

Course Information

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Course Information	Course details	Class schedule
Last updated	2023/09/25	
Course description	<p>This interdisciplinary course explores the history of intersections and interplays between Science and Art from inventions of ancient civilizations until today's digital media, discussing on: Investigation of natural phenomena and creation of Fine Arts through Liberal Arts in the Renaissance, "natural philosophers" during the Enlightenment, role of subjectivity / objectivity with scientific method, and the "science" of aesthetics including color science, the separation of Science from Art, "The Two Cultures" debate in the 20th century, the compelling history of image-making with new theories and technologies in the late 20th and early 21st century (string theory in physics, computer graphics), even the recent claims of "neuroaesthetics" and neuroscience, as well as hybrids such as "bio art", "new media art", and "nano-science" as art. This course solicits participation of students who have an interest in the sciences, technologies, art, architecture and music.</p>	
Objectives	<p>Exploring the epistemology and hermeneutics in Science and Art, students will be guided to be able to understand how both domains interact with each other, by revealing the contact points of scientific/artistic subjects (science searching for objective truth while art guided by subjective introspection) including manipulations of the object of inquiry which become more and more "blurring" between the art/science domains. By the end of this course, students will have acquired the necessary analytical / interpretative tools to establish interdisciplinary parallels between Science and Art.</p>	
AILA Elements	<p>AILA Elements</p> <p>1) Interdisciplinary aspects and connections: Global perspective of this course is the "inquiry" and the "assessment" of Human beings' creative adventure inspired by or related to Science. For better understanding of the interaction between sciences and arts, this course encourages students to tackle not only the study of science related visual culture, theories, criticism, but also the analysis of socio-political, economic, technological influences seen within the history of material culture and visual language which are interconnected with other subjects. The course is articulated by the following steps:</p> <ul style="list-style-type: none"> -Learn -Investigate -Analyze -Synthesize -Develop critical thinking <p>2) Holistic Personal Development: Through this course students will be not only seeking a better understanding of the content, but also enhancing capacity of personal development, self-sustainability, resilience, as well as getting competitive creative advantages along their life. This vision is conceptualized with the following phases:</p> <ul style="list-style-type: none"> -Explore -Understand -Imagine -Create -Organize 	
AILA Activities & Projects	<p>AILA Activities & Projects:</p> <p>1) Group Presentation and Solo Presentation (7 min per each presenter) – choosing one of the topics on intersections of Science and Art (specific theories, movements, individuals who played a significant role) proposed by the instructor or one of students' own interest. Each presentation is followed by class discussion. The preparation for these presentations will engage students to pursue personal / collective investigation with advice / helps of the instructor. Each presentation should provide historical context: social and cultural background as well as interfaces with diverse connecting fields such as Philosophy, Psychology, so that each presentation can be followed by an active and wide-ranged Q/A session, and an</p>	

engaged and interactive discussion. Presentation materials can be uploaded on AIMS and made available as a shareable resource.

2) Field Trip Museum visit (or Virtual Museum visit as an alternative) with an assignment: Art Review Report which highlights, explains any significant artworks inspired by or related to science/mathematics/technologies the students have experienced. Each student's motivated engagement and creativity are both needed. The output will be graded based on its accuracy of technical and historical terms for formal/stylistic/comparative analysis acquired from the course as well as critical thinking in comparative perspective.

3) Creating a research paper

The gain of the above-mentioned activities 1) & 2) will be reflected on students' final task,

Lynn Gamwell / Mathematics + Art – A Cultural History / Princeton University Press, 2016 / 978-0-691-16528

Martin Kemp / The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat / Yale University Press New Haven and London / 978-0-300-05241

The textbooks and reference books will be placed on reserve for this course. Some scanned readings will be available on the AIMS. Nevertheless please consult the books in the Library, for full arguments.

•Michael Mark Woolfson, Colour. How We See It and How We Use it, London: World Scientific Publishing, 2016.ISBN-13 : 978-1786340856

•Paul A. Calter, Squaring the Circles: Geometry in Art and Architecture, Key College Publishing, 2008.ISBN-13 : 978-0470412121

•J.V. Field, The Invention of Infinity: Mathematics and Art in the Renaissance, Oxford University Press, 1995.ISBN-13 : 978-0198523949

•Michael Field & Martin Golubitsky, Symmetry in Chaos: A Search for Pattern in Mathematics, Art, and Nature, SIAM (The Society for Industrial and Applied Mathematics), 2009.ISBN-13 : 978-0198536895

•Linda Dalrymple Henderson The Fourth Dimension and Non-Euclidean Geometry in Modern Art, MIT, (reedition) 2013.ISBN-13 : 978-0262582445

•Caroline A. Jones & Peter Galison, Picturing Science, Producing Art, New York Routledge, 1997.ISBN 9780415919128

•Rossella Lupacchini & Anarita Angelini (Ed.), The Art of Science: From Perspective Drawing to Quantum Randomness, University of Bologna/Springer, 2014. ISBN-13: 978-3319021102

•Arthur I. Miller, Colliding Worlds: How cutting-edge science is redefining contemporary art, W.W. Norton & Company, 2014.ISBN-13 : 978-0393083361

•Erwin Panofsky, "Galileo as a Critic of the Arts: Aesthetic Attitude and Scientific Thought", ISIS, vol.47, no.1 (March, 1956), pp.3-15, <http://www.jstor.org/stable/227542>

•Gavin Parkinson, Surrealism, Art and Modern Science. Relativity, Quantum Mechanics, Epistemology, New Haven and London: Yale University Press, 2008. ISBN: 9780300098877

•Dan Pedoe, Geometry and the Visual Arts, New York: Dover Publications, Inc., 1983 ISBN-13 : 978-0486244587

•Joe Rosen, Symmetry Discovered: Concepts and Applications in Nature and Science, 1998, New York: Dover Publications Inc. Kindle edition, 2012; ASIN : B00A3ZEKVV

•Aylish Wood, Digital Encounters, Routledge, 2007;ISBN 9780415410663

20% -Class participation (in discussion), presentation of reading and response

20% -Presentation on a topic

10% -Quizzes

50% -Research paper

Assessment

Expected academic background

No advanced academic background is needed, beyond high school level knowledge of Mathematics, Physics, Biology, World History, while a general academic background of Art History is needed.

URL of other information

Not Applicable

Attachments

Not Applicable

Policies & remarks

Attendance policy: Attendance and consistent arrival to class on time are mandatory. If you know that you will be absent or late to class, please contact me in advance. Any student who has more than six unexcused absences will receive a failing grade for the semester.

Academic honesty: Acts of academic dishonesty merit a failing grade in the course - Use correct and thorough citations/documentation.

Notes

Updated Assessment

Field Trips, expenses other than textbooks, and so on.

Students achievement will be evaluated by a composite mark:

10% -Participation into Q&A + Discussion Forums on specific topics (postings to AIMS)

10% -Art Review (Two Exhibitions or Virtual Tours Review Report in 500 words)

10% -Writing Assignments + Quiz
20% -Presentations (1 Group presentation 10% + 1 Solo presentation 10%)
20% -Mid-Term Exam: Analytic Essay (1500-2000 words)
30% -Final Exam: Research Paper (2000-3000 words)

Students' Activities/Products

1/Students will be asked to discuss in group on a specific topic in one synchronous class meeting and/or on AIMS; these discussions involve giving some background on the topics, situating them in the context of the course, extrapolating a few key points and generating a few questions to develop discussion of the material. Each student will post discussion result to AIMS.

2/Students will be asked to take responsibility of presentations (a group presentation and a solo presentation) on topics related to the course.

3/Students will be expected to produce an Art Review which may be related to the topic of final research paper.

4/Students will be expected to produce a mid-term paper and a final research paper on topics related to the course subject and to their own research interests.

Quiz and Assignments will be posted on AIMS.

AIU Academic Dishonesty Policy (Undergraduate)

In accordance with AIU policies and good practices in higher education, acts of academic dishonesty such as plagiarism, cheating, forgery (on a paper, examination, test, or other assignment) may result in the failure of the course.

An act of academic dishonesty during the final examination, or assignment in lieu of the final examination, may result in failure of all courses registered in the relevant academic term.

Cases of academic dishonesty will be reported to the Office of Student Records for relevant action.

AIU Academic Dishonesty Policy

AIU Academic Dishonesty Policy (Graduate)

Acts of Academic Dishonesty: In accordance with AIU policies and good practices in higher education, acts of academic dishonesty such as plagiarism, cheating, forgery (on a paper, examination, test, or other assignment) will result in the failure of the course at a minimum.

An act of academic dishonesty during the final examination or assignment in lieu of the final examination will result in failure of all courses registered in the relevant academic term.

Cases of academic dishonesty will be reported to the Dean of Academic Affairs for relevant action.