



El Camino College
COURSE OUTLINE OF RECORD – Official

Subject:	ART
Course Number:	283
Descriptive Title:	Bronze Casting
Division:	Fine Arts
Department:	Art
Course Disciplines:	Art
Catalog Description:	This course is an introduction to the aesthetics and processes used in the making of bronze sculptures. Topics covered include the elements of sculptural design, wax formulation and fabrication, the sprucing process, the investing of wax patterns, mold making, finishing techniques, and bronze foundry procedures.
Prerequisite:	Prerequisite: Art 160 or Art 161 or Art 181 or Art 173 with a minimum grade of C in prerequisite
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	2
Hours Laboratory (per week):	4
Outside Study Hours:	4
Total Hours:	108
Course Units:	4
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	July 1992
Transfer UC:	No
Effective Date:	
General Education:	ECC
Term:	
Other:	
CSU GE:	
Term:	
Other:	
IGETC:	
Term:	

Other:	
Student Learning Outcomes:	<p>SLO #1 Terminology and Processes</p> <p>Students will be able to understand and explain the terminology, processes, and historical and contemporary concepts related to bronze casting at an intermediate level.</p> <p>SLO #2 Construction and Modeling</p> <p>Students will be able to show intermediate-level competency in the construction, modeling, mold making, and casting techniques of bronze casting.</p> <p>SLO #3 Design, Manufacturing, and Finishing</p> <p>Students will be able to show intermediate-level competency in the design, manufacturing, and finishing techniques in bronze casting.</p>
Course Objectives:	<p>this course are listed below, along with a representative assessment method for each)</p> <ol style="list-style-type: none"> 1. Translate original designs and form concepts into finished bronze metal sculptures. 2. Determine the feasibility for translating original designs and form concepts using cast bronze metal processes. 3. Plan, design, and formulate wax pattern fabrications, spruing systems, flexible molds, and appropriate investments; demonstrate their applicability to the process of bronze metal casting. 4. Plan, design, and cast bronze metal sculptures using solid and hollow core methods. 5. Finish cast bronze metal sculptures using the techniques of chasing, welding, and patination. 6. Analyze and critique bronze metal sculptures in relation to technique and process, aesthetics and presentation, and concepts and expression.
Major Topics	<ol style="list-style-type: none"> I. Studio and Foundry Orientation (3 hours, lecture) <ol style="list-style-type: none"> A. Safety requirements/guidelines B. Tools and materials II. Studio and Foundry Orientation (3 hours, lab) <ol style="list-style-type: none"> A. Safety requirements/guidelines B. Tools and materials III. Principles of Aesthetic Order (6 hours, lecture) <ol style="list-style-type: none"> A. Balance B. Harmony C. Economy D. Proportion IV. Principles of Aesthetic Order (6 hours, lab) <ol style="list-style-type: none"> A. Balance B. Harmony C. Economy D. Proportion V. Elements of Visual Communication (9 hours, lecture) <ol style="list-style-type: none"> A. Light

- B. Shape
- C. Negative/positive space
- D. Movement
- E. Texture
- F. Color
- G. Form
- H. Content

VI. Elements of Visual Communication (9 hours, lab)

- A. Light
- B. Shape
- C. Negative/positive space
- D. Movement
- E. Texture
- F. Color
- G. Form
- H. Content

VII. Techniques of Hollow and solid Core Bronze Metal Casting (12 hours lecture)

- A. Wax Fabrication
- B. Spruing systems
- C. Silica/ceramic shell and calcined-gypsum investments
- D. Mold-making
- E. Chasing
- F. Welding
- G. Patination

VIII. Wax Fabrication (8 hours, lab)

- A. Design
- B. Hand and Tool Modeling
- C. Spruing systems:
 - 1. Design
 - 2. Assembly of Sprues and Vents
 - 3. Design and Assembly of Pour Cup

IX. Silica/ceramic shell and calcined-gypsum investments (8 hours, lab)

- A. Cleaning and preparation of work
- B. Application of surface coats
- C. Application of Investment/Ceramic Shell layers
- D. Wax burn out

X. Mold making (8 hours, lab)

- A. Design determine mold materials
- B. Sand Casting for simple relief sculptures
- C. Two- part plaster for simple 3D objects
- D. without undercuts Silicone mold for more complex shapes.

XI. Chasing (8 hours, lab)

- A. Break mold from cast work
- B. Clean, then Sand Blast Work
- C. Cut Sprues and Vents from Work
- D. Grind off Sprue and Vent stubs

XII. Welding (8 hours, lab)

- A. Fix an imperfection in the casting process, such as holes and freeze out areas.
 - A. Weld addition casting parts together as necessary
 - B. Weld additional armature or mountings as needed

	<p>XIII. Patination: (8 hours, lab)</p> <ul style="list-style-type: none"> A. Final Sandblast, fine sand B. Clean with Denatured Alcohol. C. Choose desired colors for Patinas. D. Mix patinas when necessary. E. Apply patinas in layers as required for specific results. F. Clean with Distilled Water G. Polish Finished Work. <p>XIV. Analysis and Criticism (6 hours, lecture)</p> <ul style="list-style-type: none"> A. Technique and process B. Aesthetics and presentation C. Concepts and expression <p>XV. Analysis and Criticism (6 hours, lab)</p> <ul style="list-style-type: none"> A. Technique and process B. Aesthetics and presentation C. Concepts and expression
Total Lecture Hours:	36
Total Laboratory Hours:	72
Total Hours:	108
Primary Method of Evaluation	3) Skills demonstration
Typical Assignment Using Primary Method of Evaluation:	Form a sculpture pattern from wax and/or other organic materials to be cast in bronze metal using a calcined-gypsum investment. Make a sprue system that will allow the removal of the residual ash as well as the ventilation of the gasses formed in the process. Invest, cast, and chase the casting. If appropriate, complete the project with a mount and/or patina.
Critical Thinking Assignment 1:	Design an original pattern from sheet wax that is appropriate for hollow casting. Design a sprue system that will deliver the molten bronze metal in a satisfactory manner. Mix from refractory materials the core necessary for hollow castings. Invest, cast, and chase and if appropriate, complete the project with a mount and/or patina.
Critical Thinking Assignment 2:	Utilizing the principles of sculptural composition, complete an original wax sculpture pattern suitable for casting in solid bronze metal utilizing the ceramics shell process. Devise a sprue plan that accounts for the shrinkage problem associated with solid castings. Invest, cast, chase, and if appropriate, complete the project with a mount and/or patina.
Other Evaluation Methods:	Other Exams
Instructional Methods:	Demonstration, Lab, Lecture
If other:	
Work Outside of Class:	Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting), Problem solving activity, Skill practice
If Other:	

Up-To-Date Representative Textbooks:	David Q. Hodges. <u>Creating Sculpture from Clay to Bronze</u> . (discipline standard), 2002. Olivier Duhamel . <u>Bronze Casting Manual</u> . CreateSpace Independent Publishing Platform , 2012. (discipline standard)
Alternative Textbooks:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite:	Prerequisite
Category:	sequential
Requisite course(s): List both prerequisites and corequisites in this box.	Art-160 or Art-161 or Art-173 or Art-181
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	<p>Design and create three-dimensional forms using clay relief, wood, plaster, and/or stone carving, sheet-material fabrication, and mold casting.</p> <p>ART 160 - Assess the material and technical requirements of three-dimensional design projects.</p> <p>ART 160 - Create preliminary drawings that indicate the scale, the construction process, and the material needs of proposed three-dimensional design problems.</p> <p>ART 160 - Demonstrate construction techniques appropriate for use with wood, paper, plastic, and metal.</p> <p>ART 160 - Carve and assemble forms that contain positive and negative shapes.</p> <p>ART 160 -Construct negative plaster molds to be used for casting relief forms.</p> <p>ART 161 -Design, plan, construct, and finish entry-level ceramic projects.</p> <p>ART 173 - Create finished jewelry employing sawing, filing, annealing, soldering, forming, surface embellishment, stone setting, casting, and polishing.</p> <p>ART 173 -Analyze and apply the technical processes necessary to produce finished jewelry objects.</p>

	<p>ART 181 - Assess and determine the material and technical requirements of sculpture projects.</p> <p>ART 181 - Create working drawings that indicate the scale, construction process, and material needs of proposed sculpture projects.</p> <p>ART 181 - Translate working drawings into models and prototypes. ART 181 - Employ various materials such as clay, super sculpy, plaster, latex, polyurethane foam, wood and plastics to create sculpture forms.</p> <p>ART 181 - Demonstrate assembly, modeling, and fabrication skills.</p>
Requisite:	
Requisite and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Andrew Fagan
Date:	04/01/1988
Original Board Approval Date:	
Last Reviewed and/or Revised by:	Joyce Dallal
Date:	09/10/2014
Last Board Approval Date:	06/21/2021

Course Acronym:	ART
Course Number:	282
Descriptive Title:	Life Sculpture
Division:	Fine Arts
Department:	Art
Course Disciplines:	Art
Catalog Description:	This course explores the anatomical structure of the human figure through sculptural studies. Students will develop technical and creative skills including observation, drawing and modeling. Students will work from live models.
Prerequisite:	Art 217 or Art 160 or Art 161 or Art 181 with a minimum grade of C
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	2
Hours Laboratory (per week):	4
Outside Study Hours:	4
Total Course Hours:	108
Course Units:	3
Grading Method:	Letter
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	Prior to July 1992
Transfer UC:	Yes
Effective Date:	Prior to July 1992
General Education: ECC	
Term:	
Other:	
CSU GE:	
Term:	
Other:	
IGETC:	
Term:	
Other:	
Student Learning Outcomes:	1. SLO 1 Terminology and Processes Students will be able to understand and explain the terminology, processes, and historical and contemporary concepts related to the creation of figurative sculpture works at an intermediate level.

	<p>2. SLO #2 Construction and Modeling</p> <p>Students will be able to show intermediate-level competency in the construction and modeling techniques related to life sculpture.</p> <p>3. SLO #3 Design, Manufacturing, and Finishing</p> <p>Students will be able to show intermediate-level competency in the design, manufacturing, and finishing techniques in figurative sculpture.</p>
<p>Course Objectives:</p>	<ol style="list-style-type: none"> 1. Assess, revise and employ appropriate drawing skills necessary to the creation of working drawings. 2. Analyze and incorporate mass, composition, and form concepts. 3. Assess and revise working drawings relative to the proposed materials and technical processes. 4. Translate working drawings into finished sculpture. 5. Using armature construction, clay modeling, wax modeling, and mold making, create studies of the human head, torso, and full figure. 6. Recognize and employ appropriate tools and materials. 7. Employ appropriate clean-up, equipment maintenance, and safety rules. 8. Assess personal studio work habits and design a plan for improvement.
<p>Major Topics:</p>	<p>I Historical and Contemporary use of the figure in societies. (6 hours, Lecture)</p> <ol style="list-style-type: none"> A. Pre-history B. Traditional roles of the figure in society C. Evolution of the figure in Western Antiquities D. The figure in the Middle Ages E. The figure and the Renaissance-19th

F. The figure in 20th century society

II Analysis and application of construction techniques in figure sculpture (6 hours, Lecture)

- A. Maquette/Gesture studies in water base clay
- B. Scale, proportional maquettes
- C. Head study maquettes
- D. Eye, ear nose, mouth studies Homework
- E. Torso studies, maquettes
- F. Foot and hand maquette studies Homework

III Analysis and application of construction techniques in figure sculpture (18 hours, Lab)

- A. Maquette/Gesture studies in water base clay
- B. Scale, proportional maquettes
- C. Head study maquettes
- D. Eye, ear nose, mouth studies Homework
- E. Torso studies, maquettes
- F. Foot and hand maquette studies Homework

IV Armature Building, Head, Full body, Hands (9 hours, Lecture)

- A. Full sized head
- B. ½ Scale Torso
- C. ¼ Scale Full body

V Armature Building, Head, Full body, Hands (27 hours, Lab)

- A. Full sized head
- B. ½ Scale Torso
- C. ¼ Scale Full body

VI Studio Procedures, responsibilities, tool use, and materials (4 hours, Lecture)

- A. Classroom safety and emergency procedures, studio behavior and Model etiquette
- B. Hand Tools, terms and uses
- C. Power tools, and safety procedures
- D. Course materials, uses and technics

VII Studio Procedures, responsibilities, tool use, and materials (12 hours, Lab)

- A. Classroom safety and emergency procedures, studio behavior and Model etiquette
- B. Hand Tools, terms and uses
- C. Power tools, and safety procedures
- D. Course materials, uses and technics

VIII Creation, analysis and evaluation of Figurative drawings (15 hours, Lab)

- A. Gesture sketches of model poses
- B. Scale studies of human anatomy & proportions
 1. Head study, drawings
 2. Back and spine study, drawings
 3. Torso drawings
 4. Full body drawings
 5. Hand and feet drawings

IX Analysis and Criticism (11 hours, lecture)

- A. Mass, composition, and form
- B. Anatomy, proportion, and structure

	C. Translation, construction, and modeling D. Materials, tools, and techniques
Total Lecture Hours:	36
Total Laboratory Hours:	72
Total Hours:	108
Primary Method of Evaluation:	Skill demonstrations
Typical Assignment Using Primary Method of Evaluation:	Sketch, design, and translate the human head into a finished sculpture using armature construction, clay modeling, wax modeling, and mold making.
Critical Thinking Assignment 1:	Sketch, design, and translate the human torso into a finished sculpture using armature construction, clay modeling, wax modeling and mold making.
Critical Thinking Assignment 2:	Sketch, design, and translate the full human figure (standing or reclining) into a finished sculpture using armature construction, clay modeling, wax modeling and mold making.
Other Evaluation Methods:	Field work, Class Performance Other (specify): Journals Portfolio review
Instructional Methods:	Demonstration, Discussion, Laboratory, Lecture
If other:	Critiques
Work Outside of Class:	Skill practice, Problem solving activities, Journal, Observation of or participation in an activity related to course content
If Other:	
Up-To-Date Representative Textbooks:	Tourtillott, Suzanne J. E.. <u>500 ceramic sculptures</u> . Lark Books, 2009. Qualifier Text: This book gives hundreds of examples of contemporary uses of the figure in sculpture. It is an ideal tool in the education of students in the application of the figure in today's society. Discipline Standard.
Alternative Textbooks:	
Required Supplementary Readings:	Handouts will be given during the course that includes anatomy for artists as well as historical and contemporary uses of the figure in sculpture. In addition, many additional books are included to broaden the students base of knowledge. A few examples are: Lucchesi and Malmstron, "Modeling the Figure in Clay", Watshon Guptil, 1996(Discipline Standard) Carter and Courtney, "Anatomy for the Artist", Parragon Publishing 2004 (Discipline Standard)

	Tourtillot, "500 Figures in Clay", Lark Books, 2004
Other Required Materials:	Clay, sculpture tools, sketch book
Requisite:	Prerequisite
Category:	sequential
Requisite course(s): List both prerequisites and corequisites in this box.	Art 217 or Art 160 or Art 161 or Art 181
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	<p>Create three-dimensional forms or two-dimensional renderings that demonstrate a practical knowledge of basic construction techniques, or basic knowledge of the human figure.</p> <p>ART 160 -Assess the material and technical requirements of three-dimensional design projects. ART 217 - Exhibit perceptual awareness and drawing skills as they pertain to portraying the human figure.</p> <p>ART 181 - Assess and determine the material and technical requirements of sculpture projects.ART181 -</p> <p>Assess and determine the material and technical requirements of sculpture projects.</p> <p>ART 160 - Assess the material and technical requirements of three-dimensional design projects.</p> <p>ART 160 - Create preliminary drawings that indicate the scale, the construction process, and the material needs of proposed three-dimensional design problems.</p> <p>ART 160 - Create preliminary drawings that indicate the scale, the construction process, and the material needs of proposed three-dimensional design problems. ART 217 - Observe and draw the movement of the primary elements of a given pose that is related to mass, the distribution of weight, and the turning of anatomical parts as indicated by the midline.</p> <p>ART 181 - Create working drawings that indicate the scale, construction process, and material needs of proposed sculpture projects.</p> <p>ART 181 - Create working drawings that indicate the scale, construction process, and material needs of proposed sculpture projects. ART 161 - Design, plan, construct, and finish entry-level ceramic projects.</p> <p>ART 181 - Translate working drawings into models and prototypes.</p> <p>ART 161 - Design, plan, construct, and finish entry-level ceramic projects.</p> <p>ART 181 - Translate working drawings into models and prototypes. ART 217 - Determine the proportions of the figure based on comparisons of head heights and other parts of the form.</p>

	<p>ART 161 - Create clay objects that restate traditional forms.</p> <p>ART 181 - Translate models and prototypes into finished sculpture. ART 160 - Design and construct expressive forms that evoke ideas, moods, or emotions. ART 161 - Create clay objects that restate traditional forms.</p> <p>ART 160 - Design and construct expressive forms that evoke ideas, moods, or emotions.</p> <p>ART 181 - Translate models and prototypes into finished sculpture.</p> <p>ART 160 - Analyze and evaluate three-dimensional designs in terms of project criteria, principles of design, and construction techniques. ART 160 - Analyze and evaluate three-dimensional designs in terms of project criteria, principles of design, and construction techniques.</p> <p>ART 181 - Analyze and evaluate sculptures according to project criteria, principles of design, construction techniques, and historical or contemporary significance. ART 181 - Analyze and evaluate sculptures according to project criteria, principles of design, construction techniques, and historical or contemporary significance. ART 161 - Evaluate ceramic forms in terms of technique and style, historical and contemporary significance, form and function, and aesthetics and expression.</p> <p>ART 161 - Evaluate ceramic forms in terms of technique and style, historical and contemporary significance, form and function, and aesthetics and expression.</p> <p>ART 160 - Assess the degree to which concept, design, material, and technique are interrelated in finished three-dimensional designs. ART 181 - Assess the degree to which concept, design, material, and technique are unified in a particular sculpture.</p> <p>ART 181 - Assess the degree to which concept, design, material, and technique are unified in a particular sculpture. ART 217 - Recognize and describe the anatomical structure of the model. ART 160 - Assess the degree to which concept, design, material, and technique are interrelated in finished three-dimensional designs.</p> <p>ART 217 - Organize live-model poses into effective pictorial compositions. ART 217 - Recognize whether a specific drawing represents accurate proportion. ART 217 - Critique the merits of a drawing based on composition, emotional impact or autographic characteristics and technique.</p>
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding	

course objective under each skill(s).	
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Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Andrew Fagan
Date:	04/01/1988
Original Board Approval Date:	
Last Reviewed and/or Revised by:	Russell McMillin
Date:	12/10/2021
Last Board Approval Date:	04/18/2022