

FYSP 008 - Form and Formula: the Interplay Between Mathematics and the Arts

Course Information

Professor and Course Meeting Information

Professor: Dr. Lola Thompson

E-mail: lola.thompson@oberlin.edu

MWF 1:30 - 2:20 PM

Location: Mudd 202

Office: King 200

Office Hours: M 5 - 6 PM, W 2:30 - 3:30 PM, F 11 AM - 12 PM

*And by appointment.

Course Objectives

By the end of this course, you will be able to:

- Analyze a variety of artistic works through the lens of mathematics
- Use art, music, and dance to illustrate various mathematical principles
- Improve your written and oral communication skills
- Understand writing as a process
- Compose clear, precise mathematical arguments
- Work effectively in a collaborative setting

Textbook

There is no single textbook that is ideally-suited for this course. Instead, I will post scanned articles and chapters from a variety of different sources on our course Blackboard page.

Grades

The grades in this course will be calculated as follows:

	Weight
Class participation	10%
Worksheet problems	10%
Weekly reflections	20%
Midterm paper	20%
Final project proposal	10%
Final project	30%

Class participation

Class participation is essential in a course of this nature. Some days, class will be discussion-based. Other days, we will be working on problems in small groups. Either way, when you miss class, you are not only affecting your own progress in the course but you are also causing your classmates to miss out on your valuable ideas! Here are the ways in which I will expect you to participate:

Attendance: You need to make your best effort to attend class on a daily basis. This is not the sort of class where you can easily “catch up” by reading a textbook chapter or watching a video on YouTube. That said, I understand that life happens and that you may occasionally need to take a personal day. For that reason, each student will be granted three “unexcused” absences. After that, each additional absence will result in a 1 point deduction from your Class Participation grade. There is no need to e-mail me to explain an unexcused absence. If you have a legitimate academic reason for missing a class (or a documented injury or prolonged illness), please e-mail me as soon as possible. All “excused” absences must be cleared with me before the start of the missed class period.

Group work: Working groups will be assigned. They will normally consist of 3-4 students. Groups will be shuffled (approximately) every two weeks. That way, you will have the opportunity to work with everyone in the class by the end of the semester. If you are having a serious problem with someone in your group, please contact me ASAP.

In-class presentations: Each student is expected to regularly present solutions to the problem sets in front of the class. That said, I will always ask for volunteers before calling on students. You will also have the option of bringing your group members to the board with you if you feel uncomfortable presenting alone.

Weekly reflections

Your weekly homework assignment will be to write a response to a writing prompt. Normally, I will ask that you make these responses 1-2 double-spaced pages (you are welcome to go over the two-page limit if you wish!). Sometimes, the prompts will ask you to respond to an article that you have read. Other times, they will ask you to reflect on activities that we have done in class. In all cases, the weekly reflections will be due at midnight on Fridays (that is Thursday night/Friday morning, NOT Friday night/Saturday morning). It is very important that you send me your weekly reflection by this deadline so I will have time to read all of them before the class period on Friday. The weekly reflections will often serve as a launching point for our in-class discussions on Fridays. *You will be allowed one late weekly reflection without penalty.* After that, you will lose 2% from your final grade for each late weekly reflection.

Midterm paper

Your midterm assignment will be to flesh out one of your weekly reflections into a formal piece of writing. More information will be provided later in the semester. For this reason, it is in your best interest to take seriously the task of crafting your weekly reflections!

Final project

Your final project will have two components: an original creative work that you will present to the class that is based on some of the principles that we will have studied, and a research article that will accompany your creative work. I will help you hone in on a mathematical topic and an artistic discipline. Your creative work need not be totally original, in the sense that it may be inspired by that of an established artist, musician, or choreographer. You will not be graded on your artistic talent, but rather on your ability to incorporate the mathematical ideas into the creative work (that said, your creative work should reflect some real effort – i.e., you should not just throw together something on the night before the deadline). I will provide more details after Fall Break. Before Thanksgiving Break, you will need to submit a project proposal that reflects some preliminary research on the topic.

Guest Lectures, Art Museum Visits, etc.

I have arranged for several guest lectures on topics related to our course. These visitors are accomplished faculty members who are donating their time to share their knowledge with you. It is my expectation that you will make a special effort to be in class on those days. If you are severely ill and cannot make it, please contact me in advance (if at all possible) so that we can make arrangements for you to make up the lesson.

Blackboard

All reading assignments will be available on our course Blackboard site. Go to <http://blackboard.oberlin.edu> to access these materials.

Office Hours

My office hours are here to help you. Please do not feel shy about showing up! If you can't make it to my regularly scheduled office hours, I am happy to make a separate appointment with you *provided that you e-mail me at least 24 hours in advance* (otherwise, it can be very difficult to squeeze you in). If you need to miss class for some reason, it is a good idea to check with the professor to find out how to make up the work. That said, *if you are too sick to attend class, please do not show up to my office hours until after you have recovered.*

Course Policies

Academic Honesty

Here is how Academic Honesty policies apply to each graded component in our course:

Weekly reflections: When I read the weekly reflections, I am mainly looking for *your* reactions to the course content. There is no correct or incorrect response. That said, sometimes you might feel the urge to quote a passage from the reading or to bring in ideas from other sources. If you quote a passage or mention any ideas that were not your own, you must cite your source. Failure to do so is a breach of academic honesty.

Problem sets: From time to time, I will ask that you and your group members turn in a copy of your solutions to the worksheet problems. You will only need to turn in one copy on behalf of the entire group. Naturally, this work will be collaborative. You may also adjust your groups' solutions to reflect what you learn from the in-class presentations *provided that you put these ideas into your own words*. (Do not merely copy another group's solution from the board.)

Papers: For the midterm paper and final paper, you will be expected to properly cite all outside sources that you use.

Note: Information about the Honor Code at Oberlin can be found at the following website: <http://www.oberlin.edu/students/links-life/honorcode.html>. Please familiarize yourself with its content. All students are responsible for maintaining the highest standards of honesty and integrity in every phase of their academic careers. The penalties for academic dishonesty can be severe and ignorance is not an acceptable defense.

Disabilities

Students in this course with disabilities, including “invisible” disabilities such as chronic diseases and learning disabilities, and who may need disability-related classroom accommodations, are encouraged to make an appointment to see their instructor as soon as possible.

Make-up Policy

Weekly reflections: Late weekly reflections cannot be accepted, since we will normally use them as a launching point for discussions in class. That said, you will be allowed to drop one weekly reflection score at the end of the semester.

Final Project: Your final project is your “final exam” in this course. In accordance with Oberlin College policy, I cannot change the deadline and there will be substantial point deductions for late final projects.

Other Assignments: For other assignments (e.g., midterm paper, final project proposal), extensions will be only be granted in cases of severe illness or legitimate academic conflicts. These will be handled on a case-by-case basis. In all circumstances, you must clear extensions with me *prior to* the original deadline.

Religious Observances

Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me before the end of the second week of the semester to discuss appropriate accommodations.

Important Dates

Add/Drop Deadline	September 13th (Tuesday)
Fall Break!	October 20th (Saturday) - October 28th (Sunday)
Withdraw and P/NP Deadline	November 6th (Tuesday)
Classes End	December 12th (Wednesday)
Reading Period	December 13th (Thursday) - December 16th (Sunday)
Final Paper Due	December 19th (Wednesday) at 9 PM

Course Schedule

The following is an estimated schedule for the course. Please note that the guest lecture dates are tentative.

Lectures	Course Plan	Homework Due
9/5	Class Cancelled	
9/7	Topics in Art	
9/10	Topics in Art	
9/12	Art Museum Visit #1 – meet at AMAM*	
9/14	Topics in Art	Weekly reflection #1 due
9/17	Topics in Art	
9/19	No Class – Yom Kippur!	
9/21	Topics in Art	Weekly reflection #2 due
9/24	Topics in Art	
9/26	Guest Lecture: Dr. Leslie Kwake, Neuroscientist	
9/28	Art Museum Visit #2 – meet at AMAM	Weekly reflection #3 due
10/1	Topics in Art	
10/3	Topics in Art	
10/5	Topics in Art	Weekly reflection #4 due
10/8	Topics in Art	
10/10	Guest Lecture: Dr. Bob Bosch, Mathematician and Artist	
10/12	Topics in Art	Weekly reflection #5 due
10/15	Topics in Art	
10/17	Topics in Art	
10/19	Topics in Art	Weekly reflection #6 due
10/20 - 10/28	No Class – Fall Break!	
10/29	Topics in Music + Dance	
10/31	Art Museum Visit #3 – meet at AMAM	
11/2	Topics in Music + Dance	Midterm paper due
11/5	Topics in Music + Dance	
11/7	Topics in Music + Dance	
11/9	Guest Lecture: Dr. Jan Miyake, Music Theorist	Weekly reflection #7 due
11/12	Topics in Music + Dance	
11/14	Topics in Music + Dance	
11/16	Guest Lecture: Dr. Alice Blumenfeld, Flamenco Dancer	Weekly reflection #8 due
11/19	Topics in Music + Dance	
11/21	Topics in Music + Dance	Final project proposal due
11/22 - 10/25	No Class – Thanksgiving Break!	
11/26	Topics in Music + Dance	
11/28	Topics in Music + Dance	
11/30	Art Museum Visit #4 – meet at AMAM	Weekly reflection #9 due
12/3	Topics in Music + Dance	
12/5	Topics in Music + Dance	
12/7	Final Project Presentations (noon - 2:20 PM, location TBD)	Creative project due
12/10	Work on Final Paper	
12/12	Work on Final Paper	
12/19	Final paper due at 9 PM	Final paper due

*AMAM = Allen Memorial Museum of Art