



ARTH 3399 | ESCI 4315: Art and the Environment
University of Texas at El Paso
Spring 2025

CRNs: 23731 (ARTH 3399) and 27082 (ESCI 4315)

Class Meeting Times: Wednesdays, 1:30-4:20 pm. The class will meet most often in person, but will also have online learning days via Zoom or video. Plan to use the full class time each day.

Location: Fox Fine Arts A458 (fourth floor of the Art wing)

Professors: This course is co-taught by Dr. Melissa Warak (ARTH; she/her) and Dr. Thomas Gill (ESCI; he/him).

Dr. Warak

Email: mcwarak@utep.edu

Office Hours: Mondays and Wednesdays from 10:00-11:00 am. These will be held via Zoom or in person. Sign up for office hour meetings here: <https://calendly.com/warakofficehours/15min>.

Office: Fox Fine Arts A454

Office Phone: (915) 747-7849

Dr. Gill

Email: tegill@utep.edu

Office Hours: Mondays from 1:30-2:30 and Tuesdays from 1:00-2:00 or by appointment. These will be held via Zoom on Mondays at

<https://utep-edu.zoom.us/j/81627324437?pwd=x6HfY2xq1ECn85paGR0SMGta3rFpZX.1>

and on Tuesdays at [https://utep-](https://utep-edu.zoom.us/j/83906799640?pwd=JCoOvwnRwiMbVZqH6uMUMmQCK0yhaR.1)

[edu.zoom.us/j/83906799640?pwd=JCoOvwnRwiMbVZqH6uMUMmQCK0yhaR.1](https://utep-edu.zoom.us/j/83906799640?pwd=JCoOvwnRwiMbVZqH6uMUMmQCK0yhaR.1)

Office: Geology 401A

Office Phone: (915) 747-5168

ABOUT YOUR PROFESSORS

Dr. Thomas E. (Tom) Gill is Professor of Earth, Environmental and Resource 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 more than 100 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 an Associate Professor of Art History and specializes in the relationship of music and sound to art of the twentieth and twenty-first centuries. Dr. Warak is a proud Texan and a native of Houston. She earned a B.A. in English literature and art history from Vanderbilt University, and her M.A. and 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. She is the author of *Sonic Sculpture and the Performative Impulse: Sounding Things Out* (Routledge, 2025) and is working on a new book on the sung voice in contemporary art. Other research interests include the history of abstraction, spirituality in modern and contemporary art, science and technology in modern and contemporary art, and disability representation 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 Yale University Art Galleries, the Tate Modern, the Grand Palais in Paris, the Kress Foundation, the Mellon Foundation, and the National Science Foundation, among others.

COURSE MATERIALS AND TECHNOLOGY

All materials for the course, including PowerPoints and PDFs of course texts, will be uploaded to the course Blackboard page. Students will need a strong internet connection and a computer (either a laptop or a desktop) in order to study the images on a larger screen. Google Chrome is the recommended browser for Blackboard. UTEP students may check out laptops and wifi hot spots from the UTEP library.

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 and **three small written assignments**. We will have **six short quizzes** throughout the semester. There will be no makeup quizzes, but every student gets a free (“dropped”) quiz grade.

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

Syllabus Quiz:	5 points
Quizzes (6, but one free):	50 points
Exam 1:	90 points
Exam 2:	90 points
Exam 3:	90 points
Research Project Prospectus:	10 points
Research Project:	100 points
Centennial Plaza Worksheet:	10 points
Leonardo Assignment:	20 points
Rubin Center Worksheet:	10 points
Participation I:	10 points
Participation II:	15 points

Note: There will be extra credit opportunities available during the semester.

You will see that the Blackboard page allows for 510+ points, but this accounts for the free quiz grade and any extra credit. You are graded only out of 500 points. Thus, this is the point breakdown for grades:

- 450 – 500 points: A
- 400 – 449 points: B

350 – 399 points: C
300 – 349 points: D
000 – 299 points: F

TAKING NOTES IN CLASS

Note that laptops are allowed only 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 either a dedicated notebook or by taking notes on your laptop. 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 put each class 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 or a printout of your class notes; 2) quizzes; 3) any handouts or worksheets from class. You **may not** bring copies of the class PowerPoint presentations or printouts of the class readings. 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. Makeup exams will be allowed only with documentation of an emergency situation from the Dean of Students. Contact Dr. Warak and Dr. Gill ASAP if you will miss an exam.

QUIZZES

Students will take short quizzes worth ten points each 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 quiz questions will relate to our daily handouts 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 understand the study questions on the handouts (take notes on these, as you can use them during the exams as well). We encourage you to study the readings and topics with your classmates.

LATE WORK POLICY Every assignment explains the corresponding late work policy.

*****COURSE POLICIES*****

ATTENDANCE POLICY (MANDATORY ATTENDANCE)

Policy in short:

DO NOT COME TO CLASS IF YOU ARE SICK. Wear a mask if you are recovering from an illness.

Allowed absences without penalty (no documentation needed) = **3 absences**

Tardies = $\frac{1}{2}$ **absence**

Automatic drop = **6 absences total or 2 absences before the course census date (Feb. 5)**

Absences due to COVID-19 illness will be excused but will require official documentation.

Policy in detail:

Class attendance is a requirement and use of the full class period is expected. Make sure you (and only you) sign the attendance sheet at the beginning of class every day. Do not sign the attendance sheet for anyone else or ask anyone to sign for you.

You are allowed **three absences** for *any reason* without grading consequences. There are no “excused” or “unexcused” absences, except in the case of COVID-19 absences. It is up to your discretion how you use your three absences, including for illness. You do not need to show documentation or doctor’s notes and you do not need to notify your professors in advance except in the case of a religious holy day (see below). **More than three absences from class will result in a lowering of your overall grade by fifteen points per absence** (remember that this class is graded on a scale of 500 points). In the case of an illness or emergency that causes you to miss more than three consecutive class days, email your professor ASAP. Students who are more than **ten minutes late** without permission will be given half credit for attendance. **Tardies (half credits)** will figure into the absence count. The absences column on the Gradebook section of Blackboard keeps a running tally. You can access the attendance record on Blackboard to see which days you have missed or were late/left early.

COURSE DROP POLICY

Six absences will result in an automatic drop from the course; this includes tardies and excused absences from COVID. Students with three or more absences by the census date (Feb. 5) will be dropped.

COPYRIGHT OF THIS COURSE

All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated or shared with other students or websites.

FERPA AND EMAIL POLICY

This course adheres to [Federal Education Rights and Privacy Act](#) (FERPA) regulations. Your professors will always email the class through Blackboard using UTEP email addresses. Students should email faculty from an official UTEP email address (miners.utep.edu). We will never post identifiable information about students, and we will not discuss specifics of your student performance with anyone without a FERPA waiver signed by you. FERPA regulations forbid faculty from exchanging emails with students about grade numbers specifically. This is because email is considered an insecure medium and may be hacked. Make an office hours appointment if you have

a question or concern about letter grades or numbers. However, you may email more generally about improving in the course

LAPTOPS, TABLETS, AND PHONES Students may use computers and tablets to take notes during class, but please keep phones out of sight. Please use electronics professionally. If you need to use your phone during class (even to text), please step out of the classroom briefly. There are power outlets all along the walls. Lectures may not be recorded without CASS accommodations in place.

CLASSROOM ETIQUETTE

We will plan to take a small break during class. Please be respectful of other students in the classroom. The classroom door will be open for five minutes after class begins; after ten minutes, tardies will be given. 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 a drink only (no food), and it must have sealable lid. If you need to use your phone for any reason, please step outside of the classroom. **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.

SAFEASSIGN

Most written documents will be submitted through SafeAssign links on Blackboard. Students should submit the file type indicated in the assignments (.docx or .pdf). Uploading a document to SafeAssign sometimes takes several minutes, so give yourself some buffer time in case there is an upload error. SafeAssign is also a plagiarism detection tool, and you can use this to your advantage by pulling an Originality Report for work that you upload. SafeAssign provides me with a time stamp for each submission, as well as an Originality Report.

AI POLICY

UTEP officially considers the use of AI (artificial intelligence) as a form of plagiarism unless otherwise directed by the professor. The use of AI programs for any assignment is prohibited in this class. All written work, including exams, will be run through AI detection software; any assignment suspected to have used AI will be sent to the Office of Community Standards (<https://www.utep.edu/student-affairs/standards/>) and assessed for academic dishonesty at the university level. At the minimum, this would result in a zero for any assignment on which UTEP has determined that AI was used.

ACADEMIC DISHONESTY AND PLAGIARISM

Academic dishonesty – including the use of AI on assignments – or cheating will result in referral to the Office of Community Standards and will incur harsh penalties, including failure of the assignment, of the course, or further disciplinary action determined by the university. Please do not waste your time trying it; expend your energy on doing the work instead. Any student who must cheat in order to pass a class does not deserve a degree from UTEP because it has not been earned honestly. All students are expected to engage in their academic pursuits in a professional manner and to maintain honesty and integrity. Sometimes, students commit academic dishonesty without knowing it, but ignorance is not an excuse. All 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/standards/student-conduct/academic-integrity.html>.

POLICY FOR STUDENTS WITH DISABILITIES, PREGNANT STUDENTS, AND STUDENT-PARENTS

Accommodations will be made for students with limitations due to disabilities if they are registered with the [Center for Accommodations and Support Services \(CASS\)](#) and procure the proper documentation: (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 PTS), and in the case of short-term disability (broken bones, etc.). UTEP has a [Student Pregnancy and Parenting Nondiscrimination Policy](#), which may allow for some accommodations through CASS. Please note that I use the Atkinson Hyperlegible or Calibri fonts on course documents because these are the most accessible for students with learning and vision disabilities.

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 professor at least a week in advance if you intend to miss class in observance of a religious holy day.

COVID-19 PRECAUTION STATEMENT

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. See [here](#) for the latest information about testing for COVID-19 on campus.

*****TENTATIVE COURSE SCHEDULE (SUBJECT TO CHANGE)*****

Write all due dates in a calendar during the first week of class. The course schedule is subject to revision. Students will be notified by email and in class if changes occur.

Wednesday, January 22

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

Friday, January 24

Syllabus Quiz due on Blackboard by 11:59 pm. The quiz is open book/note.

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

Wednesday, January 29

Quiz #1

Topic: Art and Science in the Renaissance and in the Age of Enlightenment (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.

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

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.

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

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

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

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

Wednesday, February 5

Quiz #2

Topic: What Art Learns from Science / 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.

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.
Sorto, Gabrielle. "France Says Notre Dame Must Be Restored Exactly the Way It Was." CNN.com (May 29, 2019).
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.

Friday, February 7

OPTIONAL Focus Talk Program meeting at the El Paso Museum of Art, 11:00 am. Plan to attend if you would like to sign up to give a Focus Talk at the museum in April.

Wednesday, February 12

****Leonardo assignment due on Blackboard by 11:59 pm****

Topic: Scientific Perspectives, Paradigms, and Learning and Caring about the Earth from Art / Geochemistry and Art: Pigmentation, Authentication, Conservation (Dr. Gill) / Exam 1 Review
Readings:

Artioli, 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.

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.

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

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. "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.

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.

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

Wednesday, February 19

Topic: ****Exam 1** (first half of class)** / Excerpts of *Cave of Forgotten Dreams*, dir. Werner Herzog (second half)

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>

UNIT 2: The Solid Earth

Wednesday, February 26

Meet at the Rubin Center for the Visual Arts (Seamon Hall, between Fox Fine Arts and the Sun Bowl).

Topic: Discussion with contemporary artists Francis Almendárez and Anthony Almendárez and visit the exhibition "Mud + Corn + Stone + Blue" at the Rubin Center.

Reading: TBD

Wednesday, March 5

****Rubin Center Worksheet due online by 11:59 pm****

Topic: Scientific Understanding and Interpretation of Environment from Landscape Paintings / Georgia O'Keeffe and The Environment and Landscape of New Mexico (Dr. Gill)

Reading:

- 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), 103-106.
- Frajer, Jindrich and Petr Simacek. "Localisation of the painter's canvas: landscape paintings from the Iron Mountains, Czech Republic." *Journal of Maps* (2018), vol. 15(3): 66-74.
- Merriam, Daniel F., et al. "Geology as Landscape Art: Interpretation of Geology from Artistic Works." *Kansas Geological Survey Open File Report* (2006) 2006-11.
- 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.
- 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.

SPRING BREAK (March 12 – no class)

Wednesday, March 19

Quiz #3

Topic: Bio-art / Optics and Art through Claude Monet and Georges Seurat (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>

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

Chevreur, 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.

Wednesday, March 26

Quiz #4

Topic: Ansel Adams and the National Park Service / Buckminster Fuller, Earthworks, Land Arts, and Eco Art (Dr. Warak)

Reading:

U.S. National Park Service, Department of the Interior. "A Brief History and Description of the National Park System" (1966). <https://irma.nps.gov/DataStore/DownloadFile/483154>

Adams, Ansel. "Remarks Before the Platform Committee of the Democratic National Convention." Chicago, IL, August 24, 1968. <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). <http://www.georgewright.org/321berenfeld.pdf>

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

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.

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.

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

Watch:

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

Wednesday, April 2

Topic: Repeat Photography to Document Environmental Change (Dr. Gill) / Exam 2 Review

Readings:

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

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.

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

Thursday, April 3

**extra credit: EPMA Focus Talks, 5:00-6:00 pm

Wednesday, April 9

Topic: ****Exam 2**** (first half of class) / Visit to Centennial Plaza (second half of class).

Submit Centennial Plaza worksheet at the end of class.

Thursday, April 10

**extra credit: EPMA Focus Talks, 5:00-6:00 pm

UNIT 3: The Fluid Earth: Sea and Sky

Wednesday, April 16

Topic: The Color of the Sky and Learning from Sky Conditions in Painting / Case Studies: *Starry Night* and *The Scream* (Dr. Gill)

Readings:

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

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>

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

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

Olson, Marilyn 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.

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.
Optional: Fikke, Svein M., et al. "Screaming Clouds." *Weather* 72:5 (2017): 115-121.
Optional: Olson, Donald W., et al. "When The Sky Ran Red: The Story Behind 'The Scream'." *Sky and Telescope* (February 2004): 29-36.

Thursday, April 17

**extra credit: EPMA Focus Talks, 5:00-6:00 pm

Wednesday, April 23

Quiz #5

Topic: Art, Space, and the Sky, 1800s to 1950s / Contemporary Artists Contemplate Space (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.

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>.

Thursday, April 24

**extra credit: Art History Symposium, 5:00-6:30 pm

Monday, April 28

****Research projects due by 11:59 pm.****

Wednesday, April 30

Quiz #6

Topic: Under the Sea: Underwater Images and Seascapes (Dr. Warak) / Using Art to Understand Climate Changes (Dr. Gill)

Reading:

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.

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

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

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.

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

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

Optional: 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.

Wednesday, May 7

Topic: Research Student Presentations / Artists on Historic and Modern-Day Expeditions to the "Ends of the Earth" (Dr. Gill) / Exam 3 Review

Reading:

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

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.

*****Exam 3** will not be cumulative, but will take place during our course's designated final exam time: **Wednesday, May 14, 4:00 pm** in our classroom.