Course Organization and Content

This course will deal with the major techniques and contemporary American history of handbuilding with clay. Work in this class will be designed to provide instruction in the areas of slab, coil, press mold and slip casting. A survey of American sculptural ceramics will be presented.

Course Methods

Through the showing of slides of ceramics, assigned reading, demonstrations, lectures and critiques, students will be encouraged to develop a personal style of working with clay. Demonstrations will be given to show the necessary techniques for developing approaches to the expressive possibilities within each project. Discussions will follow each demonstration/lecture and you will be expected to know the work of artists important to the development of contemporary American ceramics. Selected reading assignments will be required from periodicals and books. Students will be required to write a critique on the body of work completed during the semester. This assignment will be turned in at the final critique.

Required Projects

Students will be required to complete the following projects.

1. Slip cast a 12” x 12” tile and finish with low fire glazes and silk-screened images.
2. Cast and finish a piece combining three slip cast forms and use underglaze to decorate.
3. Slab built vessel with a lid.
4. Self-portrait (life size or larger).
5. Coil build a figure between 18” and 26” in height.
6. Handbuilt plate 18” in diameter decorated with no less than six colors.
7. Use the extruder to build a vessel or sculpture.
8. Wall mounted sculpture or wall relief. (No larger than 12” x 12” x 4”).

Tools

In addition to the tools you have from Art 247, you will need a good brush for glazing and a large soft blue rubber rib.

Grading

Grading will be based on finished work, participation in loading and firing, final critique and paper.
*Attendance - if any student misses more than four classes (unexcused), student will be dropped a letter grade or dropped from class.

You are free to work in the ceramics lab any time it is open. Hours will be posted on the doors once the semester is underway. Feel free to ask for help at any time.

My office is located in Kittredge Hall basement in K017; office phone number is ext. 2754 or art department office ext. 2806.

All students in this class must attend the final critique. There will be no exceptions.

Required Text - THE CRAFT AND ART OF CLAY, 4th edition
by Susan Peterson
Read Chapter 2. Fabrication methods first week of class.

Required Reading -
The Art of Peter Voulkos, by Rose Slivka and Karen Tsujimoto. This book is in the UPS Library.
Ten issues of American Ceramics You must read at least seven of the magazines before mid-term.

Required Paper - due at final critique
Discuss your work in detail covering areas such as color, surface, content and inspiration 3-5 pages.

End of Semester Important Dates:

April 20 - Tuesday
Last day to work with wet clay. All throwing and hand-building must be complete.

April 27 - Tuesday
Last bisque firing. Your work must be dry and ready to fire on this date.

May 3 -Monday
Last glaze firing. Both gas kilns will be loaded on this date. Your work must be outside and ready to be fired. Kilns will be unloaded on Wednesday, May 9.

Students in this class should know the art work of the artists listed below:

Arneson, Robert
Autio, Rudy
Bailey, Clayton
Brady, Robert
Breschi, Karen
Daley, William
De Staebler, Stephen
Duckworth, Ruth
Earl, Jack
Frimkess, Michael
Gilhooly, David
Glossary of Ceramics Terms

Alumina (Al2O3) A major ingredient found in all clays and glazes. It is the chief oxide in the neutral group (B2O3) and imparts greater strength and higher firing temperatures to the body and glaze. When added to a glaze, it will assist in the formation of mat texture, inhibit devitrification, and increase the viscosity of the glaze during firing.

Ball Clay An extremely fine grained, plastic, sedimentary clay. Although ball clay contains much organic matter, it fires white or near white in color. It usually is added to porcelain and white-ware bodies to increase plasticity.

Bat A disk or slab of plaster of Paris on which pottery is formed or dried. It is also used to remove excess from plastic clay.

Bentonite An extremely plastic clay, formed by decomposed volcanic ash and glass, which is used to render short clays workable and to aid glaze suspensions.

Binders Various materials; gums, polyvinyl alcohol, methylcellulose used to increase glaze adherence or to impart strength to a cast or pressed clay body.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Bisque Fire</td>
<td>Preliminary firing to harden the body, usually at about cone 06, prior to glazing and subsequent glaze firing.</td>
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<tr>
<td>Casting</td>
<td>(or slip casting) A reproductive process for forming clay objects by pouring a clay slip into a hollow plaster mold and allowing it to remain long enough for a layer of clay to thicken on the mold wall. After hardening, the clay object is removed.</td>
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<tr>
<td>China</td>
<td>A loosely applied term referring to white-ware bodies fired at low porcelain temperatures. They are generally vitreous, with an absorbency of less than 2%, and may be translucent.</td>
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<tr>
<td>Clay</td>
<td>A decomposed granite-type rock. To be classed as clay. The decomposed rock must have fine particles so that it will be plastic. Clays should be free of vegetable matter but will often contain other impurities which affect their color and firing temperatures. They are classified into various types, such as ball clays, fire clays and slip clays. Pure clay is expressed chemically as $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$.</td>
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<tr>
<td>Crawling</td>
<td>Separation of the glaze coating during firing, which exposes areas of unglazed clay caused by too heavy application. The glaze cracks upon drying or from uneven contraction rates between glaze and body.</td>
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<tr>
<td>Crazing</td>
<td>An undesirable and excessive crackle in the glaze, which penetrates through the glaze to the clay body. It should be remedied by adjusting the glaze or body composition to obtain a more uniform contraction ratio.</td>
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<tr>
<td>Deflocculant</td>
<td>Sodium carbonate or sodium silicate used in a casting slip to reduce the amount of water necessary to maintain a better suspension.</td>
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<tr>
<td>Dunting</td>
<td>Cracking of fired ware in a cooling kiln, the result of opening the flues and cooling too rapidly.</td>
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<tr>
<td>Earthenware</td>
<td>Low fire pottery (below 2000°F), usually red or tan in color with an absorbency of from 5 to 20 percent.</td>
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<tr>
<td>Engobe</td>
<td>A prepared slip that is halfway between a glaze and a clay, contains clay, feldspar,</td>
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flint, a flux, plus colorants. May be used on bisque ware.

**Fireclay**
A clay having a slightly higher percentage of fluxes than pure clay (kaolin). It fires tan or gray in color and is used in the manufacture of refractory materials, such as bricks, muffles, and so forth, for industrial glass and steel furnaces. It is often quite plastic and may be used by the studio potter as an ingredient of stoneware bodies.

**Flux**
Lowest melting compound in a glaze, such as lead, borax, soda ash, or lime, and including the potash or soda contained in the feldspar. The flux combines easily with silica and thereby helps higher-melting alumina-silica compounds eventually to form a glaze.

**Frit**
A partial or complete glaze that is melted and then reground for the purpose of eliminating the toxic effects of lead or the solubility of borax, soda ash, and so forth.

**Glaze Fire**
A firing cycle to the temperature at which the glaze materials will melt to form a glasslike surface coating. This is usually at the point of maximum body maturity, and it is considerably higher than the bisque fire.

**Greenware**
Pottery that has not been bisque fired.

**Grog**
Hard fired clay that has been crushed or ground to various particle sizes. It is used to reduce shrinkage in such ceramic products as sculpture and architectural terra-cotta tiles, which, because of their thickness, have drying and shrinkage problems. From 20 to 40 percent grog may be used, depending upon the amount of detail desired and whether the pieces are free standing or pressed in molds.

**Kaolin**
\((\text{A}_1\text{S}_2\text{O}_3, 2\text{S}_1\text{O}_2, 2\text{H}_2\text{O})\) Pure clay, also known as china clay. It is used in glaze and porcelain bodies and fires to a pure white. Sedimentary kaolins found in Florida are more plastic than the residual types found in the Carolinas and Georgia.

**Lead**
White lead (basic lead carbonates, \(2\text{PbC}_3\text{O}_3\text{Pb} (\text{OH})_2\)), red lead (\(\text{Pb}_3\text{O}_4\)) and galena (lead P...
sulphide, PbS) are among the most common low fire fluxes.

**Leather Hard**
The condition of the raw ware when most of the moisture has left the body but when it is still soft enough to be carved or burnished easily.

**Luster**
A type of metallic decoration thought to have been discovered in Egypt and further developed in Persia during the ninth and fourteenth centuries. A mixture of a metallic salt, resin, and bismuth nitrate is applied to a glazed piece and then refired at a lower temperature. The temperature, however, must be sufficient to melt the metal and leave a thick layer on the decorated portions.

**Majolica**
Earthenware covered with a soft tin-lead glaze, often with a luster decoration. The ware originally came from Spain and derived its name from the Island of Majorca, which lay on the trade route to Italy. Faenza ware was greatly influenced by these Spanish imports. All Renaissance pottery of this type is now generally called majolica ware.

**Matte Glaze**
A dull-surfaced glaze with no gloss but pleasant to the touch, not to be confused with an incomplete fired glaze. Mat surfaces can be developed by the addition of barium carbonate or alumina, and a slow cooling cycle.

**Maturity**
The temperature or time at which a clay or clay body develops the desirable characteristics of maximum nonporosity and hardness; or the point at which the glaze ingredients enter into complete fusion, developing a strong bond with the body, a stable structure, maximum resistance to abrasion, and a pleasant surface texture.

**Mold**
A form or box, usually made of plaster containing a hollow negative shape. The positive form is made by pouring either wet plaster or slip into this hollow. (See casting)

**Overglaze**
Decoration applied with overglaze colors on the glaze and fired ware. The third firing of the overglaze ware is at a lower temperature than the glaze fire.
<table>
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<th>Term</th>
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<tr>
<td>Oxidizing Fire</td>
<td>A fire during which the kiln chamber retains an ample supply of oxygen. This means that the combustion in the firebox must be perfectly adjusted. An electric kiln always gives an oxidizing fire.</td>
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<tr>
<td>Plaster</td>
<td>Hydrate of calcium sulphate, made by calcining gypsum. It hardens after being mixed with water. Because it absorbs moisture and it can be cut and shaped easily, it is used in ceramics for drying and throwing bats, as well as for molds and casting work.</td>
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<tr>
<td>Plasticity</td>
<td>The quality of clay that allows it to be manipulated and still maintains its shape without cracking or sagging.</td>
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<tr>
<td>Porcelain</td>
<td>A hard, non-absorbent clay body, white or gray in color, that rings when struck.</td>
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<tr>
<td>Quartz</td>
<td>Flint or silica (S102).</td>
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<tr>
<td>Raku</td>
<td>A soft, lead-glazed, hand-built groggy earthenware made in Japan and associated with the tea ceremony. Raku ware is unique in that the glazed preheated bisque is placed in the red hot kiln with long-handled tongs.</td>
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<tr>
<td>Reduction Fire</td>
<td>A firing using insufficient oxygen; carbon monoxide thus formed unites with oxygen from the body and glaze to form carbon dioxide, producing color changes in coloring oxides.</td>
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<tr>
<td>Refractory</td>
<td>The quality of resisting the effects of high temperatures; also materials, high in alumina and silica, that are used for making kiln insulation, muffles, and kiln furniture.</td>
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<tr>
<td>Shrinkage</td>
<td>Contraction of the clay in either drying or firing. In the firing cycle the major body shrinkage for stoneware clays begins at approximately 900°C (1652°F). Earthenware clays will begin to fuse and shrink at slightly lower temperatures.</td>
</tr>
<tr>
<td>Silica</td>
<td>Flint (S102) produced by grinding almost pure flint sand.</td>
</tr>
<tr>
<td>Slip</td>
<td>A clay in liquid suspension.</td>
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Stain

Sometimes a single coloring oxide, but usually a combination of oxides, plus alumina, flint, and a fluxing compound. This mixture is calcined and then finely ground and washed. The purpose is to form a stable coloring agent not likely to be altered by the action of the glaze or heat. While stains are employed as glaze colorants, their chief use is as overglaze and underglaze decorations and body colorants.

Stoneware

A high fire ware (above cone 8) with slight or no absorbency. It is usually gray in color but may be tan or slightly reddish. Stoneware is similar in many respects to porcelain, the chief difference being the color, which is the result of iron and other impurities in the clay.

Underglaze

Colored decoration applied on the bisque ware before the glaze is applied.