

IDS 2935: Mathematics in the Arts of Renaissance Italy, Spring 2025

Quest 1: The Examined Life

I. General Information

Class Meetings

- TBD

Instructor

- Carol Demas
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- Office Hours: TBD
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Course Description:

This Quest I course on The Examined Life seeks to answer the following question: How is mathematics used in the arts to improve and add value to our lives?

Based on critical thinking and discussion of the art, architecture, music, and gardens of Italian Renaissance Italy provides instruction in the history, key themes, principles, terminology, and theory or methodologies within the time period of approximately 1300 AD-1600 AD. Students will learn to identify and analyze the key elements, biases, and with emphasis on mathematical principles in this time.

By examining how mathematics influenced and inspired artistic creativity during the Italian Renaissance, the following two essential questions are addressed:

- a. In what ways do mathematical ideas and concepts influence our views on reality, our understanding of knowledge, and our place in the world?
- b. In what manner has mathematics contributed to the enhancement of well-being by fostering explorations of truth, beauty, creativity, and imagination across diverse artistic pursuits?

The course explores the intersection of mathematics and artistic creativity during the Italian Renaissance. The Italian Renaissance, a period of remarkable cultural transformation spanning the 14th to the 17th century, produced some of the world's most iconic art, architecture, and gardens. Central to the achievements of this era was the incorporation of mathematics into these disciplines, leading to the creation of masterpieces that continue to captivate and inspire us today.

Mathematical principles played a pivotal role in shaping the aesthetics, design, and innovation of this influential period. This interdisciplinary course combines the realms of mathematics, art history,

and architectural theory to provide students with a comprehensive understanding of the intellectual and creative landscape of the Italian Renaissance.

Course Highlights:

- **Historical Context:** Examine key figures, events, and ideas that defined this period.
- **Mathematical Foundations:** Gain appreciation for the mathematical principles underpinning Renaissance art, from perspective and proportion to the Golden Ratio and geometry.
- **Analyze renowned works of art** by Italian Renaissance masters such as Leonardo da Vinci, Michelangelo, Raphael, and Botticelli. Understand how these artists harnessed mathematical concepts.
- **Architecture:** Study the designs of Brunelleschi, Alberti, and Palladio. Explore the mathematical precision behind the construction of iconic structures like the Il Duomo and the Basilica of San Andrea.
- **Gardens as Mathematical Landscapes:** Discuss mathematical principles in the design of elaborate, harmonious, and symbolic green spaces.
- **Music:** Discuss mathematics of modes vs. the tonal system, rhythms, harmonic ratios, numerology, polyphony, geometry, circle of fifths, and counterpoint in Italian Renaissance music.
- **Modern Applications:** Learn how the mathematical innovations of the Italian Renaissance continue to influence contemporary art, architecture, music, and landscape.

Quest and General Education Credit

- Quest 1
- Humanities
- Writing Requirement (WR) 2000 words

This course accomplishes the [Quest](#) and [General Education objectives](#) of the subject areas listed above. A minimum grade of C is required for Quest and General Education credit. Courses intended to satisfy Quest and General Education requirements cannot be taken S-U.

The following Quest requirements will be met with details provided in section II below.

- *Identify, describe, and explain the history, theories, and methodologies used to examine essential questions about the human condition within and across the arts and humanities disciplines incorporated into the course. (Content)*
- *Analyze and evaluate essential questions about the human condition, using established practices appropriate for the arts and humanities disciplines incorporated into the course. (Critical Thinking)*
- *Develop and present clear and effective responses to essential questions in oral and written forms as appropriate to the relevant humanities disciplines incorporated into the course. (Communication)*
- *Connect course content with critical reflection on their intellectual, personal, and professional development at UF and beyond. (Connection)*

DISCLAIMER: Works of art may include nudity or controversial subjects with or without accompanying religious themes. These works, whether displayed during class time or in any associated required or recommended readings or videos, and any discussions regarding such works, are not intended to challenge students' personal beliefs or cause offense. If a student has issues with nudity or other visually represented subjects, they must notify the instructor as to specifics within the first two weeks of the course.

Required Readings and Works

The following will be available at no charge in Canvas:

- Anderson K (2006) *The Geometry of an Art: The History of the Mathematical Theory of Perspective from Alberti to Monge* (Sources and Studies in the History of Mathematics and Physical Sciences), Springer, ISBN-13 : 978-0387259611
- [Smarthistory Guide to AP® Art History Volume 1](#)
- [Smarthistory Guide to Italian Art in the 1300s](#)
- [Smarthistory Guide to Italian Art in the 1400s](#)
- Benson, D (2006) *Music: a Mathematical Offering*, Cambridge, UK, Cambridge University Press, ISBN 0521619998

Recommended Readings

- Writing manual: Strunk, W. (1999). [The elements of style.](#)

The following are available at archive.org, free with registration:

- Ree, P V (1992) *Italian Villas and Gardens*, Munich; Prestel ISBN-13 : 978-3791311814
- Field, J V (1997) *The Invention of Infinity: Mathematics and the Arts in the Renaissance*. New York; Oxford University Press, ISBN-13 : 978-0198523949
- Anderson K (2007) *The geometry of an art : the history of the mathematical theory of perspective from Alberti to Monge*, New York Springer, ISBN-13 : 978-0387259611
- Jestaz, B (1999) *Architecture of the Renaissance*, London, Thames Hudson, ISBN-13 : 978-0500300626
- de Robeck N (1969) *Music of the Italian Renaissance*, New York, Da Capo Press, ISBN-13 : 978-0306712326
- Brauchitsch B, *Renaissance* (2000), Hauppauge, NY, Barrons, ISBN-13 : 978-0764113369
- Kemp M. (1992) *The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat*, New Haven, Yale University Press, ISBN-13 : 978-0300052411 pp.6-52, 260-274
- Murray, P (1985) *Renaissance architecture*, Milan, Rizzoli, ISBN-13 : 978-0847804740
- Spilsbury, R (2008) *Renaissance*, Portsmouth, NH, Heinemann, ISBN-13 : 978-1432913724
- Wundram M (2004), *Palladio*, Los Angeles, Taschen America Llc; ISBN-13 : 978-3836550215

All other readings and works are available in Canvas.
Materials and Supplies Fees: n/a

II. Graded Work

Assignment	Assignment Description	General Education SLOs Met	Quest 1 Humanities SLO Met	Points
Discussions (6, due every other week in Canvas Discussions)	Canvas assignment in which students discuss topics related to the weekly lectures and readings. Requirements: a. Answer the question(s) posted in the discussions. (100 points) b. Respond to at least two other students' original posts. (50 points)	<i>Communication (students communicate their ideas on the discussion board), Content (students identify, describe, and explain weekly topics) Critical Thinking (Students analyze and connect course content with critical reflection on their personal and professional development)</i>	Display knowledge of topics, demonstrate understanding of ideas, identify, explain, and describe theories and methodologies , apply knowledge to new situations, analyze other student contributions	150
Google Slides Presentation (due TBD)	Students will create a presentation using Google Slides. Through images and written narrative they will describe and analyze two works of art or architecture inspired by the Experiential Learning Field Trip content. Focus should be on the connection, or the lack thereof, between the artworks and certain mathematical concepts that discussed in class, such as patterns, symmetry, perspective, etc. Examples of sample Google Slides will be provided to guide students.	<i>Communication, Critical Thinking (students communicate their ideas in a visual medium incorporating graphics and text), Content (students identify, describe, and explain two works examined in experiential learning) Critical Thinking (Students analyze and connect course content with critical reflection on their personal and professional development)</i>	Connect course content to own lives, display knowledge of principles, organize and summarize main ideas, apply acquired knowledge to new situations, analyze elements and relationships.	200
Analytical Essay Proposal (due TBD)	Students will draft a 500-600 words proposal on a given essay prompt. The essay prompt is to examine a question or theme of a class text or to compare or contrast a theme from two class texts. The proposal should include an introductory paragraph, an outline of the points that are	<i>Communication and Critical Thinking Select, analyze and evaluate essential questions in the course. (Critical Thinking)</i> <i>Develop and present clear and</i>	Analyze and evaluate essential questions, display knowledge of principles, organize and summarize main ideas,	50

	being addressed, and a draft bibliography of at least two sources. The essay proposal will be graded and marked for content, punctuation, spelling, syntax, and diction. The proposal does not count towards the WR 2000 words requirement.	effective responses to essential questions in written form. (Communication)	apply acquired knowledge to new situations, analyze elements and relationships.	
Analytical Essay (due TBD)	A 2,000 words thesis-driven essay on the previous essay prompt. It will use the proposal as the mainframe. Grading is on content, organization and coherence, argument and support, punctuation, spelling, syntax, and diction. The essay counts towards the WR 2000 words requirement.	<i>Communication, Content, Critical Thinking (Analyze and Connect)</i> Select, analyze and evaluate essential questions in the course. (Critical Thinking) Develop and present clear and effective responses to essential questions in written form. (Communication) Identify and describe a theme in class to examine essential questions about the human condition (Content) Include critical reflection connecting to their own personal and professional development (Connect)	Analyze and evaluate essential questions. display knowledge of principles, organize and summarize main ideas, apply acquired knowledge to new situations, analyze elements and relationships., synthesize knowledge to explore the chosen theme, present and defend opinions based on criteria discussed in class and reading.	250
Examinations (in class, dates TBD)	Two fifty-minute open book Midterm Exam in lecture based on the course material consisting of forty (40) multiple-choice questions and five (5) free-response questions.	<i>Content (Analyze and Connect), Communication</i> Display knowledge of history, theories, and methodologies	Identify, explain and describe theories and methodologies , display knowledge of specific facts,	250

		<p>used to examine essential questions about the human condition within and across the arts and humanities disciplines incorporated into the course. (Content)</p> <p>Develop and present concise and effective responses to essential questions in free-response questions as appropriate to the relevant humanities disciplines incorporated into the course. (Communication)</p>	<p>terms, categories, principles, theories, and generalization .</p>	
Attendance and Class Participation	In addition to roll call attendance in lectures and participation via various in-class activities, such as think-pair-share, debates, peer-review, etc.	<p>Content (Analyze and Connect), Communication (students communicate their ideas orally which each other or in front of the classroom), Content (students identify, describe, and explain weekly topics) Critical Thinking (Students analyze and connect course content with critical reflection on their personal and professional development)</p>	<p>Identify, explain, and describe theories and methodologies , synthesize course lecture content to convey new ideas, evaluate information and validity of ideas.</p>	100
Total Points				1000

Grading Scale

For information on how UF assigns grade points, visit: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

A	94 – 100%	C	74 – 76%
A-	90 – 93%	C-	70 – 73%
B+	87 – 89%	D+	67 – 69%
B	84 – 86%	D	64 – 66%
B-	80 – 83%	D-	60 – 63%
C+	77 – 79%	E	<60

Grading Rubrics

Writing Assessment Rubric and Statements	SATISFACTORY (Y)	UNSATISFACTORY (N)
CONTENT	Papers exhibit at least some evidence of ideas that respond to the topic with complexity, critically evaluating and synthesizing sources, and provide at least an adequate discussion with basic understanding of sources.	Papers either include a central idea(s) that is unclear or off-topic or provide only minimal or inadequate discussion of ideas. Papers may also lack sufficient or appropriate sources.
ORGANIZATION AND COHERENCE	Documents and paragraphs exhibit at least some identifiable structure for topics, including a clear thesis statement but may require readers to work to follow progression of ideas.	Documents and paragraphs lack clearly identifiable organization, may lack any coherent sense of logic in associating and organizing ideas, and may also lack transitions and coherence to guide the reader.
ARGUMENT AND SUPPORT	Documents use persuasive and confident presentation of ideas, strongly supported with evidence. At the weak end of the Satisfactory range, documents may provide only generalized discussion of ideas or may provide adequate discussion but rely on weak support for arguments.	Documents make only weak generalizations, providing little or no support, as in summaries or narratives that fail to provide critical analysis.
STYLE	Documents use a writing style with word choice appropriate to the context, genre, and discipline. Sentences should display complexity and logical sentence structure. At a minimum, documents will display a less precise use of vocabulary and an uneven use of sentence structure or a writing style that occasionally veers away from word choice or tone appropriate to the context, genre, and discipline.	Documents rely on word usage that is inappropriate for the context, genre, or discipline. Sentences may be overly long or short with awkward construction. Documents may also use words incorrectly.
MECHANICS	Papers will feature correct or error-free presentation of ideas. At the weak end of the Satisfactory range, papers may contain some spelling, punctuation, or grammatical errors that remain unobtrusive so they do not muddy the paper's argument or points.	Papers contain so many mechanical or grammatical errors that they impede the reader's understanding or severely undermine the writer's credibility.

The Writing Requirement (WR) ensures students both maintain their fluency in writing and use writing as a tool to facilitate learning.

- The instructor will evaluate and provide feedback before the end of the course on all of the student's written assignments with respect to grammar, punctuation, clarity, coherence, and organization.
- WR course grades have two components. To receive writing requirement credit, a student must receive a grade of C or higher and a satisfactory completion of the writing component of the course.

Attendance and Participation

Attendance: Students are expected to participate in class discussions and attendance is essential. There are 3 unexcused absences without penalty. After this point, we reserve the right to drop a student's attendance and participation grade by 1% for each additional unexcused absence. Excused absences are consistent with university policies in the undergraduate catalog and require appropriate documentation.

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Participation: We believe that participation during class is crucial, and it constitutes an important avenue for learning. We encourage you to be active in every class session. Class Participation will be evaluated using the rubric below. This Participation Grading Rubric covers expectations for individual contributions in all class discussions and smaller group discussions (think-pair-share, debate, etc.)

Note: We understand that we all have different levels of comfort regarding speaking in class. If you have any issues that prohibit you from participating in class, we encourage you to contact us so we can find ways to make participation work for you in this class. Any class missed will not affect your participation grade if you are within your allotted absences.

Participation Rubric

	High Quality	Average	Needs Improvement
Informed: Shows evidence of having done the assigned work. (40 points total)	Student contributes often in class to discuss the assigned work in relation to the topics discussed. (36-40 points)	Student contributes occasionally in class to discuss the assigned work in relation to the topics discussed. (32-35 points)	Student contributes rarely in class to discuss the assigned work in relation to the topics discussed. (0-31 points)
Thoughtful: Shows evidence of having understood and considered topics and ideas discussed. (30 points total)	Student contributes often in class to discuss readings and ideas, in relation to the topics discussed. (27-30 points)	Student contributes occasionally in class to discuss readings and ideas, in relation to the topics discussed. (24-26 points)	Student contributes rarely in class to discuss readings and ideas, in relation to the topics discussed. (0-23 points)
Considerate: Takes the perspective of others into account. (30 points total)	Student almost always listens to the ideas of others and incorporates them into their own perspectives. (27-30 points)	Student usually listens to the ideas of others and incorporates them into their own perspectives. (24-26 points)	Student rarely or never listens to the ideas of others. (0-23 points)

III. a. Daily Content

Topics and readings are tentative and subject to change

Week	Date	Lecture	Topics and Events	Suggested Readings/Videos
1	1/13	1	Onset, Ancient Roots of Perspective, Dante, Petrarch, Boccaccio	Anderson 723-730, Brauchitsch, pp. 8-17, SH1300 pp.13-16, 35-40
2	1/15	2	Early math, science, and optics in Renaissance art, Euclid, Pythagorus, Heron of Alexandria	Field, pp.4-16
	1/17	3	Plato/Neoplatonism, Ficino	Plato, Timaeus excerpts
3	1/22	4	Cimabue/Duccio/Lorenzetti/Alberti and the birth of perspective Discussion 1 due	Anderson pp 1-11, SH1300 pp. 41-42

3	1/24	5	Brunelleschi, Elements of Renaissance Painting	Anderson pp 11-14
		6	Masaccio/Uccello/ Ghiberti/Perugion/ Giotto/Pisano/ Cavallini	Field, pp. 43-59, SHI1300 pp 53-56, 57-92, 93-98, 145-148, pp. SHI1400 175-190
4	TBD	7	Piero della Francesca/Andrea Mantegna/Fra Angelico/Fra Fillippo Lippi	Anderson pp. 15-80 Field, pp. 62-115, SHI1400 pp.175-190, 107-114, 119-128, 363-384
	TBD	8	Practitioners and patricians/Veneziano/ Pollaiuolo/ Botticelli	Field, pp. 114-136, SHI 1400 pp. 151-170
	TBD	9	Rise of Venice Discussion 2 due	Brauchitsch, pp. 102-113, SHI 1400 pp 281-288
5	TBD	10	Da Vinci	Anderson pp. 81-113, 731-734 https://smarthistory.org/about-leonardo/
	TBD	11	Michelangelo	Brauchitsch, pp. 123-126 https://smarthistory.org/europe-1300-1800/italy-16th-century/michelangelo/
	TBD	12	Rafael/Tintoretto/Bellini/Mazzoni	Brauchitsch, pp. 128-133
6	TBD	13	Sixteenth Century	Anderson pp. 115-124
	TBD	14	Color, color perspective, shading	Kemp, pp 260-274 Spilsbury, pp.28-30
	TBD	15	Mannerism Discussion 3 due	Brauchitsch, pp. 148-170
7	TBD	16	Sculpture	Spilsbury, p.27
	TBD		Open Book Midterm 1	
	TBD		Experiential Learning Field Trip: Harn Museum	
8	TBD	17	Architectural Theory and Antiquity/Vitruvius	Jestaz, pp.13-24, Brauchitsch, pp. 20-27,
	TBD	18	Brunelleschi and Il Duomo	Peter, pp.31-50 Smarthistory guide to AP® Art History pp, 117-118
	TBD	19	Arch: Alberti, Plans, bays, alignment, symmetry, central entrance, proportion, columns, domes, vaults	Smarthistory guide to AP® Art History pp, 129-134, Peter pp. 51-62, Jestaz pp.25-64, Volutes
9	TBD	20	Arch: Palaces, Churches, Milan Discussion 9 due Friday	Jestaz, pp.65-99, Peter, pp. 63-120
	TBD	21	Arch: Rome and St. Peters	Murray, pp. 121-142
	TBD	22	Arch: Raphael and Romano Discussion 4 due	Murray, pp.143-160
10	TBD	22	Arch: Michelangelo	Murray, pp. 171-183
	TBD	24	Arch : Late Renaissance, Palladio Villas, Proportions	Brauchitsch, pp. 172-180
	TBD	25	Arch: Palladio Public Buildings Essay proposal due	Murray, pp 207-236

11	TBD		Experiential Learning Field Trip: Fraternity Row	
	TBD	26	Gardens: Theoretical Reconstruction, Elements, Water Features, Mazes	Ree, pp. 15-27
	TBD	27	Gardens: Tuscany Discussion 5 due	Video: Monty Don's Italian Gardens 2: Florence
12	TBD	28	Gardens: Rome	Ree, pp. 82-119
	TBD	29	Gardens: The Roman Campagna and Frascati	Ree, pp. 120-224
	TBD	30	Gardens: Veneto: Palladio	Ree, pp. 227-271
13	TBD		Experiential Learning Field Trip: Wilmot Botanical Gardens	
	TBD		Open Book Midterm 2	
14	TBD	31	Music: Preliminaries, Modes, Waves, Harmonics,	Benson, pp.1-26, 83-13
	TBD	32	Music: Consonance, Dissonance, Scales, Polyphony, Symmetry, Instruments Google Slides Presentation Due	Benson 94-129, 136-139, 153- 155, 173, 296-306 De Robeck pp. 38-58, Tuning Video , Circle of Fifths Video
	TBD	33	Music: The Ars Nova in Florence, The Rise in Choral Music Discussion 6 due	De Robeck pp. 1-37
15	TBD	34	Music: Courts of Florence, Ferrara, Mantua, and Urbino, Florentine Reform	De Robeck pp. 58-126
	TBD	35	Renaissance Influences Today Essay due	

b. Weekly Summaries

Topics and readings are tentative and subject to change

Week	Date	Topics and Events	Summary	Suggested Readings/Videos as above
1	1/13- 1/17	Onset, Ancient Roots of Perspective, Dante, Petrarch, Boccaccio	We provide an overview of the historical and societal factors that led to the onset of the Italian Renaissance.	
2	1/21- 1/24	Early math, science, and optics in Renaissance art, Euclid, Pythagorus, Heron of Alexandria	We discuss the historical mathematical ideas and applications to describe reality that were rediscovered during the Renaissance and foundational for artists.	
		Plato/Neoplatonism, Ficino		

		Cimabue/Duccio/Lorenzetti/ Alberti and the birth of perspective Discussion 1 due		
3	1/27- 1/31	Brunelleschi, Elements of Renaissance Painting	We discuss how mathematical perspective, projective geometry, and its development led to an increase in realism in Renaissance art.	
		Masaccio/Uccello/ Ghiberti/Perugino/ Giotto/Pisano/ Cavallini		
4	2/3- 2/7	Piero della Francesca/Andrea Mantegna/Fra Angelico/Fra Fillippo Lippi	We continue our discussion of perspective along with the incorporation of mathematical ideas of Fibonacci, Plato, Neoplatonism, and Humanism.	
		Practitioners and patricians/Veneziano/ Pollaiuolo/ Botticelli		
		Rise of Venice Discussion 2 due		
5	2/10- 2/14	Da Vinci	We examine how mathematics can be used to describe beauty, symmetry, and reality in the works of the masters.	
		Michelangelo		
		Rafael/Tintoretto/Bellini/M azzoni		
6	2/17- 2/21	Sixteenth Century	We discuss additional developments in mathematics artists used to create increasingly realistic colors and shading, while simultaneously exaggerating form and proportion in a quest for originality.	
		Color, color perspective, shading		
		Mannerism Discussion 3 due		
7	2/24- 2/28	Sculpture	We examine mathematics in the three- dimensional realm including contrapposto, foreshortening, and incorporation of curvilinear and dynamic forms.	
		Open Book Midterm 1		
		Experiential Learning Field Trip: Harn Museum		
8	3/3- 3/7	Architectural Theory and Antiquity/Vitruvius	Continuing our three-dimensional discussions, we examine the mathematical foundations of early architectural theory and practice.	
		Brunelleschi and Il Duomo		
		Arch: Alberti, Plans, bays, alignment, symmetry, central entrance, proportion, columns, domes, vaults		
9	TBD	Arch: Palaces, Churches, Milan Discussion 9 due Friday	Continuing our three-dimensional discussions, we provide refinements of developments in public buildings.	
		Arch: Rome and St. Peters		
		Arch: Raphael and Romano Discussion 4 due		
10	TBD	Arch: Michelangelo	Our architectural excursions culminate in the works of Michelangelo and Palladio, for whom proportion and symmetry were	
		Arch: Late Renaissance, Palladio Villas, Proportions		

		Arch: Palladio Public Buildings Essay proposal due	divinely inspired and used to elevate the human experience.	
11	TBD	Experiential Learning Field Trip: Fraternity Row	We begin our discussion of gardens with elements, geometry, symmetry, and some early examples with the objectives of promoting human contemplation and pleasure as well as to display status, wealth, and power.	
		Gardens: Theoretical Reconstruction, Elements, Water Features, Mazes		
		Gardens: Tuscany Discussion 5 due		
12	TBD	Gardens: Rome	We continue our discussion of gardens with stylistic refinements and increasing grandeur and sophistication.	
		Gardens: The Roman Campagna and Frascati		
		Gardens: Veneto: Palladio		
13	TBD	Experiential Learning Field Trip: Wilmot Botanical Gardens	We end our exploration of gardens with an experiential learning assignment and an assessment.	
		Open Book Midterm 2		
14	TBD	Music: Preliminaries, Modes, Waves, Harmonics,	We begin our discussion of the mathematical and philosophical ideas of Pythagoras, Plato, and others, and how they shaped musical foundations and development in the Italian Renaissance.	
		Music: Consonance, Dissonance, Scales, Polyphony, Symmetry, Instruments Google Slides Presentation Due		
		Music: The Ars Nova in Florence, The Rise in Choral Music Discussion 6 due		
15	TBD	Music: Courts of Florence, Ferrara, Mantua, and Urbino, Florentine Reform	We conclude our explore of mathematics in music during the late period of the Italian Renaissance and conclude the course with a discussion of the influences of the Italian Renaissance on contemporary society and thinking.	
		Renaissance Influences Today Essay due		

IV. Student Learning Outcomes (SLOs)

At the end of this course, students will be expected to have achieved the Quest and General Education learning outcomes as follows:

- Students will be able to identify key figures, forces, and impacts driving Renaissance art. (Content SLOs for Gen Ed Hum, and Q1)
- Students will be able to discuss, analyze, and evaluate key works in the Renaissance and point out their relationship with certain mathematical ideas and methods. (Content and Critical Thinking SLOs for Gen Ed Hum, and Q1)
- Students will be able to discuss, analyze and evaluate the role and impact of mathematics into art and provide specific examples of art works that demonstrate the impact of mathematics into art. (Content and Critical Thinking SLOs for Gen Ed Hum, and Q1, Connection SLOs for Q1)

- Students will be able to understand the development of mathematics within and across various civilizations and cultures and recognize how mathematics and culture are often interconnected. (Critical Thinking SLOs for Gen Ed Hum, and Q1, Connection SLOs for Q1)
- Students will be able to communicate their knowledge, thoughts, and reasoning clearly and effectively in written and oral form through class assignments, such as online discussions, the writing of stories, essay, etc. (Communication SLOs for Gen Ed Hum, and Q1)
- Students will be able to develop critical thinking by identifying and analyzing key figures, main influences, significant contradictions, and potential outcomes within the subject of the course and enhance their ability to differentiate between opposite points of view and interpreting and evaluating sources. (Critical Thinking SLOs for Gen Ed Hum, and Q1)

V. Quest Learning Experiences

1. Details of Experiential Learning Component

This class includes an experiential learning component in which students will actively engage with a UF resource. As such, the class requirements include a visit to the Harn Museum, Wilmot Botanical Gardens, and Fraternity Row on the UF Campus. After their visits, students will create stories in Adobe Express where through images and written narrative they describe and analyze two art works, the garden, or the influence of Renaissance architecture on two buildings, respectively. The students should focus on the connection, or the lack thereof, between the works and certain mathematical concepts that we discussed in class, such as patterns, symmetry, perspective, etc. Examples of similar Google Slides presentations will be provided ahead of time to guide the students.

2. Details of Self-Reflection Component

Students will reflect on the reading material provided each week and share their thoughts both through in-class participation as well as by discussion posts on Canvas. These activities will be due weekly.

VI. Required Policies

Attendance Policy

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Students Requiring Accommodation

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

UF Evaluations Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Counseling and Wellness Center

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

The Writing Studio

The writing studio is committed to helping University of Florida students meet their academic and professional goals by becoming better writers. Visit the writing studio online at <http://writing.ufl.edu/writing-studio/> or in 2215 Turlington Hall for one-on-one consultations and workshops.

In-Class Recordings

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

VII. Additional Resources (Books)

- Wade, Geometry & Art, Shelter Harbor Press, ISBN-13 : 978-1588344939
- Andrews, The Polyhedrists: Art and Geometry in the Long Sixteenth Century, The MIT Press, ISBN-13 : 978-1588344939

- Meisner, *The Golden Ratio: The Divine Beauty of Mathematics*, Race Point Publishing, **ASIN** : B07DQ8VRMW
- Palladio, *The Four Books of Architecture*, Dover Publications, **ISBN-13** : 978-0486213088
- Lazzaro, *The Italian Renaissance garden: from the conventions of planting, design, and ornament to the grand gardens of sixteenth-century Central Italy*, Yale University Press, New Haven (1990)