

Charlie Olson
Office: CA 1037
Phone: 472-1318
Office Hours: Posted
Email: olsonc@uww.edu

TECHNICAL STUDY IN CERAMICS (110-456/656)

Course Content

Exploration of technical concerns within ceramics. Emphasis is on clay composition and analysis, glaze calculation and formulation, study of ceramic minerals, kiln design, construction and operation, mold making and slip casting.

The text for this class is *Clay and Glazes for the Potter*, Revised Edition, by Daniel Rhodes.

All readings will be taken from this text unless otherwise specified. Students wishing to use the ceramics studio for creative work **must** also enroll in a ceramics studio class.

Course Outline (some changes may occur due to time constraints):

PART I - CLAY

1. Pages 1 - 23
 - Geological Origins of Clay
 - The Chemical Composition of Clay
 - The Physical Nature of Clay
 - Drying and Firing Clay
 - Kinds of Clay
2. Pages 23 - 43
 - Clay Bodies (through bodies for jiggering and pressing)
 - *Demonstration on formulating and mixing casting slip.
3. Pages 43 - 59
 - Clay Bodies
 - *Demonstration on preparing clay test tiles.

Practical assignment due for class meeting #5:

- a. Present two different original clay body recipes.
 - b. Gather the following information from each clay body, taken to at least two different temperatures below its maturation point as well as at its maturation point: (refer to pages 310-311).
 1. Water of Plasticity
 2. Dry Shrinkage
 3. Fired Shrinkage
 4. Water of Absorption
- (Part b. of the assignment will be due at a later date to be announced in class).

4. Pages 64 - 71

- Mining and Preparing Clay
5. Presentation of original clay bodies to the class.
Make enough copies of your original clay body recipes to hand out to each person in the class.
Recipes must be typed.

Exam covering Clay Information to date.

PART II - GLAZES

6. Pages 75 - 94
The Nature of Glass and Glazes
Early Types of Glazes
The Oxides and Their Function in Glaze Forming
7. Pages 104 - 111
Glaze Materials
8. Pages 124 - 132
Glaze Calculations, Theory and Objectives
9. Pages 133 - 155
Glaze Calculation Using Materials Containing More than One Oxide
Calculating Glaze Formulas from Batches or Recipes
10. Pages 156 - 182
The Composition of Glazes
Types of Glazes

Practical assignment due for class meeting #12:

Formulate three original glaze recipes which will mature at your choice of temperature range.

11. Pages 183 - 204
Originating Glaze Formulas
Fritted Glazes
Glaze Textures
12. Presentation of original glaze formulas.
Make enough complete copies to hand out to everyone in your class.
Recipes must be typed.
Review of material for the exam.

13. ***Exam covering Glaze Information to Date***

14. Pages 205 - 221
Sources of Color in Glazes
Methods of Compounding and Blending Colored Glazes

Practical assignment due for the final exam:

Pick one of your original glaze bases and run a series of 25 color tests using various coloring oxides or stains.

15. Pages 222 - 249
Glaze Mixing and Application
Firing Glazes
Glaze Flaws
16. Pages 250 - 282
Engobes
Underglaze Colors and Decoration
Overglaze Decoration
Reduction Firing and Reduction Glazes
17. Pages 283 - 315
Special Glazes and Surface Effects

PART III - KILNS

22. Kiln Theory
Suggested Reading:
The Kiln Book, Fred Olson, Published by Keramos
Kilns, Daniel Rhodes, Published by Chilton
Gas Kiln Firing, Ralph W. Ritchie, Published by Keramos
The Art of Firing, Nils Lou
23. Kiln Theory
24. Kiln Theory
25. Kiln Construction
26. Kiln Construction
27. Work on Projects
28. Work on Projects

ANTICIPATED FIELD TRIPS

Kohler Porcelain Factory and J.M. Kohler Arts Center, Sheboygan, WI.
Visit to a local independent pottery studio.

REQUIREMENTS OF THIS COURSE

1. I follow the attendance policy set by the Art Department. Classes meeting three times a week allows for three unexcused absences without penalty to the final grade. However every three unexcused absences thereafter will result in the lowering of the final grade by one letter grade. Classes meeting two times per week allows for two unexcused absences. However every two unexcused absences thereafter will result in the lowering of the final grade by one letter grade. Excused absences may include health related problems, funerals, field trips, religious holidays, etc. Please call your professor if you anticipate an excused absence.
2. In addition to practical assignments and two exams, students will also be required to work on a **major project** of their choice throughout the semester. The results of this project will be presented to the class during the final exam period.
Students should have a strong start on their project by class #4. All students must consult with their

professor prior to beginning their project research. Possible project topics might include:

- a. Dig and prepare local clay.
- b. Develop several clay bodies for specific uses, i.e., flameproof, translucent, textured, colored, etc.
- c. Develop several original glazes to be used at a firing range other than traditional stoneware temperatures.
- d. Work with special glazes, i.e., copper reds, crystalline, lusters, decals, etc.
- e. Make a number of plaster molds which could be used in your creative work.
- f. Build a portable gas or electric kiln.
- g. Build a piece of equipment that may be useful in a personal studio environment.

3. Your **final grade** will be determined as follows:

Class participation, effort and attendance	35%
Practical assignments and exams	35%
Major project	<u>30%</u>
	100%