PHOTOGRAPHY

2995 Basic Photography (3) Prereq.: majors/minors only, ART 1008 or 1011. 6 hrs. studio. Basic concepts and techniques of black and white photography; emphasis on photography of the human form, with some coverage of nonfigurative subject matter.

2996 Intermediate Photography (3) Prereq.: ART 2995 and permission of instructor. 6 hrs. studio. An Honors course. ART 2997 and ART 2998 are continued investigations of basic photographic principles, utilizing specific subject areas drawn from major themes in visual art.

2997 HONORS Intermediate Photography (3) Prereq.: ART 2995 and permission of instructor. 6 hrs. studio. Same as ART 2996, with special emphasis for qualified Honors students.

3922 Introduction to Digital Photography (3) Prereq.: ART 2996 or 2997 and permission of instructor. 6 hrs. studio. Introduction to digital photographic tools and techniques.

3994 Advanced Photography (3) Prereq.: ART 2996 and permission of instructor. 6 hrs. studio. Technical investigation of contemporary materials; critical testing of equipment, films, and printing papers; emphasis on process control as an expressive tool.

3995 Introduction to Digital Art (3) Prereq.: ART 3994, 3996, and permission of instructor. 6 hrs. studio. Introduction to digital photographic tools and techniques.

3996 Color Photography I (3) Prereq.: ART 2996 and permission of instructor. 6 hrs. studio. Introduction to color theory, color perception, and contemporary color printing materials; emphasis on color print portfolio.

4941 Special Studies in Photography (3) Prereq.: ART 3992, or 3994, or 3996 and permission of instructor. 6 hrs. studio. May be taken for a max. of 12 sem. hrs. of credit. Individual investigation in a predetermined area of specialization.

4992 Concepts in Advanced Digital Photography (3) Prereq.: ART 3996 or permission of instructor. 6 hrs. studio. Continued exploration of emerging concepts in digital photography.

4994 Large Format Photography (3) Prereq.: ART 3994 and permission of instructor. 6 hrs. studio. Fundamentals of the view camera.

4996 Color Photography II (3) Prereq.: ART 3996 and permission of instructor. 6 hrs. studio. May be taken for a max. of 9 sem. hrs. of credit. Continued investigation of color photography; color negative materials and printing processes.

4997 Advanced Digital Photography Processes (3) Prereq.: ART 3992, or 3994, or 3996, and permission of instructor. 6 hrs. studio. Exploration of alternative photographic processes; emphasis on historical printing techniques.

4998 Senior Project: Photography (3) Prereq.: permission of instructor. 6 hrs. studio. To be taken in the last full semester of the senior year. This course is not offered during the summer term. Proposal for and execution of an independent photography project under the direction of a major professor.

7900* Graduate Photography (3.6) Prereq.: permission of instructor. May be taken for a max. of 36 sem. hrs. 6 or 12 hrs. of studio may be taken for a max. of 18 sem. hrs. of credit. Contact advisor for directions to a major professor. May be repeated for a max. of 36 sem. hrs. of credit.

PRINTMAKING

1360 Introduction to Printmaking (3) Prereq.: ART 1011 and 1847. 6 hrs. studio. Basic fundamentals of printmaking, attention to personal vision and contemporary issues in printmaking.

2332 Silkscreen Printing (3) Prereq.: ART 1360. 6 hrs. studio. Basic screen techniques using stencils, hand-drawn and photomechanical applications, and digital transparencies.

2342 Papercutting (3) Prereq.: ART 1011. 6 hrs. studio. Introduction to the art and technology of making paper by hand.

2352 Relief Printing (3) Prereq.: ART 1010 or 1847. 6 hrs. studio. May be taken for a max. of 9 hrs. of credit. Investigation of relief printing techniques.

2360 Intermediate Printmaking (3) Prereq.: ART 1360. 6 hrs. studio. May be taken for a max. of 6 sem. hrs. of credit. An Honors course, ART 2361, is also available. Comprehensive investigation of printmaking concepts, materials, and production methods; emphasis on and direction of a major professor. Same as ART 2360, with special emphasis for qualified Honors students.

2361 HONORS: Intermediate Printmaking (3) Prereq.: ART 1360 and permission of instructor. 6 hrs. studio. May be repeated for a max. of 18 sem. hrs. of credit. Specialized area of specialization. Contact advisor for directions to a major professor. May be taken for a max. of 18 sem. hrs. of credit. Contact advisor for directions to a major professor. May be repeated for a max. of 18 sem. hrs. of credit. Contact advisor for directions to a major professor. May be taken for a max. of 18 sem. hrs. of credit.

2362 Senior Project: Printmaking (3) Prereq.: ART 2361 and 4003. 6 hrs. studio. May be taken for a max. of 12 sem. hrs. of credit. Student will develop an independent project under the direction of a major professor.

7700* Graduate Sculpture (3.6) Or 6 or 12 hrs. May be taken for a max. of 36 sem. hrs. of credit.

SCULPTURE

1762 Sculpture I (3) Prereq.: majors/minors only, ART 1009 or equivalents and 6 sem. hrs. studio. Study of sculpture, emphasis on creative process and techniques used in contemporary sculpture. Students will explore contemporary and historical concepts and terminology for working in sculpture.

2761 Intermediate Sculpture (3) Prereq.: ART 1661, 1762. 6 hrs. studio. Studies in sculpture involving various materials and methods. Includes metal fabrication, metal casting, and mixed media.

4741* Special Studies in Sculpture (3.6) Prereq.: consent of instructor based on review of student's portfolio. 6 or 12 hrs. studio. May be taken for a max. of 9 sem. hrs. of credit. Advanced studio work in predetermined area of specialization.

4761 Advanced Sculpture I (3) Prereq.: ART 2761 and 2655 or 2661, 6 hrs. studio. May be taken for a max. of 12 sem. hrs. of credit. Students with various materials and methods, course content may include kinetics, installation, mixed media, nature-based art.

4762 Senior Project: Sculpture (3) Prereq.: 6 sem. hrs. of credit from ART 4761. 6 hrs. studio. To be taken in the last semester of the senior year. Independent study requiring the proposal and execution of a sculpture project, under the direction of the instructor. Same as ART 4762, with special emphasis for qualified Honors students.

7700* Graduate Sculpture (3.6) Or 6 or 12 hrs. May be taken for a max. of 36 sem. hrs. of credit.

ART HISTORY ** ARTH

3140 Historical Survey of the Arts (3) Prereq.: majors/minors only. ART 1381, 1382, and 1383, or equivalents. 6 hrs. studio. Basic theory, design, and production in the book arts.

2382 Intermediate Book Arts (3) Prereq.: ART 1381. 6 hrs. studio. May be taken for a max. of 9 hrs. of credit. Continued investigation of the book arts and processes in bookmaking in a variety of structures.

2392 Digital Printmaking (3) Prereq.: ART 2380. 6 hrs. studio. May be taken for a max. of 6 sem. hrs. of credit. Exploration of traditional imagery by means of digital and photomechanical application for contemporary printmaking.

4380 Senior Project: Printmaking (3) Prereq.: 9 hrs. of 4000-level printmaking classes and senior status. 6 hrs. studio. May be taken for a max. of 6 hrs. of credit. This course is not offered for a max. of 6 sem. hrs. of credit. Advanced studies in printmaking, with a focus on developing an individual conceptual direction.

4360 Advanced Printmaking (3) Prereq.: ART 2380. 6 hrs. studio. May be taken for a max. of 6 sem. hrs. of credit. Advanced concepts, materials, and processes in printmaking with a focus on the development of individual ideas and expression.

4366 Special Studies in Printmaking (3.6) Prereq.: consent of instructor. 6 or 12 hrs. studio. May be taken for a max. of 12 sem. hrs. of credit. Individual creative research in a predetermined area of specialization.

4380 Monotype and Monoprint (3) Prereq.: ART 1847 and 1380 or permission of instructor. 6 hrs. studio. May be taken for a max. of 12 sem. hrs. of credit. Development using monotype and monoprint processes, with a focus on making unique prints.

4381 Advanced Monotype (3) Prereq.: ART 2382. 6 or 12 hrs. studio. May be taken for a max. of 6 sem. hrs. of credit. Advanced exploration, design, and production in the book arts. May be repeated for a max. of 6 sem. hrs. of credit. Fundamental concepts, design, and processes using digital and traditional letterpress printing technologies.

4390 Large Format Printmaking (3) Prereq.: ART 4380 or permission of instructor. 6 hrs. studio. May be taken for a max. of 6 sem. hrs. of credit. Advanced work in printmaking emphasizing letterpress and mixed media applications for creating large-scale prints.

4391 Digital & Alternative Print Media (3) Prereq.: ART 2382 and 4500. 6 hrs. studio. May be taken for a max. of 6 sem. hrs. of credit. Advanced investigation of digital, photomechanical, and alternative processes in printmaking.

7300* Graduate Printmaking (3.6) Or 6 or 12 hrs. May be taken for a max. of 36 sem. hrs. of credit.

ART HISTORY ** ARTH

General education courses are marked by an asterisk (*).
the students’ connections to social, political, and cultural developments.

4466: Topics in Contemporary Art (3) Major movements in art from World War II through the 1980s; the wave of modernism and the rise of postmodernism; focus on America and Europe but Latin American and non-Western art also considered.

4467 Latin American Art (3) Pre-Hispanic, colonial, and contemporary art, including sculpture, painting, and related arts throughout Latin America.

4468 Issues in Contemporary Art (3) Principal issues confronting contemporary artists and the sources and theories behind the issues.

4469 Art of the American South: 1560-1861 (3) History of architecture and art, including the arts made in the states below the Mason-Dixon Line.

4470 History of Photography (3) History of photography from its inception in the 1830s until the present; technological development of the medium and its inherent aesthetics; interrelationships between photography and more traditional media.

4480 Video Art and Theory (3) Sources and origins of artists’ video from the late 1960s to the present; consideration of theoretical, political, and technological aspects; survey of single-channel, projected, installation, and Internet formats for video art display.

4482 Digital Art History (3) Survey of art and technology focusing on the use of computer art and digital, interactive, and network-based art forms from the 1950s to the present.

4484 New Media Art Theory (3) A reading intensive course that introduces students to issues and theories of new media art and history.

4490 Independent Study in Art History (1-3) Prereq.: consent of instructor. May be taken for a max. of 6 hrs. of credit when topics vary.

4499 Independent Study in Graduate Seminar (3) Prereq.: ARTH 1440, 1441, and any four additional artificial history courses; only open to art history majors of junior and senior standing. Intensive reading, writing, and classroom discussion; introduction to art-historical research and methodologies.

7400 Art Theory and Criticism (3) Critic; building of a collection, an exhibition, and curatorial work; historical research and methodologies.

7410 Colloquium in Art Historical Methods (1) An introduction to the historical development of the discipline of art history and the methods involved.

7420 Special Topics in Art History (3) Prereq.: graduate standing in art or consent of instructor. May be taken for a max. of 6 hrs. of credit when topics vary. Advanced topics in art history.

7441, 7442 Graduate Research Seminar in History of Art (3, 3) Each course may be taken for a max. of 6 hrs. of credit when topics vary; no more than 3 hrs. per semester.

7490 Independent Study in Art History (3-3) Prereq.: consent of instructor. May be taken for a max. of 6 hrs. of credit when topics vary.

ASTRONOMY • ASTR

General education courses are marked with stars (★).

★ 1101 The Solar System (3) Prereq.: MATH 1021 or an ACT math score of at least 21. Fundamental principles of the solar system.

★ 1102 Stellar Astronomy (3) Prereq.: MATH 1021 or an ACT math score of at least 21. Fundamental principles of stellar astronomy.

1108 Astronomy Laboratory (1) 2 hrs. lab. Prereq.: credit or registration in ASTR 1101. Observation of positions of celestial bodies with application to star charts and globes; visual and photographic observations will be made using telescopes; provides student with practical observing experience.

1109 Astronomy Laboratory (1) 2 hrs. lab. Prereq.: credit or registration in ASTR 1102. Analysis of light from terrestrial and celestial sources; visual and photographic observations of stars and nebulae; training in the use of smaller telescopes and larger telescopes with multimedia technologies.

2001 Current Topics in Astronomy and Astrophysics (3) S Prereq.: ASTR 1101, 1102. PRIMARY for non-science students. Topics of current interest in astronomy; recent topics include extraterrestrial intelligence, black holes, exploration of the solar system.

2221, 2222 Introductory Astronomy (3,3) V Prereq.: PHYS 1202 or 2102 or consent of instructor. ASTR 2221 is prerequisite for 2222. Sun, stars, and stellar systems; results and problems of modern astrophysical research.

2261 Modern Observational Techniques (3) V Prereq.: ASTR 1101 or 1102. Modern astronomical observations and reductions; the telescope, astronomical photography, spectroscopic and photoelectric observations and reductions.

4750 Special Topics in Observational Astronomy (3) May be taken twice for credit when topics vary. One topic scheduled each time course is offered; current topics include astronomical spectroscopy and astronomical photography. 4999 Independent Study (3) Prereq.: consent of instructor. May be taken for a max. of 3 hrs. of credit. Individual reading and theoretical and/or experimental work on an individual or student-selected topic.

6101 Astronomy for Teachers (4) Su, V Prereq.: Teachers and students in the College of Education. Cannot be taken for credit by physics majors. General astronomy including the solar system, stellar astronomy, and stellar systems.

6180 Astronomy Laboratory for Teachers (1-3) Su, V Prereq.: must be a current or incoming student in the College of Education. Must not be taken for credit by physics majors. May be taken for a max. of 9 hrs. of credit; 2-6 hrs. lab. Visual observation techniques including the use of star charts and globe; visual and photographic observation of celestial objects such as the sun, moon, stars, and nebulae using small reflectors as well as large telescopes through multimedia technology.

7741, 7742 Stellar Astrophysics (3,3) F S ASTR 7741 is prerequisite for 7742. Also offered as PHYS 7741, 7742. Application of physical principles to study of stars; spectroscopy, stellar atmospheres, stellar structure, and stellar evolution.

7752, 7753 Galactic Astrophysics (3,3) F S ASTR 7752 is prerequisite for 7753. Also offered as PHYS 7751, 7752. Application of physical principles to study of galaxies; interstellar medium, galaxy structure and stellar motions of galaxies, and cosmology.

7777 Seminar in Astronomy and Astrophysics (1-6) V May be taken for a max. of 6 hrs. of credit. Also offered as PHYS 7777.

7783 Topics in Astronomy and Astrophysics (3) V May be taken for a max. of 6 hrs. of credit. Also offered as PHYS 7783.

BASIC SCIENCES • BASC

2010 Inquiry Approaches to Math and Science Teaching (1) Problems in Astronomy (1-3) Prereq.: instructor’s approval; credit in inquiry-based math and science instruction; design and execution of lesson plans in elementary school under guidance of course instructor and mentor teacher, or college student.

2011 Inquiry-Based Math and Science Lesson Design (1) Prereq.: BASC 2010. Design and teach lesson plans in middle school under guidance of course instructor and mentor teacher, or college student.

6001 Topics in Physical Science for Elementary School Teachers (Su) Prereq.: May be taken for a max. of 12 hrs. of credit when topics vary.

6002 Topics in Biological Science for Elementary School Teachers (Su) Prereq.: 5 sem. hrs. of introductory biology. May be taken for a max. of 6 hrs. of credit when topics vary.

6003 Topics in Environmental Science for Elementary School Teachers (Su) Prereq.: May be taken for a max. of 9 hrs. of credit when topics vary.

7000 Methods of Instruction in College Life Science Laboratories (1) F Pass-fail grading. Philosophy and practice of life science laboratory education at the college level.

BIological ENGINEERING • BE

1250 Introduction to Engineering Methods (2) F 6 hrs. lab. Fundamentals of engineering design, presentation of an engineering design; graphical expression of engineering design using computer-aided drafting.

1252 Biological Engineering (2) S Prereq.: credit or registration in BIOL 1201. 1 hr. lecture; 3 hrs. lab. Effect of variability and constraints of biological systems on engineering problem solving and design; engineering units; engineering graphics; computer-aided presentation; laboratory demonstration of biological engineering analysis.

2307 Elements of Landscape Construction (3) S Prereq.: MATH 1010 or equivalent. 3 hrs. lab. Theory and use of tape, level, transit, plane table, and compass; principles of area and volume calculations, land slope, drainage grades, legal land description, soil classification, mass grading, and computer data acquisition systems.

2352 Quantitative Biology in Engineering (3) F Prereq.: BE 2352. 2 hrs. lecture; 3 hrs. lab. Introduction to experimental design, determination of experimental error, use of personal computer for data collection; statistics; introduction to engineering applications; measurement of temperature, pressure, flow, strain, and vibration in biological products; microprocessor data loggers and computer data acquisition systems.

2354 Quantitative Biology Engineering designs. 3 Prereq.: PHYL 2103, BE 2350, and credit or registration in BE 4070. Fundamental principles of the theory and applications of quantitative molecular techniques used in biological engineering research and design.

3400 Food and Bioprocessing Engineering (3) V Prereq.: BIOL 2083, BE 2350, and credit or registration in BE 4070. Fundamentals of the theory and applications of biotechnology, fluid flow, thermodynamics, and transport phenomena in food and bioprocessing; unit operations, including mixing, evaporation, drying, and aseptic processing.

3411 Biological Reactor Systems Design (3) S Prereq.: BIOL 1201 and BE 4070. Microbial and biochemical principles used in design of biological reactors for biotransformation; metabolic output and cellular production, design of batch and continuous flow reactors utilizing microbial kinetic models; attached