

Queens College

Art Department / Photography & Imaging

3D Modeling, Printing, & Casting I

PHOTO 230/ARTS 282-01, 369-01, 387-02, 6203-10, 7272-010

Fall 2023

Tuesday 10:00am-1:50pm

I-Building Rm 212 & Klapper 181

Instructor: Matt Greco

Office: Klapper 106

Hours: By Appt

Email: matthew.greco@qc.cuny.edu

Course Website: professorgreco.com

Course Description:

3D Modeling/Printing and Casting will emphasize the role new technologies play in imaging and analog sculptural processes. In this course students will learn how to take advantage of imaging technology such as 3D modeling and printing as it applies to the traditional ceramic practice of slip casting. The course will explore the rudiments of 3D modeling, how to prepare 3D files for 3D printing using Fused Deposition Modeling, the basics of molding models in plaster, the unique properties of ceramic slip, the process of producing multiples through slip casting, and glazing/firing the finished castings. Students will study the aesthetic qualities of translating 2D images into 3D sculptural form as well as the technical aspects of the process.

Course Objectives:

At the close of this course the successful student will have a comprehensive understanding of 3D modeling in solids, preparing files for 3D printing, and the process of slip casting. They will expand their vocabulary to include the proper terminology for creating and critiquing sculptural form as well as the major components of the technical process. They will demonstrate the ability to think creatively, form project ideas, and follow those ideas from conception to realization. Students will have a sound understanding of how new digital tools and technologies can advance traditional artistic practices.

Course Requirements:

Students will be expected to complete all assignments on time and to the best of their ability. Students are expected to attend every class but life does happen so you get 3 absences, after that, additional absences will likely result in missed material and thus a lower grade. Be on time please; tardiness is as bad as absences; I will begin class a few minutes late to give everyone time to get settled in - do not abuse this. We will have a final critique; attendance is required.

Reasonable Accommodations for Students with Disabilities:

Students with disabilities needing academic accommodation should register with the Special Services Office by emailing QC.SPSV@qc.cuny.edu. For more information about

services available to Queens College students, visit the Office of Special Services website: <https://www.qc.cuny.edu/studentlife/services/specialserv/Pages/default.aspx>.

CUNY Policy on Academic Integrity:

Only your own photos, images and/or writing are permitted for use in projects. The unauthorized use of images and compositions that are not your own is considered plagiarism. Academic Dishonesty is prohibited in The City University of New York and is punishable by penalties, including failing grades, suspension, and expulsion as provided at <https://www.cuny.edu/about/administration/offices/legal-affairs/policies-procedures/academic-integrity-policy/>.

Course Website:

Please check our course website every week for updates to the syllabus or schedule, links to information and resources, and a student gallery page where we will showcase your work throughout the semester.

Grades:

- (2) 3D Models prepared correctly for 3D printing – 20%
- (2) 3D Prints - 20%
- (2) Plaster Molds – 20%
- (8) Final Glazed Castings - 40%

Projects (two 3D models must be printed, molded and 8 final castings made):

- 1- *Cup* - Must be modeled and saved for printing. Object must show attention to form and use.
- 2- *Bowl* - Must be modeled and saved for printing. Object must show attention to form and use.

Printing:

You will be responsible for getting your 3D models printed:
I would suggest you check out Queens College's Makerspace:
<https://library.qc.cuny.edu/makerspace/> - Rosenthal Library Rm 101. You need to schedule an orientation and safety training before you can use the space. Do this right away so you have access when you need to make your prints. Using the makerspace is free but you'll only get some support and training.

You can send you file to a service bureau to be printed. I suggest HUBS – they have a dollar minimum so submit your files in groups - <https://www.hubs.com/>.

Or you can print yourself at home if you have your own 3D printer.

Do not send your file to print until approved by me.

Max Height: 130mm - Max Width: 125mm

Equipment:

Check all equipment to ensure good operation, especially jump drives and portable hard drives. Lost files, corrupted disks, etc. are not acceptable excuses for missed assignments. BACK UP EVERYTHING OFTEN.

Required:

- 64GB (minimum) flash drive
- 1 five-gallon bucket
- 2 four-quart round or square plastic container

Recommended:

- *The Book on 3D Printing* by Isaac Budmen & Anthony Rotolo
- *Fabricated: The New World of 3D Printing* by Hod Lipson & Melba Kurman
- *The Essential Guide to Mold Making & Slip Casting* by Andrew J. Martin

Schedule (subject to change):*Week 1: 8.29**I-212*

course outline, review syllabus, required equipment, recommended reading.
MakeSTEAM Q – NSF Project Treatment Course - Survey

*Week 2: 9.5**I-212*

What is 3D printing? History of 3D printing, various 3D printing technologies, 3D modeling software, modeling in solids vs meshes, making a printable 3D model

*Week 3: 9.12**I-212*

3D modeling with Autodesk Fusion 360

3D modeling a house, modeling a gear

Watch LinkedIn Learning Videos

Bring sketches of cup for class on 9.20

*Week 4: 9.19**I-212*

3D modeling with Autodesk Fusion 360 cont.

3D modeling a house, modeling a gear cont.

3D model cup & bowl #1

*Week 5: 9.26**I-212*

NO CLASS – TUES is a MON

Week 6: 10.3

I-212

3D modeling with Autodesk Fusion 360 review

Workday

3D model cup & bowl #2

Week 7: 10.10

I-212 & KP 181

3D modeling with Autodesk Fusion 360

What is slip and how do you cast with it? Making plaster molds for slip casting

Intro to making plaster molds; poured & frosted molds, cottle boards

Mold making demo

Workday

3D model cup & bowl #3

Week 8: 10.17

I-212 & KP 181

Ceramic 101 - green ware, bisque ware, glaze ware. Cone temps and glazing techniques

What is slip and how do you cast with it?

Making plaster molds for slip casting

Intro to making plaster molds; poured & frosted molds, cottle boards

Final models made manifold, saved as STL, and 3D printed

Week 9: 10.24

I-212 & KP 181

Workday

Making molds

Making castings

Week 10: 10.31

I-212 & KP 181

Glazing 101 & Demo

Workday

Making molds

Making castings

Week 11: 11.7

I-212 & KP 181

Workday

All castings should be dry and on shelves for firing

Week 12: 11.14

I-212 & KP 181

Workday

Last Wet Day (all castings should be drying in preparation for firing)

Week 13: 11.21

I-212 & KP 181

Workday

Glazing

Week 14: 11.28

I-212 & KP 181

Workday

Last Glaze Day and final firing of castings

Week 15: 12.5

I-212 & KP 181

Workday

Week 16: 12.12

I-212 & KP 181

NO CLASS – Reading Day

Workday

Week 17: 12.19

KP 181

LAST DAY OF CLASS

Final Critique: show (2) 3D prints and show 8 final castings.

Document work