

**827. Anthropological Theorists**  
Winter. 4(4-0) May re-enroll for credit with approval of department. Approval of department.

Review of current theoretical problems in social and cultural anthropology.

**830. Kinship Studies**  
Winter. 4(4-0) Approval of department.

The course will raise the question of what kinship is and why it has been such a central topic in anthropology. Various controversies and theoretical trends will be presented and analyzed.

**831. Linguistic Anthropology**  
Winter. 5(3-2) Approval of department.

The nature of language; techniques for the description and comparison of languages; linguistics as an anthropological tool; language and culture.

**833. Anthropological Problems of Prehistory**  
Spring. 5(3-2) Approval of department.

Relation of archaeology to the other fields of anthropology on both a theoretical and practical level. Archaeological data are used to introduce problems of long-range cultural change and development.

**835. Human Osteology and Osteometry**  
Fall of even-numbered years. 5(3-4) 821 or ANT 540.

Identification of human bones and fragments; aging, sexing and determining the race of skeletal remains; measuring techniques for cranial and postcranial remains; the more common forms of paleopathology.

**IDC. Interdisciplinary Seminar on Africa**  
For course description, see Interdisciplinary Courses.

**850. Archaeological Methods and Techniques**  
Winter. 4(4-0) 833 or approval of department.

Seminar outlining archaeological method and the role of technique in the strategy of archaeology. Techniques and problems of information retrieval will be emphasized.

**856. Methodology of Anthropological Research**  
Winter. 1 to 12 credits. Approval of department.

Seminar in problems of anthropological investigation considered in the framework of history and philosophy of science. Relevance of various field techniques, methods of data gathering and data handling, and strategies of analysis for various problems are treated.

**865. Environment, Technology, and Culture**  
Spring. 4(3-0) Approval of department.

Cultural ecology, study of the relation of man and his physical environment, the role of technology in mediating between the two. Comparative analysis of the interdependence of social organization, technology and environment. Case histories of cultural and social change arising from technological innovations.

**870. Applied Anthropology**  
Spring of odd-numbered years. 4(3-0) Approval of department.

Theoretical and methodological problems involved in planned social change. Course will focus on field experience in the local community. Designed mainly for graduate students having professional interest in the application of social change.

**872. Seminar in Special Subject Fields**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

Special fields of study will include any area of anthropology selected.

**875. Individual Research Projects**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**880. Individual Readings**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**899. Research**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**922. Dimensions of Culture**  
Winter. 5(5-0) Approval of department.

Intensive review of principles of cultural anthropology, ethnology, and cultural change with particular attention to systems theory and interconnections of cultural, social, personality, and ecological systems.

**923. Cultural Dynamics**  
Spring. 5(3-2) Approval of department.

Intensive review of culture change theories, processes of the development of the self, contemporary cultural movements, and the application of anthropological knowledge.

**999. Research**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

## ART

### College of Arts and Letters

#### History of Art

H A

**205. Introduction to Art**  
Fall, Winter, Spring. 3(3-0) Not open to majors.

Painting, sculpture and architecture from the time of the Greeks to the present. Individual works of art examined intensively, as regards both their formal qualities and the manner in which they exemplify the shifting patterns of Western culture.

**206. History of Western Art**  
Fall. 4(4-0)

Painting, sculpture, architecture and decorative art from prehistoric to modern times. Provides acquaintance with the forms of art typical of each period and indicates the aesthetic qualities which give them artistic significance. Work in first term covers Prehistoric, Egyptian, Mesopotamian, Greek, Roman, Early Christian and Byzantine periods.

**207. History of Western Art**  
Winter. 4(4-0)

Continuation of 266. Early Medieval, Romanesque, Gothic, Renaissance and Mannerist periods.

**208. History of Western Art**  
Spring. 4(4-0)

Continuation of 267. Baroque, Rococo, Neoclassic and subsequent periods to contemporary art.

**400H. Honors Work**  
Fall, Winter, Spring, Summer. 1 to 6 credits. Approval of department.

**404. Greek Art and Archaeology**  
Winter. 4(4-0) 206 or approval of department.

The history of painting, sculpture and architecture of ancient Greece from the Bronze Age through the Hellenistic period. The history of archaeology excavations of selected sites.

**405. Roman Art and Archaeology**  
Spring. 4(4-0) 206 or approval of department.

The history of painting, sculpture and architecture of Ancient Rome from the Republic through the 4th century. The history of archaeological excavations of selected sites.

**406. Ancient Painting**  
Spring of odd-numbered years. 4(4-0) 206 or approval of department.

Ancient Greek and Roman painting, including Minoan Crete. Special emphasis is placed on Archaic and Classical Greek painting on pottery and on Roman wall painting from Pompeii and elsewhere.

**407. Ancient Sculpture**  
Fall of odd-numbered years. 4(4-0) 206 or approval of department.

The sculpture of Ancient Greece and Rome, from the Bronze Age through Early Christian times.

**408. Ancient Architecture**  
Winter of even-numbered years. 4(4-0) 206 or approval of department.

The architecture of Ancient Greece and Rome, from Mycenaean times to the 6th century A.D., with special emphasis on the religious architecture of Classical Greece and Imperial Rome.

**410. Byzantine Art**  
Fall, Summer. 4(4-0) 206 or approval of department.

Late antique painting, sculpture and architecture and their development in the East Christian Empire and Orthodox Russia.

**411. Early Medieval Art**  
Winter, Summer. 4(4-0) 207 or approval of department.

History of architecture, sculpture, and painting in the Latin West from Hiberno-Saxon art of the 7th century to the Romanesque Abbeys of the 12th century.

**412. Later Medieval Art**  
Spring, Summer. 4(4-0) 207 or approval of department.

Gothic painting, sculpture, and architecture with particular emphasis on the cathedrals of the 13th century.

**420. Italian Renaissance Architecture**  
Spring. 4(4-0) 207 or approval of department.

Important buildings of the 15th and 16th centuries, architectural theories, and architectural representations in drawings and paintings.

**421. Italian Renaissance Sculpture**  
Winter. 4(4-0) 207 or approval of department.

Major artists from circa 1250 to 1600.

**Descriptions — Art  
of  
Courses**

- 422. Italian Renaissance Painting—Fifteenth Century**  
Fall. 4(4-0) 207 or approval of department.  
Developments in Italian painting, especially Florentine, of the 14th and 15th centuries, with emphasis on 15th century masters such as Masaccio, Piero della Francesca and Botticelli.
- 423. Italian Renaissance Painting—Sixteenth Century**  
Spring. 4(4-0) 207.  
Emphasis on Leonardo, Michelangelo, Raphael, Titian, Tintoretto, and other important masters of the High and Late Renaissance.
- 427. Northern Renaissance Painting**  
Fall, Summer. 4(4-0) 207 or approval of department.  
The two centuries paralleling the Renaissance in Italy: the Van Eycks and their school, the French and German masters.
- 430. Seventeenth and Eighteenth Century Art in Italy**  
Fall of odd-numbered years. 4(4-0) 208 or approval of department.  
Art and architecture of Italy in the 17th and 18th centuries; Caravaggio, the Carracci, Bernini, Borromini, Guarini, Juvarra, Piazzetta, Tiepolo, Piranesi, Guardi.
- 431. Seventeenth Century Art in Flanders and Spain**  
Fall of even-numbered years. 4(4-0) 208 and approval of department.  
Painting and sculpture in the Spanish Netherlands and Spain during the 17th century: Rubens, Van Dyck, Jordaens, Zurbaran, Montanes, Velazquez, Murillo and still life and genre specialists.
- 433. Seventeenth Century Dutch Art**  
Winter of odd-numbered years. Spring of even-numbered years. 4(4-0) 208 or approval of department.  
Art and architecture of the Northern Netherlands during "The Golden Age" with emphasis on paintings of Rembrandt, Vermeer, Hals and genre, still-life and landscape specialists.
- 434. French Art in l'ancien Regime**  
Spring of odd-numbered years. 4(4-0) 208 or approval of department.  
French art and architecture from the reign of Louis XII to the Revolution: Royal patronage at Fontainebleau, Versailles and Paris; the influence of Italy, Flanders and Holland on French artists.
- 435. Eighteenth Century Art in England and France**  
Fall of even-numbered years. 4(4-0) 208 and approval of department.  
Art and architecture of England and France during the 18th century: the painting of Watteau, Chardin, Hogarth, Gainsborough and others; the Rococo style in France and stylistic eclecticism in England.
- 437. Art and Architecture of Central Europe**  
Spring of even-numbered years. 4(4-0) 208 or approval of department.  
Art and architecture of Germany, Austria, Switzerland and Bohemia during the 17th and 18th centuries with emphasis on architecture of Fischer von Ehrlach, Hildebrandt and Neumann.
- 440. Modern Architecture**  
Fall. 4(4-0) 208 or approval of department.  
History of modern architecture in Europe and the Americas from its beginnings in the nineteenth century to the present day.
- 442. Modern Sculpture**  
Spring. 4(4-0) 208 or approval of department.  
From circa 1800 to the present.  
From Rodin to the present, with special attention to contemporary sculptors.
- 445. European Painting: 1760-1848**  
Fall, Summer. 4(4-0) 208 or approval of department.  
The revival and development of Classicism in the late 18th and early 19th centuries and the flowering of Romanticism; a study of the rich complexities of painting in Europe.
- 446. European Painting: 1848-1907**  
Winter. 4(4-0) 208 or approval of department.  
Realism in conflict with the established traditions; growth and development of Impressionism, Post Impressionism, Symbolism, and Pre-Raphaelitism.
- 447. 1900: The Arts of Europe at the Turn of the Century**  
Winter. 4(4-0) 208.  
European painting, sculpture, architecture and the applied arts at the turn of the century; symbolism, historicism and art nouveau and their contribution to the development of fauvism, expressionism and cubism.
- 450. Twentieth Century Painting**  
Spring. 4(4-0) 208 or approval of department.  
Development of painting from 1900 to the present with special reference to the various "isms" that have characterized it since that time.
- 460. Seventeenth and Eighteenth Century American Art**  
Fall. 4(4-0)  
Architecture and painting from colonial times to 1820; the Colonial and Georgian styles as evidence of the emerging American pattern.
- 461. Nineteenth Century American Art**  
Winter. 4(4-0)  
Architecture, painting and sculpture from 1820 to 1900; the expression of romanticism and eclecticism in the search for a native style.
- 462. Twentieth Century American Art**  
Spring. 4(4-0)  
Architecture, painting and sculpture from 1900 to the present; the role of Wright, the Ash Can School, Regionalists, and Abstract-Expressionists in American culture.
- 470. Art of India and Southeast Asia**  
Fall, Winter. 4(4-0)  
Buddhism and Hinduism as forces in shaping the arts of India and Southeast Asia; symbolism in the art of the East; the conquest by Islam.
- 471. Art of China**  
Fall, Winter. 4(4-0)  
Buddhism and Taoism and their importance in the formation of the art of China in the bronzes, the landscape paintings of the Sung and Yuan dynasties, and in the paintings of the Ming and Ch'ing dynasties.
- 472. Art of Japan**  
Fall, Winter. 4(4-0)  
Architecture, sculpture and painting as expressive of the Japanese ideals: the relationship of Japanese art to Chinese art and its independence from Chinese art; landscapes and the Ukiyo-e tradition.
- 484. History of Prints**  
Winter. 4(4-0)  
History and appreciation of engraving, etching, lithography and woodcuts. Durer, Rembrandt, Goya, Daumier and contemporary printmakers. Prints and book illustrations as source material.
- 485. Special Problems**  
Fall, Winter, Spring. Variable credit. May re-enroll for a maximum of 10 credits. Approval of department.  
Selected problems in history of art for individual study.
- 800. Seminar in Ancient Art**  
Fall, Winter, Spring. 4 credits.
- 810. Seminar in Medieval Art**  
Fall, Winter, Spring. 4 credits.
- 820. Seminar in Italian Renaissance Art**  
Fall, Winter, Spring. 4 credits.
- 830. Seminar in Seventeenth and Eighteenth Century European Art**  
Fall, Winter, Spring. 4 credits.
- 840. Seminar in Modern Art**  
Fall, Winter, Spring. 4 credits.
- 860. Seminar in American Art**  
Fall, Winter, Spring. 4 credits.
- 875. Methods and Approaches in Art History**  
Fall. 2(2-0) Reading knowledge of French or German recommended.  
Reference books, history of scholarship, and particular techniques and challenges in the various specialties of art history and archaeology.
- 885. Problems in History of Art**  
Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 15 credits. Approval of department.  
Selected graduate problems in history of art for individual study.
- 886. Teaching Seminar: History of Art**  
Fall. 2 credits. Approval of department.  
A special seminar in methods of teaching history of art.
- 887. Teaching Seminar: History of Art**  
Winter. 2 credits. Approval of department.  
A special seminar in methods of teaching history of art.
- 888. Teaching Seminar: History of Art**  
Spring. 2 credits. Approval of department.  
A special seminar in methods of teaching history of art.
- 899. Research**  
Fall, Winter, Spring. Variable credit. May re-enroll for maximum of 12 credits. Approval of department.

**Studio Art**

**STA**

- 101. Art Appreciation**  
Fall, Winter, Spring, Summer 4(3-2)  
Ways of looking at art of any period, but particularly modern art. Slide lectures, reading and studio exercises showing how artists relate their work to socio-intellectual developments of their time.

**131. Art I**

*Fall, Winter, Spring, Summer. 4(1-6)*

Conventional and experimental art concepts explored through a wide range of media. Films and presentations reinforcing studio experiences and familiarizing students with the department.

**141. Drawing**

*Fall, Winter, Spring, Summer. 4(0-8)*

131.

Drawing in a variety of forms as an essential discipline, a means of expression, a preparation for and adjunct to the other arts.

**142. Color**

*Fall, Winter, Spring, Summer. 4(0-8)*

131.

Color theories additive and subtractive; pigment and light as applied to the problems of the artist.

**143. Three Dimensional Design**

*Fall, Winter, Spring, Summer. 4(0-8)*

131.

Experimentations with volume through manipulation of mass, plane and line in a wide range of materials and techniques.

**200. Photography**

*Fall, Winter, Spring, Summer. 2(2-0)*

Discussion of the history of light-sensitive materials. Practical demonstrations, slide presentations; study of equipment and fundamental problems.

**200A. Photography Laboratory**

*Fall, Winter, Spring, Summer. 2(0-4)*  
*141, 142. Must enroll in 200.*

A supplement to 200. Experience in studio work in camera and darkroom investigations. Students must furnish camera, exposure meter and all chemicals and photo-sensitive materials.

**201. Art for Elementary Teachers**

*Fall, Winter, Spring, Summer. 4(1-8)*  
*ED 200; approval of department. Not open to Freshmen or Art majors.*

Understanding the creative art experiences of children. Studio work in materials suitable for grade school use. Reading and discussions relating the child's growth and development and his art experience.

**228. Sculpture**

*Fall, Winter, Spring, Summer. 4(1-8)*

131.

Preparation for sculpture, involving experience with three dimensional forms. Exploration of the characteristics of sculpture past and present.

**231. Graphic Design**

*Fall, Winter, Spring, Summer. 4(0-10)*

Letterforms leading to the understanding of written and printed letters; the traditional methods by which they are produced and their relation to modern typography.

**240. Ceramics**

*Fall, Winter, Spring, Summer. 4(0-10)*

131.

An exploration of form mainly from the standpoint of the enclosed volume. The complete process from the preparation of clay bodies to the glazed and fired piece. Limited to earthenware.

**241. Life Drawing**

*Fall, Winter, Spring. 4(1-8) 141.*

Tools and materials of the artist applied in a variety of ways to the act of representing the human figure.

**245. Design**

*Fall. 4(1-8) 141.*

Use of basic design elements in two and three dimensions. Study of the appropriateness of forms to various media. Introduction to applied design procedures and processes.

**247. Printmaking**

*Fall, Winter, Spring. 4(1-8) 141, 142.*

Study of the art of printmaking and its major techniques. Studio practice in a wide range of printing methods.

**255. Painting**

*Fall, Winter, Spring. 4(1-8) 141, 142.*

Pictorial expression. Class discussion and studio work in a variety of media.

**300. Still Photography I**

*Fall, Summer. 5(0-10) Junior majors, 200A or approval of department.*

Emphasis on light as form-giver, modifier and reducer.

**301. Still Photography II**

*Winter, Summer. 5(0-10) 300.*

Continuation of 300 with emphasis on subject matter, single and serial as form and information.

**303. Resources and Materials for Art Education I**

*Fall, Winter, Spring, Summer. 4(1-9)*  
*ED 200; 24 credits in studio art.*

Concepts, processes and materials as they apply to art teaching situations.

**305. Serigraphy**

*Fall, Winter, Spring, Summer. 3(0-6)*  
*Junior majors, 241, 247.*

Silk screen as a fine print medium. Basic techniques as a means toward expressive development.

**306. Lithography**

*Fall, Winter, Spring. 3(0-6) 247, 340.*

Techniques of the medium, preparing the stone, etching, printing, the use of tusche, wash, rubbing, etc.

**307. Etching**

*Fall, Winter, Spring, Summer. 5(0-10)*  
*Junior majors, 241, 247.*

Techniques of straight etching, soft ground and aquatint.

**308. Relief Prints**

*Fall, Summer. 5(0-10) Junior majors,*

*247.*

Printing from a raised surface as a contemporary medium. Review of traditional techniques and materials as the basis for individual experimentation and expression.

**310. Film Art I**

*Fall, Summer. 5(0-10) 200A, Junior majors or approval of department.*

Sequential time relationships; programed slide presentations and hand drawn film synchronized with sound.

**311. Film Art II**

*Winter, Summer. 5(0-10) 310.*

Emphasis on the animated film.

**320. Resources and Materials of Art in Education II**

*Fall, Winter, Spring, Summer. 4(0-8)*

303.

Art teaching. Learning experiences with children and youth.

**324. Graphic Design**

*Fall, Winter, Spring, Summer. 5(0-10)*  
*May re-enroll for a maximum of 15 credits.*  
*231.*

Visual communication involving the complete range of specialized materials, methods and processes leading to an understanding of the unique limitations of graphic design.

**328. Sculpture**

*Fall, Winter, Spring, Summer. 5(0-10)*  
*Junior majors, 228, 241.*

Exploration of the physical characteristics and possibilities of clay within the limitation of figurative representation. Plaster casting, wax modeling, etc.

**339. Design Communications**

*Fall, Summer. 5(0-10) 241, 245;*  
*EGR 162.*

Methods of representation, including drawing, delineation, photography with experimental exploitation of new tools and techniques.

**340. Advanced Drawing**

*Fall, Winter, Spring. 5(1-8) Junior majors, 241.*

Advanced problems in drawing as an end in itself, stressing experimentations with form and materials with emphasis on the human figure.

**341. Ceramics**

*Fall, Winter, Spring, Summer. 5(0-10)*  
*Junior majors, 240, 241, approval of department.*

Creating and executing designs in clay for pottery and other compositions. Making glazes, stacking and firing a kiln.

**344. Industrial Design I**

*Fall, Winter, Spring, Summer. 5(0-10)*  
*Junior majors, 241, 245; EGR 161, 162 or 267.*

Products and product systems from the visual and practical point of view. Research and analysis as a prelude to meaningful design. Reports, sketches, renderings, study mockups and presentation models.

**353. Composition and Painting**

*Summer. 3 to 6 credits. Approval of department. 24 or 36 hours per week in class; additional hours arranged. Course given at Leelanau Summer Art School, Leland, Michigan.*

Composition practice, analysis and painting technique. Still-life, figure, and landscape.

**355. Painting**

*Fall, Winter, Spring, Summer. 5(0-10)*  
*Junior majors, 241, 255.*

Survey of accepted working procedures in all phases of oil painting, exploration of a wide range of problems of expression based on still life and the human figure.

**391. Jewelry**

*Fall, Winter, Spring, Summer. 3(0-6)*  
*Junior majors.*

Basic jewelry and metal techniques in sheet metal, wire and casting. Polishing and setting stones, repousse, etc.

**400H. Honors Work**

*Fall, Winter, Spring, Summer. 1 to 6 credits. Approval of department.*

**401. Still Photography Workshop**

*Fall, Winter, Spring, Summer. 5 to 10 credits. May re-enroll for a maximum of 30 credits. 301, approval of department.*

Continuation of 301 leading to independent study.

**405. Advanced Serigraphy**

*Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 18 credits. 305, approval of department.*

Continuation of 305 for superior students with a demonstrated potential for advanced independent study.

**Descriptions — Art  
of  
Courses**

**406. Advanced Lithography**

Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 18 credits. 306, approval of department. Continuation of 306 for superior students with a demonstrated potential for advanced independent study.

**407. Advanced Etching**

Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 18 credits. 307, approval of department. Continuation of 307 for superior students with a demonstrated potential for advanced independent study.

**408. Advanced Relief Prints**

Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 18 credits. 308 or approval of department. Continuation of 308 for students interested in a deeper exploitation of the various block printing media.

**410. Film Workshop**

Fall, Winter, Spring, Summer. 5 to 10 credits. May re-enroll for a maximum of 30 credits. 310, approval of department. Film workshop with emphasis on independent study. Live film assignments.

**420. Advanced Problems in Crafts**

Fall, Winter, Spring, Summer. 5(1-8) May re-enroll for a maximum of 15 credits. Twenty-four credits of art practice; approval of department. Exploration of new materials, plastics, alloys, etc., employing research procedures leading to creative uses of such materials alone and in conjunction with conventional media.

**421. Art for Classroom Teachers**

Summer. 3(1-3) Certified classroom teachers. Reading and discussion relating the child's art experience to his growth and development. Outside assignments required.

**422. Art for Classroom Teachers**

Summer. 3(1-3) 201 or 421. Continuation of 421.

**423. Art in Special Education**

Summer. 3(2-2) Junior and Senior Special Education majors and approval of department. Art and the art teacher in relation to the exceptional child. Development of an understanding of the creative processes of handicapped children.

**424A. Advanced Graphic Design**

Fall. 5 to 10 credits. May re-enroll for credit. Seniors; 324; approval of department. Design and production of a book. Advanced group problems.

**424B. Advanced Graphic Design**

Winter. 5 to 10 credits. 424A. Advanced problem solving involving existing media of graphic expression. Study of graphic equivalents of literal images and ideas in the creation of posters, trademarks and magazine and book covers.

**424C. Advanced Graphic Design**

Spring. 5(0-10) to 10(0-20) 424B. Senior thesis based on design research required as a special project. Will use all studio facilities; campus resources.

**428. Advanced Sculpture**

Fall, Winter, Spring, Summer. 5 to 10 credits. May re-enroll for a maximum of 35 credits. 328. Continuation of 328. Problems in carving, modeling, casting in wax, clay, plaster, direct metal, etc.

**431. Advanced Ceramics**

Fall, Winter, Spring, Summer. 5 to 10 credits. May re-enroll for a maximum of 35 credits. 341. Continuation of 341 with increased opportunity for supervised individual study.

**433. Advanced Composition and Painting**

Summer. 3 to 6 credits. May re-enroll for credit. 353, 355 or approval of department. Continuation of 353 or 355 with increased opportunity for supervised independent development.

**435. Advanced Painting**

Fall, Winter, Spring, Summer. 5 to 10 credits. May re-enroll for a maximum of 30 credits. 340, 355. Continuation of 355 with increased opportunity for supervised independent development.

**440. Special Problems**

Fall, Winter, Spring, Summer. 2 to 5 credits. Approval of department. Advanced work developed from special interest areas.

**444. Industrial Design II**

Fall, Winter, Spring, Summer. 5 to 10 credits. May re-enroll for a maximum of 35 credits. 344, approval of department. Continuation of 344 with a broader choice of projects in industrial design and increased emphasis on independent development.

**449. Advanced Jewelry**

Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 12 credits. 391, approval of department. Continuation of 391 with augmented opportunities for independent development and additional techniques.

**450W. Art Workshop**

Summer. 1 to 6 credits. May re-enroll for a maximum of 15 credits. Approval of department. Specific sessions of short duration (one to three weeks) permitting a concentrated experience in one area of interest within the general studio spectrum.

**800. Studio Problems**

Fall, Winter, Spring, Summer. 1 to 12 credits. May re-enroll for a maximum of 24 credits. Studio problems in drawing, painting, printmaking, graphic design, industrial design, interior design, advertising design, sculpture-carving, sculpture-direct metal, ceramics.

**801. Painting**

Fall, Winter, Spring, Summer. 3 to 12 credits. Advanced work in a variety of painting media with strong emphasis on independent development.

**802. Drawing**

Fall, Winter, Spring, Summer. 3 to 12 credits. Advanced work in drawing employing a variety of media and calculated to contribute to development in related areas of art practice.

**803. Sculpture**

Fall, Winter, Spring, Summer. 3 to 12 credits. Advanced work in a variety of three dimensional media with strong emphasis on individual development.

**804. Ceramics**

Fall, Winter, Spring, Summer. 3 to 12 credits. Advanced work in pottery involving a variety of experiences and leading to independent development.

**805. Serigraphy**

Fall, Winter, Spring, Summer. 3 to 12 credits. Work in silk screen printmaking techniques leading to independent expressive development.

**806. Graphic Design**

Fall, Winter, Spring, Summer. 3 to 12 credits. Advanced work in all phases of the area of graphic design leading to independent development.

**807. Industrial Design**

Fall, Winter, Spring, Summer. 3 to 12 credits. Advanced study in the areas of design analysis and product development with emphasis on continued independent development.

**808. Jewelry and Metal**

Fall, Winter, Spring, Summer. 3 to 12 credits. Advanced work in jewelry and metal, and other related areas leading to continued independent development.

**809. Etching**

Fall, Winter, Spring, Summer. 3 to 12 credits. Work in etching leading to expressive independent development.

**810. Lithography**

Fall, Winter, Spring, Summer. 3 to 12 credits. Work in lithographic techniques leading to expressive independent development.

**820. Problems in Art Education**

Fall, Winter, Spring, Summer. 1 to 5 credits. May re-enroll for a maximum of 10 credits. 421 or 422 or a bachelor's degree in art from an accredited institution.

**821. Art Instructional Media Laboratory I—Multi-Media**

Fall, Winter, Spring, Summer. 4(1-9) May re-enroll for a maximum of 8 credits. Approval of department. Investigation of multi-media techniques as media of artistic expression and communication for application to art education or related fields.

**822. Art Instructional Media Laboratory II—Television**

Fall, Winter, Spring, Summer. 4(1-9) May re-enroll for a maximum of 8 credits. Approval of department. Interdepartmental and jointly administered with the Department of Telecommunications. Analysis of teaching video tapes and television programs in art. Utilization of television as a medium of artistic expression and communication for application to art education or related fields.

**825. Seminar in Art Education**  
Fall, Winter, Spring, Summer. 2 to 4 credits. May re-enroll for a maximum of 8 credits. Approval of department.

Examination and discussion of contemporary thought in the field of art education. Current problems examined within an interdisciplinary framework.

**826. Critical Theory and Aesthetic Experience in Art Education**  
Fall, Winter, Spring, Summer. 3(3-0)  
Approval of department.

Theories of art criticism and aesthetic experience. Organization of these concepts for application to art education programs or related fields.

**827. Curriculum Design for Art Education**  
Fall, Winter, Spring, Summer. 3(3-0)  
Approval of department.

Factors affecting art curriculum; analysis, preparation and evaluation.

**828. Research Methods for Art Education**  
Fall, Winter, Spring, Summer. 3(3-0)  
Approval of department.

Orientation to research; designs and methodologies applicable to the study of problems in art education.

**840. Teaching Seminar—Art Practice**  
Fall, Winter, Spring, Summer. 1 to 3 credits. May re-enroll for a maximum of 6 credits. Approval of department.

Supervised teaching of college classes in art practice.

**899. Research**  
Fall, Winter, Spring. Variable credit. May re-enroll for a maximum of 12 credits. Approval of department.

**450. Arts Management**  
Fall, Winter, Spring. 3 to 5 credits. May re-enroll for a maximum of 9 credits. Seniors or Graduate Students or approval of department.

Administration of arts organizations, management of facilities, understanding operational methods and procedures of performing companies, financial structure and funding of arts centers, study of audience development, contemporary trends in arts management field.

**999. Research**  
Fall, Winter, Spring, Summer. Variable credit. May re-enroll for maximum of 36 credits. Approval of college.

## ASTRONOMY AND ASTROPHYSICS\* AST

### College of Natural Science

**117. Introductory Observing**  
Fall, Spring. 1(0-2) 119, or 217, or 229 or concurrently.

Observations of celestial objects, constellation identification, and occasional planetarium exercises.

**119. General Astronomy**  
Fall, Winter, Spring, Summer. 4(4-0)  
Not open to engineering or physical science majors or minors.

Physical nature of solar system, star clusters, and galaxies as seen by modern astronomers. Limited opportunity for astronomical observations.

**120. Topics in Astronomy**  
Winter, Spring. 4(4-0) 119.

Detailed qualitative discussion of currently interesting topics in astronomy. Quasars, pulsars, black holes, planetary exploration, cosmology, concepts of relativity.

**IDC. Introduction to Study of the Moon**  
For course description, see Interdisciplinary Courses.

**217. General Astronomy**  
Fall, Winter. 4(4-0) MTH 102.

Descriptive course intended primarily for physical science majors. A semi-quantitative discussion of time, telescopes, the solar system, stars, clusters of stars, galaxies, and cosmology. Limited opportunity for astronomical observations.

**229. General Astronomy**  
Spring. 4(4-0) PHY 287 or 291 or concurrently. Students may not receive credit in more than one of the following: 119, 217, 229.

Fundamental observations in astronomy and their interpretation through physical laws. Intended for physical science majors and recommended for astrophysics majors. Quantitative discussion of orbital motion, time, telescopes, solar system, stars, galaxies, and cosmology. Limited opportunity for astronomical observations.

**327. Practical Astronomy**  
Spring. 3(3-0) 217, MTH 113.

Celestial coordinate systems. Time conversion and sidereal time. Atmospheric refraction, parallax, proper motion, aberration, and precession. Star catalogs and ephemerides. Finding charts and setting of equatorial telescopes.

\*Name changed effective March 1, 1974. Formerly Astronomy.

**378. Contemporary Astronomy**  
Winter. 3(3-0) 119 or 217 or 229; MTH 113 recommended.

A continuation of General Astronomy with particular emphasis on modern developments. Includes interstellar matter, star formation, stellar evolution through final stages, supernovae, pulsars, neutron stars, galaxies and cosmology.

**437. Observatory Practice**  
Fall. 3(1-4) 327.

Stellar photography. Photographic photometry. Photoelectric photometry and corrections for atmospheric extinction. Multicolor photometric systems. Astronomical spectroscopy and radial velocity determinations.

**458. Astrophysics**  
Winter. 3(3-0) 217 or 229, PHY 289, or approval of department.

Application of physical principles to the atmospheres and interiors of stars to deduce their physical properties. Discussion of radiation, spectra and gas properties.

**459. Solar System Physics**  
Fall. 3(3-0) PHY 289 or approval of department.

Physical properties of the sun, interplanetary space, planets, and satellites as deduced from terrestrial observations and from space probes. Recent results of the NASA space program will be emphasized.

**490. Special Problems**  
Fall, Winter, Spring, Summer. 1 to 5 credits. May re-enroll for a maximum of 10 credits. Approval of department.

Individual study or project under the direction of a faculty member. An oral report on the work may be required in department seminar.

**800. Research Methods**  
Fall, Winter, Spring Summer. 2(0-6)  
May re-enroll for a maximum of 6 credits. Beginning graduate students. Interdepartmental with and administered by the Department of Physics.

Problems and techniques of current research by taking part in the design and setup of experiments, data taking and reduction; study and practice of theoretical methods. Areas of study: solid state and molecular structure, nuclear, elementary particles, astronomy, astrophysics.

**801. Seminar**  
Winter. 1(1-0) May re-enroll for a maximum of 2 credits. Graduate students or approval of department.

Seminars to be presented by both faculty and students to review papers in the current astronomical research literature.

**819. Stellar Structure**  
Spring of even-numbered years. 3(3-0) 458 or PHY 395 or approval of department.

Physical properties of the stellar interior. Methods of calculating models. Stellar evolution. Comparison of theory with current observations.

**828. Galactic Structure**  
Winter of even-numbered years. 3(3-0) PHY 427 or approval of department.

Distribution and dynamics of stars and interstellar material in our galaxy. Spiral structure. Galactic evolution.

**829. Extragalactic Astronomy and Observational Cosmology**  
Spring of even-numbered years. 3(3-0)  
Approval of department.

Properties of galaxies, including evolution. Luminosities, masses, and clustering tendencies. The velocity-distance relation and the extragalactic distance scale. Radio sources, quasars, cosmic microwave background radiation.

## ARTS AND LETTERS A L

### College of Arts and Letters

**390H. Perspectives in Literature**  
Fall. 4(3-0) Juniors, approval of the Honors College.

Attention will be focused on several major literary works. Students will employ various types of literary analysis, considering theme, idea, structure, etc., and examining some major trends in contemporary literary criticism.

**391H. Perspectives in Philosophy**  
Winter. 4(3-0) Juniors, approval of the Honors College.

The two primary areas of concern will be ethics and aesthetics, the emphasis on one or the other to be determined by the professor. The course will include reading of major works, discussion of major figures in the field, and the preparation of a substantial paper.

**392H. Perspectives in History**  
Spring. 4(3-0) Juniors, approval of the Honors College.

The focus will be on the nature of international diplomacy in the 20th century, the development of nationalism, the balance of power system, the influence of new ideologies, and the developments of the power structure since 1945.