

ART195 : Glaze Calculation

General Information

Author:	• Gerardo Monterrubio
Course Code (CB01) :	ART195
Course Title (CB02) :	Glaze Calculation
Department:	ART
Proposal Start:	Winter 2025
TOP Code (CB03) :	(1002.30) Ceramics
CIP Code:	(50.0711) Ceramic Arts and Ceramics.
SAM Code (CB09) :	Non-Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000259227
Curriculum Committee Approval Date:	03/27/2024
Board of Trustees Approval Date:	06/18/2024
Last Cyclical Review Date:	03/27/2024
Course Description and Course Note:	ART 195 is an introduction to basic glaze and clay calculations. Students learn to calculate molecular weights, molecular glaze formulas, and batch recipes. Students use general glaze theory with procedures to analyze and substitute (or create from the beginning) glazes and clay bodies. The course involves simple arithmetical computations and includes certain ceramic laboratory skills and safety precautions for handling chemicals. This course prepares the student for employment in the ceramic industry.
Justification:	Mandatory Revision
Academic Career:	• Credit
Author:	• Gerardo Monterrubio

Academic Senate Discipline

Primary Discipline:	• Art
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)	Course Special Class Status (CB13)	Grading Basis
Course is not a basic skills course.	Course is not a special class.	• Grade with Pass / No-Pass Option
<input type="checkbox"/> Allow Students to Gain Credit by Exam/Challenge	Pre-Collegiate Level (CB21)	Course Support Course Status (CB26)
	Not applicable.	Course is not a support course

Transferability & Gen. Ed. Options

General Education Status (CB25)

Not Applicable

Transferability

Transferable to CSU only

Transferability Status

Approved

Units and Hours

Summary

Minimum Credit Units (CB07)	3
Maximum Credit Units (CB06)	3
Total Course In-Class (Contact) Hours	72
Total Course Out-of-Class Hours	90
Total Student Learning Hours	162

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience

Education Status (CB10)

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	2.5	5
Laboratory Hours	1.5	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	54
Course In-Class (Contact) Hours	
Lecture	45
Laboratory	27
Studio	0
Total	72
Course Out-of-Class Hours	
Lecture	90
Laboratory	0
Studio	0
Total	90

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name

Type

In Class

Out of Class

No Value

No Value

No Value

No Value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

No Value

Entry Standards

Entry Standards

Course Limitations

Cross Listed or Equivalent Course

Course Objectives

Evaluate unknown clays for their working properties.

Calculate the chemical analysis of a glaze.

Design a specific glaze for a predetermined function.

Analyze line blends of glazes.

Calculate molecular formulas for glazes.

SLOs

Demonstrate familiarity with ceramic materials.

Expected Outcome Performance: 70.0

<i>ILOs</i> Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
<i>ART</i> Art - Certificate	Define and use core concepts in 2D and 3D art Demonstrate skill in a broad range of media, materials and processes Produce original work the demonstrate a high level of craft
<i>ART</i> Art - A.S. Degree Major	Define and use core concepts in 2D and 3D art Demonstrate skill in a broad range of media, materials and processes Produce original work the demonstrate a high level of craft
<i>ART</i> Studio Arts	Demonstrate intermediate mastery in a range of 2D/3D visual media Employ basic concepts in 2D design and drawing, or 3D design and drawing-for-sculpture; create portfolio ready, original artworks
<i>ART</i> Ceramics - A.S. Degree Major	demonstrate skill in a broad range of ceramic techniques;
<i>ART</i> Ceramics - Certificate	demonstrate skill in a broad range of ceramic techniques;

Calculate glazes from a unity molecular formula.

Expected Outcome Performance: 70.0

<i>ILOs</i> Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
<i>ART</i> Art - Certificate	Define and use core concepts in 2D and 3D art Demonstrate skill in a broad range of media, materials and processes Produce original work the demonstrate a high level of craft

<i>ART</i> Art - A.S. Degree Major	Define and use core concepts in 2D and 3D art
	Demonstrate skill in a broad range of media, materials and processes
	Produce original work the demonstrate a high level of craft
<i>ART</i> Studio Arts	Demonstrate intermediate mastery in a range of 2D/3D visual media
	Employ basic concepts in 2D design and drawing, or 3D design and drawing-for-sculpture; create portfolio ready, original artworks
<i>ART</i> Ceramics - Certificate	define and use core concepts used in the ceramic area;
	demonstrate skill in a broad range of ceramic techniques;
<i>ART</i> Ceramics - A.S. Degree Major	define and use core concepts used in the ceramic area;
	demonstrate skill in a broad range of ceramic techniques;

Course Content

Lecture Content

Introduction and Orientation (5 hours)

- Course content and management of the class
- Geology, elements, minerals, rocks, compounds
- Oxides in umf, mole percent, and weight percent

Clay bodies Unknown Clay (6 hours)

- Testing an unknown commercial clay
- Compare data with known clay to identify unknown clay

Calculations (6 hours)

- Calculating a chemical analysis of a glaze or feldspar and finding the unity molecular formula of all given materials
- Calculating a batch recipe in related weights from a unity glaze formula expressed in molecular equivalents
- Calculating the molecular formula of a glaze from a batch recipe for a glaze

Glaze Materials (6 hours)

- Basic glaze materials
- Basic types and uses
- Exceptions to the rule

Test Clay (6 hours)

- Designing and preparing a basic west coast clay and formulating a stoneware clay
- Measuring shrinkage at cones 06, 10
- Water of plasticity, water absorption at maturing temperature
- Making adjustments for defects

Test Glaze (6 hours)

- Basic types of glazes
- Designing and executing test of the glaze by using calculation procedures
- Aesthetic surface qualities
- Glaze fit to clay body
- Making adjustments for any glaze defect

Color Line Blend (6 hours)

- Metallic oxides and colorants in high or low fire glazes
- Testing a number of oxides in test glazes

Deflocculating (5 hours)

- Use of deflocculates in glazes and casting slips
- Use of flocculants

Total hours: 45

Laboratory/Studio Content

Clay bodies Unknown Clay (4 hours)

- Testing an unknown commercial clay
- Compare data with known clay to identify unknown clay

Calculations (4 hours)

- Calculating a chemical analysis of a glaze or feldspar and finding the unity molecular formula of all given materials
- Calculating a batch recipe in related weights from a unity glaze formula expressed in molecular equivalents
- Calculating the molecular formula of a glaze from a batch recipe for a glaze

Test Clay (5 hours)

- Designing and preparing a basic west coast clay and formulating a stoneware clay
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- Basic types of glazes
- Designing and executing test of the glaze by using calculation procedures
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Color Line Blend (5 hours)

- Metallic oxides and colorants in high or low fire glazes
- Testing a number of oxides in test glazes

Deflocculating (4 hours)

- Use of deflocculates in glazes and casting slips
- Use of flocculants

Total hours: 27

Additional Information

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No

GCC Major Requirements

No Value

GCC General Education Graduation Requirements

No Value

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Resources

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liason?

No Value

Did you contact the DEIA liaison?

No

Were there any DEIA changes made to this outline?

No

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value