open note.** Be sure to arrive to class on time. There are no makeup quizzes. The quizzes may be on one or all of the readings assigned and will likely be short answer, fill-in-the-blank, multiple choice, and/or true/false questions. To prepare for these, you should make sure to read the texts carefully and take notes on them in your notebook (this will also help with preparing for the exams). You may find it useful to skim the readings once for the larger issues at stake and then take notes during a second more careful reading. Be sure that you can identify the author's arguments and the primary evidence used to support them. As you read, think critically about what might be useful about the texts for our course topic. We encourage you to discuss the readings and topics with your classmates.

COURSE POLICIES

ATTENDANCE POLICY

Attendance will be taken daily. Every unexcused absence beyond two will decrease your overall class participation grade by twenty points. Excused absences require either a doctor's note or advanced permission from your professors. Students who are late or leave early will receive a half absence. **DO NOT COME TO CLASS IF YOU ARE INFECTIOUS.**

Students are responsible for acquiring notes and announcements made during missed classes, so make a friend and exchange contact information. Your professors will keep a running tally of absences in a column on the Gradebook section of Blackboard.

EMAIL POLICY

Your professors will email you through Blackboard. Make sure that you are receiving emails through Blackboard and that you have your UTEP email address on file. Please note that, due to FERPA regulations, your professors will not email with students about grades. If you have a question or concern about a grade, please visit office hours or make an appointment. Additionally, if you have a question that requires a long answer, please come see a professor in person to save time. Correspondence with your professors is considered part of your class participation, so keep it professional. Please direct emails to the professor in charge of your section (Dr. Warak for ARTH and Dr. Gill for ESCI).

PHONES

Cell phones should be silent and kept out of sight. You will be reprimanded if you are caught using your phone in the classroom; repeat offenses will result in being asked to leave class with an absence penalty.

CLASSROOM ETIQUETTE

Please be respectful of other students in the classroom. The classroom door will be open for five minutes after class begins; after that, tardies will be given. There are outlets for charging devices in the classroom, but please come to class with a charged laptop. Inappropriate behavior includes coming late or leaving early, using phones or electronic devices for any reason, passing notes, excessive whispering with friends, and packing bags before class is over. Use the restroom BEFORE class, as entering or leaving the room is very distracting. Inappropriate behavior in the classroom may result in a directive to leave class or being reported to the Dean of Students for disciplinary action in accordance with UTEP policy. You may bring food and drinks, but the drinks must have a sealable lid. **A note on bags:** please make sure your bag is small enough to fit fully under your chair. If not, you will be asked to put it to the side of the classroom. Art supplies, gym bags, and other items will need to be stored on the shelves in the classroom to keep the floor tidy.

MAKE-UP POLICY

The paper assignment sheet explains a late work policy. There are no makeup exams or quizzes, except in extreme circumstances documented with the Dean of Students. Plan your semester accordingly.

ACADEMIC DISHONESTY AND PLAGIARISM

All instances of suspected academic misconduct in this course will be referred to the Office of Student Conduct & Conflict Resolution and may result in failure in this course. All students are expected to engage in their academic pursuits in a professional manner and to maintain honesty and integrity. Students are responsible for knowing the requirements of academic honesty set forth by UTEP. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty. See the UTEP policy on academic integrity and scholastic dishonesty: <https://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html>

POLICY FOR STUDENTS WITH DISABILITIES

Accommodations will be made for students with limitations due to disabilities provided that they are registered with the Center for Accommodations and Support Services (CASS) and procure the proper documentation: <http://sa.utep.edu/cass> (telephone: (915) 747-5148). Students with documented disabilities should make sure that the professor receives the appropriate paperwork from CASS within the first week of class. Please note that CASS is available to help students with any disabilities, documented illness (including anxiety, depression, and PTSD), and in the case of short-term disability (broken bones, etc.).

POLICY FOR STUDENT ABSENCES ON RELIGIOUS HOLY DAYS

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Section 51.911 (a) (2) defines a religious holy day as: “a holy day observed by a religion whose places of worship are exempt from property taxation under Section 11.20....” See your professors at least a week in advance if you intend to miss class in observance of a religious holy day.

*****TENTATIVE COURSE SCHEDULE*** (subject to change)**

Tuesday, August 27

Topic: Introduction and syllabus review

UNIT 1: Art and Environmental Science as Interdisciplinary Fields of Study

Thursday, August 29

Topic: What is earth and environmental science, what is art history, and how do the two intersect? (Dr. Gill and Dr. Warak)

Readings:

Baxandall, Michael. "Excursus Against Influence." In *Patterns of Intention: On the Historical Explanation of Pictures* (New Haven: Yale University Press, 1985), 58-62.

Dickerson, Robert and Pamela Fortner. "The use of geological materials in ancient and contemporary art." *Geology Today* 33:5 (2017): 185-189.

Dove, Jane. "Geology and Art: Cross-curricular Links," *Journal of Art and Design Education* 16:2 (1997): 171- 179

"Eldridge Moores, 1938- 2018." <https://geology.ucdavis.edu/people/inmemoriam/moores>

Elkins, James. "Art History and Images That Are Not Art." *The Art Bulletin* 77:4 (December 1995): 553-571.

Encyclopedia of Earth (online, peer-reviewed wiki at <https://editors.eol.org/eoearth/>), the following articles:

[https://editors.eol.org/eoearth/wiki/Ecology_\(Biology\)](https://editors.eol.org/eoearth/wiki/Ecology_(Biology))

https://editors.eol.org/eoearth/wiki/Physical_geography

https://editors.eol.org/eoearth/wiki/Natural_environment

https://editors.eol.org/eoearth/wiki/Earth_systems_engineering_and_management

Merriam, Daniel Francis. "Special Commentary: A Lost Art- Geological Illustrations." *GSA Today* (November 2009): 30-34.

Moores, Eldridge M. and F. Michael Wahl. Extracts from "The Art Of Geology." *Geological Society of America Special Papers* 225 (1988). (Note: Students may optionally purchase the full e-book which includes 250 photos in 70 photo essays: <http://rock.geosociety.org/Store/detail.aspx?id=SPE225P>)

Noad, Jon. "The Forgotten Art of Geological Field Sketches." *Search and Discovery* (2016): 41853.

Tobisch, Ottmar. "Connections Between The Geological Sciences and Visual Art: Historical Perspectives and Personal Expression In Artwork." *Leonardo* 16:4 (1983): 280-287.

Tuesday, September 3

Topic: Art and Science in the Renaissance and in the Age of Enlightenment: Leonardo da Vinci and Joseph Wright of Derby (Dr. Warak)

Readings:

Barker, Elizabeth. "New Light on *The Orrery*: Joseph Wright and the Representation of Astronomy in Eighteenth Century Britain." *The British Art Journal* 1:2 (Spring 2000): 29-37.

Carrier, David. "'Leonardo' and Leonardo da Vinci." *Leonardo* 41:1 (2008): 36-38.

Dominiczak, Marek. "Science, Alchemy, and Light: Paintings by Joseph Wright of Derby." *CCLM (Clinical Chemistry and Laboratory Medicine)* 40:1 (2002): 74-77.

Ishakawa, Chiyo and Trevor Fairbrother. Leonardo da Vinci's *Codex Leicester*." In *Leonardo Lives: The Codex Leicester and Leonardo da Vinci's Legacy of Art and Science* (Seattle: University of Washington Press, 1998), 12-19.

Thursday, September 5

Quiz 1

Topic: Scientific Perspectives, Paradigms, and Learning and Caring about the Earth from Art (Dr. Gill)

Readings:

Curtis, David J. "Creating inspiration: the role of the arts in creating empathy for ecological restoration." *Ecological Management & Restoration* 10:3 (2009): 174-184.

Encyclopedia of Earth: The Roots of Preservation in America: Online at https://editors.eol.org/eoearth/wiki/The_Roots_of_Preservation_in_America:_Emerson,_Thoreau,_and_the_Hudson_River_School

Johnson, Kenneth George. "Nineteenth-Century Convergence of Geology and Landscape Art in Eastern New York State – A Pedagogic Windfall." *Journal of Geoscience Education* 48:3 (2000): 306-309.

Montgomery, Scott L. "The Eye and the Rock: Art, Observation and the Naturalistic Drawing of Earth Strata." *Earth Sciences History* 15:1 (1996): 3-24.

Montgomery, Scott L. "Were Artists the First Teachers of Geology?" *Journal of Geoscience Education* 48:3 (2000) 325-328.

Romey, William Dowden. "Using Patterns, Icons, Abstractions and Metaphors from Art in Geoscience Classes." *Journal of Geoscience Education* 48:3 (2000): 352-356.

Swanson, Frederick J. "Confluence of arts, humanities and science at sites of long term ecological inquiry." *Ecosphere* 6:8 (2015): 132.

Tooth, Stephen, et al. "Visualizing geomorphology: improving communication of data and concepts through engagement with the arts." *Earth Surface Processes and Landforms* 41 (2016): 1793-1796.

Tuesday, September 10

Topic: What Art Learns from Science (Dr. Warak)

Readings:

Kirsch, Andrea and Rustin Levenson. *Seeing Through Paintings: Physical Examination in Art Historical Studies* (New Haven: Yale University Press, 2002), 1-7, 69-73, 101-105, 214-217.

Polette, Lori, Norma Ugarte, José Miguel Pacamán, and Russell Chianelli, "Decoding the Chemical Complexity of a Remarkable Ancient Paint." *Scientific American* (July/August 2000): 46-53.

Szarkowski, John. "Introduction to *The Photographer's Eye*." In *The Photography Reader*, ed. Liz Wells (London and New York: Routledge, 2003), 97-103.

Wickham, Martin. *Pottery Science: The Chemistry of Clay and Glazes Made Easy* (London: Pitman and New York: Watson-Guption Publishers, 1978), 9-18 (← optional if you are familiar with ceramic processes), 44-51.

Thursday, September 12

Quiz 2

Topic: Geochemistry and Art: Pigmentation, Authentication, Conservation (Dr. Gill)

Readings:

Artoli, Gilberto, and Simona Quartieri. "The Contribution of Geoscience to Cultural Heritage Studies." *Elements* 12 (2016): 13-19.

Caro, Federico, et al. "The Earth Sciences From The Perspective Of An Art Museum." *Elements* 12 (2016): 33- 38.

Feller, Robert L. "Introduction." In Feller, Robert L. (Editor), *Artists' Pigments: A Handbook of their History and Characteristics*. (Washington: National Gallery of Art, 1986), 11- 16.

Hill, Patricia Schroeder. "Teaching Geochemistry Through the Artistic Use of Glass Ceramics and Glazes." *Journal of Geoscience Education* 48:3 (2000): 276-278. (in part)

Janssens, Koen, et al. "Virtual Archaeology of Altered Paintings: Multiscale Chemical Imaging Tools." *Elements* 12 (2016): 39-44.

Margolis, Stanley V. "Authenticating Ancient Marble Sculpture." *Scientific American* 260:6 (1989): 104-111.

Riederer, Josef. "The Detection of Art Forgeries with Scientific Methods." *Forensic Science Progress* 1 (2012): 153-168.

Salisbury, David F. "Cyclotron unlocks secrets surrounding Gutenberg." *The Christian Science Monitor*, October 20, 1983.

Tuesday, September 17

Topic: Case Studies in Conservation and Restoration (Dr. Warak)

Readings:

Cornish, Audie and Petria Noble. "Rembrandt's *The Night Watch* Is Getting Restored and You Can Watch It Happen Live." NPR audio of "All Things Considered" (July 8, 2019). PDF is on Blackboard, but you may listen to the audio here: <https://www.npr.org/2019/07/08/739643758/rembrandts-the-night-watch-is-getting-restored-and-you-can-watch-it-happen-live>

Kimmelman, Michael. "After a Much-Debated Cleaning, A Richly Hued Sistine Emerges." *The New York Times* (May 14, 1990): C00013. PDF is on Blackboard, but you may read the digitized article online here: <https://www.nytimes.com/1990/05/14/arts/review-art-after-a-much-debated-cleaning-a-richly-hued-sistine-emerges.html>

Scheidemann, Christian. "Robert Gober's Painted Sculpture." in *Robert Gober: The Heart Is Not a Metaphor*, ed. Ann Temkin (New York: Museum of Modern Art, 2014), 246-254.

Sorto, Gabrielle. "France Says Notre Dame Must Be Restored Exactly the Way It Was." CNN.com (May 29, 2019). PDF is on Blackboard, but you may read it online here: <https://www.cnn.com/style/article/french-senate-notre-dame-restoration-scli-trnd/index.html>.

Thursday, September 19

Quiz 3

Topic: Excerpts of *Cave of Forgotten Dreams*, dir. Werner Herzog / Exam Review (Dr. Gill and Dr. Warak)

Reading: Ebert, Roger. "Review: *Cave of Forgotten Dreams*." Rogerebert.com, April 27, 2011. PDF is on Blackboard, but you may read the digitized article online here: <https://www.rogerebert.com/reviews/cave-of-forgotten-dreams-2011>

Tuesday, September 24

Exam 1

UNIT 2: The Solid Earth

Thursday, September 26

Topic: Bio-art (Dr. Warak)

Readings:

Byerley, Anne, and Derrick Chong. "Biotech Aesthetics: Exploring the Practice of Bio Art." *Culture and Organization* 21:3 (2015): 197-216.

Lange-Berndt, Petra. "Replication and Decay in Damien Hirst's *Natural History*." *Tate Papers* (Autumn 2007). <http://www.tate.org.uk/research/tateresearch/tatepapers/07autumn/lange>

Tuesday, October 1

Quiz 4

Topic: Learning about the Landscape from Painting (Dr. Warak)

Remote session with Dr. Emily Burns, Auburn University

Readings:

Bedell, Rebecca. "The Popularity of Geology (Introduction)." In *The Anatomy of Nature: Geology and American Landscape Paintings, 1825-1875* (Princeton, NJ: Princeton University Press, 2002): 1-16.

Graciano, Andrew. "'The Book of Nature Is Open to All Men': Geology, Mining, and History in Joseph Wright's Derbyshire Landscapes." *Huntington Library Quarterly* 68:4 (2005): 583-600.

Noble, John. "After Icebergs with a Painter (1861)." In *American Art to 1900: A Documentary History*, eds. Sarah Burns and John Davis (Berkeley: University of California Press), 469-471.

Thursday, October 3

Topic: Scientific Understanding and Interpretation of Environment from Landscape Paintings (Dr. Gill)

Readings:

Borchia, Rosetta and Olivia Nesci. "The usefulness of geomorphology for finding the landscapes drawn by Leonardo da Vinci in the Montefeltro region (Central Italy)." In *Proceedings of the 2nd Conference of the Arabian Journal of Geosciences* (2019), 4 pp., in press.

Frajer, Jindrich and Petr Simacek. "Localisation of the painter's canvas: landscape paintings from the Iron Mountains, Czech Republic." *Journal of Maps* (2018).

Merriam, Daniel F., et al. "Geology as Landscape Art: Interpretation of Geology from Artistic Works." *Kansas Geological Survey Open File Report* (2006) 2006-11. Also view the Supplement document with larger-size images.

Motte, Edwige, and Robin McInnes. "Using Artistic Imagery to Improve Understanding of Coastal Landscape Changes on the Rance Estuary (French Channel Coast)." *Geoheritage* 11:3 (2019): 961-972.

Rees, Ronald. "Geography and landscape painting: An introduction to a neglected field." *Scottish Geographical Magazine* 89:3 (1973): 147-157.

Tuesday, October 8

Quiz 5

Topic: Optics and Art through Claude Monet and Georges Seurat (Dr. Warak)

Readings:

Birren, Faber. "Color Perception in Art: Beyond the Eye into the Brain." *Leonardo* 9:2 (1976): 105-110.

Chevreul, Michel Eugène. *The Principles of Harmony and Contrast of Colours*, Trans. Charles Martel (London: Longman, Brown, Green, and Longmans, 1855), 3-17.

Homer, William Innes. *Seurat and the Science of Painting* (Cambridge: The MIT Press, 1984), 1-12.

Thursday, October 10

Topic: Georgia O'Keeffe and The Environment and Landscape of New Mexico (Dr. Gill)

Readings:

Flores, Dan. "Earth Laid Bare: Learning To Love the Badlands of the American West." *SiteLINES: A Journal of Place* 10:2 (2015) 6-8.

Georgia O'Keeffe Museum, "Georgia O'Keeffe." Museum brochure.

Goodstein, Ethel. "Georgia O'Keeffe's New Mexico: The Artist's Vision of the Land and its Architecture." In: Markovich, Nicholas C., et al. (Editors), *Pueblo Style and Regional Architecture* (New York: Routledge, 1990), 225- 236.

Poling-Kempes, Lesley. "A Call To Place." In: *Georgia O' Keeffe and New Mexico: A Sense of Place, catalog of an exhibition*. (Santa Fe: Georgia O'Keeffe Museum and Princeton University Press, 2004), 76-88.

Robertson, Martha. "Messages from the Far-away: Willa Cather's and Georgia O'Keeffe's Visionary Landscapes of the American Southwest." *Language and Culture: Bulletin of the Institute for Language Education* 16 (2007): 79-98 (Note: The section on Cather on pp. 81-87 is not required.)

*****October 11-13, optional volunteer trip to Marfa, TX for Chinati Open House Weekend; see Dr. Warak for details**

Tuesday, October 15

Topic: Ansel Adams and the National Park Service (Dr. Warak)

Remote discussion with Amy Bracewell, Superintendent of Saratoga National Historical Park (U.S. National Park Service)

Readings:

U.S. National Park Service, Department of the Interior. "A Brief History and Description of the National Park System" (1966). PDF is on Blackboard, but you may read the digitized article online here:

<https://irma.nps.gov/DataStore/DownloadFile/483154>

Adams, Ansel. "Remarks Before the Platform Committee of the Democratic National Convention." Chicago, IL, August 24, 1968. PDF is on Blackboard, but you may read the digitized article online here: <http://anseladams.com/ansel-adams-remarks-before-the-platform-committee-on-the-democratic-national-convention-chicago-illinois-august-24-1968/>

Berenfeld, Michelle. "Planning for Permanent Emergency: 'Triage' as a Strategy for Managing Cultural Resources Threatened by Climate Change." The National Park Service Centennial Essay Series. *The George Wright Forum*, 32:1 (2015). PDF is on Blackboard, but you may read the digitized article online here:

<http://www.georgewright.org/321berenfeld.pdf>

Watch:

*<http://anseladams.com/bbc-masters-ansel-adams-part-1/>

Thursday, October 17

Quiz 6

Topic: Repeat Photography to Document Environmental Change (Dr. Gill)

Readings:

Garrard, Rodney, et al. "An Ever-Changing Place: Interpreting Landscape Change in Sagarmatha National Park, Nepal: Re-Photographic Survey and Encounter." *Eco.Mont* 4:2 (2012): 37-42.

Klett, Mark, and Tyrone Martinsson. "Environmental rephotography: visually mapping time, change, and experience." In: Adamson, Joni, and Davis, Michael (Editors), *Humanities for the Environment: Integrating knowledge, forging new constellations of practice* (London: Routledge, 2016), 120-145.

Kull, Christian A. "Historical landscape repeat photography as a tool for land use change research." *Norsk Geografisk Tidsskrift - Norwegian Journal of Geography* 59:4 (2005): 253-268.

Kumar, N. "Repetition and Remembrance: The Rephotographic Survey Project." *History of Photography* 38:2 (2014): 137-160.

Malde, Harold E. "Repeat Photography at Chaco Canyon Based on Photographs Made During the 1896-1899 Hyde Expedition and in the 1970s." Report prepared for the National Park Service.

Minckley, W.L. "Three decades near Cuatro Cienegas, Mexico: Photographic Documentation And A Plea for Area Conservation." *Journal of the Arizona-Nevada Academy of Science* 26:2 (1992): 89-118.

Morrissey, Katherine G. "Traces and Representations of the U.S.-Mexico Frontera." *Pacific Historical Review* 87:1 (2018): 150-172.

Tuesday, October 22

Topic: Artists Retreat to the Landscape: Artist Colonies in the U.S. (Dr. Gill and Dr. Warak)

Readings:

National Park Service. "Weir Farm National Historic Site Brochure," (2001) ct006392Z.

National Park Service. "Weir Farm National Historic Park, Connecticut: A National Park for Art." Online (please browse entire web site:) <https://www.nps.gov/wefa/index.htm>

"Provincetown History: The Art Colony, A Brief History." PDF is on Blackboard, but may read online here: <http://www.iamprovincetown.com/history/art-colony-history.html>

Thursday, October 24

Quiz 7

Topic: Buckminster Fuller, Earthworks, Land Arts, and Eco Art (Dr. Warak)

Readings:

Boettger, Suzaan. *Earthworks: Art and Landscape of the Sixties* (Berkeley: University of California Press, 2002), 103-107.

Cheetham, Mark. *Landscapes into Eco Art: Articulations of Nature Since the '60s* (University Park, PA: Penn State University Press, 2018), 1-27.

Fuller, R. Buckminster. *Operating Manual for Spaceship Earth* (New York: Touchstone/Simon and Schuster, 1969), 49-56.

Tuesday, October 29

Topic: Conclude Buckminster Fuller, Earthworks, Land Arts, and Eco Art (Dr. Warak) / Exam Review

Thursday, October 31

No regular class. Visit the **El Paso Museum of Art** to view the exhibitions "Refresh," "El Paso Museum of Art: 60 Years of Collecting," and "Leo Villareal: Early Light." Worksheet due in class Nov. 7 for attendance credit.

Address: 1 Arts Festival Plaza, El Paso, TX 79901 (located downtown at N. Santa Fe and W. Main)

Tuesday, November 5

*****Exam 2*****

UNIT 3: The Fluid Earth: Sea and Sky

Thursday, November 7

Topic: The Color of the Sky and Learning from Sky Conditions in Painting (Dr. Gill)

Readings:

Edzelman, Stanley David. "Atmospheric Optics in Art." *Applied Optics* 30:24 (1991): 3514-3522.

Edzelman, Stanley David. "The Sky in Art." *Weatherwise* (January 1992): 8-13.

Edzelman, Stanley David. "Colors of the Sky." *Weatherwise* (January- February 2002): 21-28.

Zerefos, C.S., et al. "Atmospheric Effects of Volcanic Eruptions as Seen By Famous Artists and Depicted In Their Paintings." *Atmospheric Chemistry and Physics* 7 (2007): 4027-4042.

Zerefos, C.S., et al. "Further Evidence of Important Environmental Information Content in Red to Green Ratios as Depicted in Paintings by Great Masters." *Atmospheric Chemistry and Physics* 14 (2014): 2987-3015.

****November 9-24, Rafael Lozano Hemmer's *Border Tuner* project**

Tuesday, November 12

Quiz 8

Topic: Art, Space, and the Sky, 1800s to 1950s (Dr. Warak)

Readings:

*Henderson, Linda. *The Fourth Dimension and Non-Euclidean Geometry in Modern Art*, revised edition (Cambridge, MA: The MIT Press, 2013), 101-111.

*Housefield, James. *Playing with Earth and Sky: Astronomy, Geography, and the Art of Marcel Duchamp* (Hanover, NH: Dartmouth College Press, 2016), 21-55.

Thursday, November 14

Topic: Using Art to Understand Climate Changes (Dr. Gill)

Readings:

Basagic, Hassan J. "Rephotographing Glaciers on the Volcanoes of the Pacific Northwest." *CIRMOUNT- The Newsletter of the Consortium for Integrated Climate Research in Western Mountains* 7:1 (2013): 29-31.

Basagic, Hassan J., and Fountain, Andrew G. "Glaciers and Glacier Change in the Sierra Nevada, California." Poster presented at MTNCLIM 2006, Timberline Lodge, Oregon.

Dillon, Kimberly R., et al. "Artists' Depictions of Catsteps in the Loess Hills of Iowa: Evidence for Mid-Nineteenth Century Climate Change." *Journal of the Iowa Academy of Science* 113:3,4 (2008): 69-80.

Encyclopedia of Earth: https://editors.eol.org/eoearth/wiki/Climate_Change

Lockwood, Mike, et al. "Frost Fairs, Sunspots, and the Little Ice Age." *Astronomy and Geophysics* 58 (2017): 2.17-2.23.

Munroe, Jeffrey S. "Estimates of Little Ice Age Climate Inferred through Historical Rephotography, Northern Uinta Mountains, U.S.A." *Arctic, Antarctic, and Alpine Research* 35:4 (2003): 489-498.

Ossing, Franz. "Paintings as climate archive." *GFZ Journal* 1 (2012): 90-95.

Reams, Max W. "Microclimate controls on weathering, based on rephotography of an outcrop in Kansas, USA, with educational applications." *Zeitschrift für Geomorphologie Supplementband* 60:3 (2016): 45-57.

Robinson, Peter J. "Ice and Snow in Paintings of Little Ice Age Winters." *Weather* 60:2 (2005): 37-41.

Zumbühl, H.J., et al., "19th century glacier representations and fluctuations in the central and western European Alps: An interdisciplinary approach." *Global and Planetary Change* 60 (2008): 42-57.

Tuesday, November 19

Quiz 9

Topic: Case Studies: *Starry Night* and *The Scream* (Dr. Gill)

Aragón, J.L., et al. "Turbulent Luminance In Impassioned Van Gogh Paintings." *Journal of Mathematical Imaging and Visualization* 30 (2008): 275-283.

Beattie, James R. and Neco Kriel. "Is The Starry Night Turbulent?" *ARXIV* (2019): 1902.03381v2

Fikke, Svein M., et al. "Screaming clouds." *Weather* 72:5 (2017): 115-121.

Garfield, Kathryn. "A Turbulent Mind: The Physics of Van Gogh's 'Starry Night.'" *Discover Magazine*, October 2006.

Read online at <http://discovermagazine.com/2006/oct/van-gogh-turbulence-painting>

Olson, Donald W., et al. "When The Sky Ran Red: The Story Behind 'The Scream.'" *Sky and Telescope* (February 2004): 29-36.

Olson, Marilynn S., et al. "On the Blood Red Sky of Munch's 'The Scream.'" *Environmental History* 12:1 (2007): 131-135.

Prata, Fred, et al. "The Sky in Edvard Munch's 'The Scream.'" *Bulletin of the American Meteorological Society* (July 2018): 1377-1390.

Thursday, November 21

Topic: Contemporary Artists Contemplate Space (Dr. Warak)

Readings:

Kessler, Elizabeth. *Picturing the Cosmos: Hubble Space Telescope Images and the Astronomical Sublime* (Minneapolis: University of Minnesota Press, 2012), 1-18.

Paglen, Trevor. *The Last Pictures* (New York and Berkeley: Creative Time Books and University of California Press, 2012), 8-20.

Tate Modern. "The Unilever Series: Olafur Eliasson: The Weather Project." Read "About the Installation" and "Understanding the Project" sections at <https://www.tate.org.uk/whats-on/tate-modern/exhibition/unilever-series/unilever-series-olafur-eliasson-weather-project-0> and <https://www.tate.org.uk/whats-on/tate-modern/exhibition/unilever-series/unilever-series-olafur-eliasson-weather-project-0-0>.

Tuesday, November 26

Quiz 10

Topic: Under the Sea: Underwater Images and Seascapes (Dr. Warak)

Readings:

Haeckel, Ernst. *Art Forms in Nature* (1904), Dover Pictorial Archive (Mineola, New York: Dover Books, 1974), pages TBA.

Jungck, John et al. "Art Forms in Nature: Radiolaria from Haeckel and Blaschka to 3D Nanotomography, Quantitative Image Analysis, Evolution, and Contemporary Art." *Theory in Biosciences* 138 (2019): 159-187.

Willman, Rainer and Julia Voss. *The Art and Science of Ernst Haeckel* (London: Taschen Books, 2019), pages TBA.

Tuesday, December 3

Topic: Artists on Historic and Modern-Day Expeditions to the "Ends of the Earth" (Dr. Gill)

Readings:

Balm, Roger. "Expeditionary Art: An Appraisal." *The Geographical Review* 90:4 (2000): 585-602.

Brown, Marlene R. *Artists of the American West: Explorers, Naturalists and Unexpected Conservationists* (M.A. Thesis, California State University- Dominguez Hills, 2005). (Read Abstract and pp. 1- 50.)

Childs, Elizabeth. "Time's Profile: John Wesley Powell, Art, and Geology at the Grand Canyon." *American Art* 10:1 (1996): 6-35.

Shepherd, Patrick. "Creativity at the Frozen Frontier." In: Liggett, Daniela, et al. (Editors), *Exploring the Last Continent: An Introduction to Antarctica* (Heidelberg: Springer, 2015), 399-412.

Urban, F. "Australia's Convict Explorers and Landscape Artists." *The Globe* 80 (2016): 57-69.

Wednesday, December 4

Research Projects Due (tentatively)

Thursday, December 5

Topic: Course Wrap-up and Exam Review (Dr. Gill and Dr. Warak)

*****EXAM 3***** will take place during the course's designated final exam period, but will not be cumulative: **Tuesday, December 10th at 4:00 - 5:30 p.m.** in our classroom.

10th at 4:00 - 5:30 p.m. in our classroom.