

ARTH 474. The New Media and Contemporary Art. 3 credits.

Advanced seminar that addresses the impact of cultural politics and technology on how we make, evaluate and "speak" about art. Focus on a variety of media including video, multi-media installations, conceptual art, computer generated imagery, virtual "reality," contemporary film and digital photography. *Prerequisite:* ARTH 372 or ARTH 472.

ARTH 479. Topics in Twentieth Century Art. 3 credits. *Offering varies.*

Topics in twentieth century art may include studies of contemporary painters (i.e., Gerhard Richter), sculptors (i.e., Kiki Smith or Mona Hatoum), performance and video artists (i.e., Bill Viola) or thematic issues such as the relationships between art, technology and gender/racial politics. See MyMadison for current topics. *Prerequisite:* ARTH 372 or ARTH 472.

ARTH 484. Art of the Americas. 3 credits.

Art of indigenous peoples in the Americas (Meso, Central, South and/or North) before European contact. The course will examine domestic and state architecture, painting, textiles, ceramics, metalwork, and earthworks within the context of geographic, state, religious and social issues. Other topics include museum display, repatriation and western taxonomies.

ARTH/AFST 488. African-American Art. 3 credits.

This course examines visual arts produced by people of African descent in the United States from the colonial period until the present. Course themes include debates about the relationship between racial identity and artistic production; the complex interchange between African-American art and the cultural traditions of Africa and Europe; black artists' engagement with popular representations of African-Americans; and the intersection of race with class, gender, and sexuality. *Prerequisite:* ARTH 206 or AFST 200.

ARTH 489. Topics in Art History. 3 credits. *Offering varies.*

Study of selected topics in art history at the advanced level. May be repeated when course content changes. See MyMadison for current topics.

ARTH 490. Independent Studies in Art History. 1-3 credits, repeatable.

Offering varies.

Independent activity, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with consent of the instructor.

ARTH 491. Exhibition Seminar. 3 credits.

Advanced seminar explores museum theory and practice through the collaborative design of an exhibition for an on-campus gallery space. The course focuses on developing and researching the exhibition topic, investigating the specific art objects and preparing critical educational materials or catalogue. The class project also includes mounting the exhibit in a real or virtual installation space. *Prerequisite:* ARTH 205 OR ARTH 206.

ARTH/ANTH/HIST 492. Material Culture. 3 credits.

A broad introduction to the multidisciplinary "field" of material culture studies through readings, written assignments, in-class exercises and field trips. The course introduces ways of looking at and learning from objects and examines how scholars from several disciplines have used material culture in their work. *Prerequisite:* HIST 395. *Instructor's permission required to waive HIST 395 prerequisite for non-history majors.*

ARTH/HIST 493. Historic Preservation. 3 credits.

An introduction to the philosophy and techniques of historic preservation, guidelines for restoration, state and national register forms and procedures, historic architecture, structural analysis, restoration techniques, as well as the business aspects of historic preservation projects. Field trips are a major component of the course. *Prerequisite:* HIST 395. *Instructor's permission required to waive HIST 395 prerequisite for non-history majors.*

ARTH 495. Internship in Art History. 1-3 credits.

An off-campus program prepared and monitored on an individual basis. Internships are designed to provide practical experience in the arts. *Prerequisites:* *Permission of the instructor and ARTH 394 if in museums and galleries.*

ARTH 499. Honors. 6 credits total for three semesters (1,3,2).

Astronomy

ASTR 120. The Solar System. 3 credits.

An introductory course in astronomy, which includes the following topics: motions of celestial objects, eclipses, historical development, the nature of light, telescopes, properties and evolution of the solar system. May be used for general education credit.

ASTR 121. Stars, Galaxies and Cosmology. 3 credits.

An introductory course in astronomy which includes the following topics: the Sun, stellar properties, stellar evolution, black holes, the Milky Way, galactic evolution, quasars, cosmology. May be used for general education credit.

ASTR 220. General Astronomy I: The Night Sky, the Solar System and Stars. 3 credits.

ASTR 220 is the first in a two-course sequence in general astronomy intended for students with a background in physics. Topics covered include: appearance and movements of the night sky; astronomical coordinate systems and timekeeping; seasons, eclipses and planetary configurations; planetary motions and gravitation; fundamental forces; electromagnetic radiation and its detection; content, structure, formation and evolution of solar system; observations and models of the Sun, stellar interior models; stellar magnitudes and spectra, classifications; Hertzsprung-Russell diagram. *Prerequisite:* PHYS 140 or PHYS 240.

ASTR 221. General Astronomy II: Star Systems, the Interstellar Medium and Cosmology. 4 credits.

ASTR 221 is the second in a two-course sequence in general astronomy intended for students interested in science. Topics covered include: stellar evolution; variability and high-energy phenomena in stars and multiple-star systems; content, structure, and dynamics of the Milky Way; external galaxies, quasars and AGN; large-scale structure and the distance scale of the universe; the Big Bang model and alternative cosmologies, possible geometries and eventual fates of the universe. An observational astronomy laboratory component is part of this course. The lab component will cover basics of telescope set up and operation as well as astronomical coordinate systems. *Prerequisite:* ASTR 220.

ASTR 297. Topics in Astronomy. 1-4 credits.

Topics in astronomy at the second year level. May be repeated for credit when course content changes. Topics selected may dictate prerequisites. Students should consult instructor prior to enrolling for course. *Prerequisite:* *Permission of the instructor.*

ASTR 301. Searching for Life in the Universe. 3 credits.

A study of the search for life in the universe, with emphasis on teacher preparation. Topics include how life on earth can guide the search, conditions for life within our solar system, extrasolar planets that may be conducive to life, possible radio communications with other civilizations and technologies necessary for search. Significant time is spent developing student lesson plans. *Prerequisites:* ISCI 171 and ISCI 172.

ASTR 320. Astronomical Techniques. 3 credits.

An overview of modern astronomical techniques with an emphasis on quantitative data collection and analysis. The design and use of various astronomical devices will be covered. Topics will include visible light telescopes and radio telescopes as well as CCD data collection in addition to other current astronomical techniques. Data reduction software will also be addressed. *Prerequisites:* ASTR 220 and ASTR 221.

ASTR 397. Topics in Astronomy. 1-4 credits.

Topics in astronomy at the intermediate level. May be repeated for credit when course content changes. Topics selected may dictate prerequisites. Students should consult instructor prior to enrolling for course. *Prerequisite:* *Permission of the instructor.*

ASTR/PHYS 398. Independent Study in Physics or Astronomy. 1-3 credits, repeatable to 4 credits.

An individual project related to some aspect of physics or astronomy. Must be under the guidance of a faculty adviser. A student may not earn more than a total of four credits for PHYS/ASTR 398.

ASTR 480. Astrophysics. 3 credits.

An introduction to the problems of modern astronomy and the quantitative application of physical principles to these problems. Topics of study include stellar structure and evolution, the interstellar medium and star formation, cosmic rays, pulsars, galactic structure, extragalactic astronomy and cosmology. *Prerequisites:* PHYS 340 and PHYS 380.

ASTR 497. Topics in Astronomy. 1-4 credits.

Topics in astronomy at the advanced level. May be repeated for credit when course content changes. Topics selected may dictate prerequisites. Students should consult instructor prior to enrolling for course. *Prerequisite:* *Permission of the instructor.*

ASTR/PHYS 498R. Undergraduate Research in Physics or**Astronomy.** 1-4 credits, repeatable to 6 credits.

Research in a selected area of physics or astronomy as arranged with a faculty research adviser. A student may not earn more than a total of six credits for PHYS/ASTR 498R. *Prerequisite: Proposal for study must be approved prior to registration.*

Athletic Training Education Program

ATEP 205. Introduction to Athletic Training (2, 2). 3 credits. *Offered fall, spring and summer.*

This course provides a broad introduction to the profession of athletic training. Lectures will focus on the domains of athletic training. Emphasis will be placed on basic emergency management as well as injury prevention including environmental issues, strength and conditioning, and selection of equipment. Laboratory will mirror lecture. *Prerequisite: ATEP or HS major, coaching minor, or permission of the instructor.*

ATEP 206. Recognition and Management of Athletic Injuries. 3 credits. *Offered spring and summer.*

Building on the concepts learned in ATEP 205, the course will emphasize the recognition of common athletic injuries. Pathology, mechanisms of injury, signs and symptoms, evaluation findings, and basic management of injuries will be explored. Athletic injuries of special populations will also be addressed. *Prerequisites: BIO 290 and ATEP 205 with a grade of "C" or better.*

ATEP 291. Pre-Professional Practicum in Athletic Training. 2 credits. *Offered spring.*

This course is designed to help students better understand the duties and responsibilities of the athletic trainer. By focusing on psychomotor skills and the application of didactic knowledge, students build a foundation which prepares them for future clinical rotations. *Prerequisite: Permission of the instructor.*

ATEP 304A. Lower Quarter Evaluation (2, 2). 3 credits. *Offered fall.*

This course systematically focuses on orthopedic and neurological evaluation including functional testing of athletic injuries. The lower quarter consists of the lower extremity, pelvis and lumbar spine. Other topics include management of internal injuries and sudden death related to athletic participation. *Prerequisites: ATEP 206 and admission to the clinical component of the athletic training curriculum.*

ATEP 304B. Upper Quarter Evaluation (2, 2). 3 credits. *Offered spring.*

This course systematically focuses on orthopedic and neurological evaluation including functional testing of athletic injuries. The upper quarter consists of the upper extremity, head, neck and thorax. Other topics include management of crisis situations and facial injuries related to athletic participation. *Prerequisite: ATEP 304A.*

ATEP 305. Rehabilitation in Athletic Training: Lower Extremity (2, 2). 3 credits. *Offered spring.*

This course explains the rehabilitation process of lower extremity muscular and joint injuries related to athletic activities. Additional topics include rehabilitation facility design, budget preparation and pre-season assessment. *Prerequisite: BIO 290 and admission to the clinical component of the athletic training curriculum.*

ATEP 306. Therapeutic Modalities (3, 2). 4 credits. *Offered fall.*

This course provides a thorough overview of tissue injury, inflammatory response, healing process and neurophysiology applied to musculoskeletal injuries. Theory, application and clinical decision-making processes using therapeutic modalities during rehabilitation will be emphasized. Documentation, purchasing and maintenance are also addressed. *Prerequisites: ATEP 206 and admission to the clinical component of the athletic training curriculum.*

ATEP 307. Acute Care of Injuries and Illnesses. 3 credits. *Offered fall.*

This course is designed for student athletic trainers to meet the educational competencies for national accreditation in the following areas: development of risk management/emergency action plans, primary assessment of athletic injuries, emergency care of athletic injuries, immediate care of spine injuries, prevention of injuries associated with the physically active, utilization of diagnostic tools and an overall understanding of protective equipment. *Prerequisite: Admission to clinical component of athletic training curriculum.*

ATEP 350. Measurements and Testing in Athletic Training. 2 credits. *Offered fall.*

The purpose of this course is to introduce and develop proficiency with measurement techniques frequently used in athletic training. Students will learn clinical evaluation techniques such as manual muscle testing,

goniometry, volumetric measurements and girth measurements. How these measures are used in research will also be presented. *Prerequisite: Admission to clinical component of athletic training curriculum.*

ATEP 355. Infectious Disease Control. 1 credit. *Offered spring.*

Discussion includes theories of origins, statistics and characteristics of the causative pathogen, incubation, illness patterns, transmission, prevention and treatment of infectious and noninfectious disease. Emphasis is placed on STDs, HIV, Hepatitis and OSHA regulations. *Prerequisite: Admission to clinical component of athletic training curriculum.*

ATEP 376. Pharmacology for Athletic Trainers. 2 credits. *Offered fall.*

This course is designed for students to understand knowledge, skills and values that an entry-level certified athletic trainer must possess in pharmacological applications, including awareness of the indications, contraindications, precautions and interactions of medications, and the governing regulations relevant to physically active individuals. *Prerequisite: Admission to clinical component of athletic training curriculum.*

ATEP 377. General Medicine in Athletic Training. 2 credits. *Offered spring.*

This course is designed for students to understand knowledge, skills and values that an entry-level certified athletic trainer must possess in order to recognize, treat and refer when dealing with general medical conditions and disabilities related to athletes or others involved in physical activity. *Prerequisite: Admission to clinical component of athletic training curriculum.*

ATEP 378. Assessment Skills in Athletic Training. 1 credit. *Offered spring.*

The purpose of this course is to develop knowledge and assessment skills related to general medical conditions. In addition, this course will cover body composition, bone density and quality of life outcome measurement tools. *Prerequisite: admission to clinical portion of athletic training education program. Corequisite: ATEP 377.*

ATEP 392. Level II Practicum in Athletic Training. 3 credits. *Offered fall.*

This course focuses on clinical performance and application of didactic knowledge. Clinical rotations, clinical competencies, inservices, case studies and professional journals are included in course content. Sport specific activities and clinical applications involving palpation and wound care are key components of this course. August preseason orientation and clinical participation required. *Prerequisite: Admission to clinical component of athletic training curriculum.*

ATEP 393. Level III Practicum in Athletic Training. 2 credits. *Offered spring.*

This course focuses on clinical performance and application of didactic knowledge. Clinical rotations, clinical competencies, inservices, case studies and professional journal are included in course content. Sport specific activities and clinical applications involving manual muscle testing and equipment fitting are key components of this course. *Prerequisite: ATEP 392.*

ATEP 405. Rehabilitation in Athletic Training: Upper Extremity. 3 credits. *Offered fall.*

This course explains the rehabilitation process of upper-extremity muscular and joint injuries related to athletic activities. Additional topics include prevention of athletic injuries and aquatic rehabilitation. *Prerequisite: ATEP 305.*

ATEP 406. Organization and Administration in Athletic Training. 3 credits. *Offered spring.*

This course is an overview of managerial issues including legal concerns, OSHA guidelines, budgeting/purchasing and staffing. In addition, this course provides a variety of experiences culminating in the knowledge and skills needed to meet entry-level competencies set by the National Athletic Trainers' Association. *Prerequisite: Permission of the instructor.*

ATEP 494. Level IV Practicum in Athletic Training. 2-3 credits. *Offered fall.*

This course focuses on clinical performance and application of didactic knowledge. Clinical rotations, clinical competencies, inservices, case studies, and professional journal are included in course content. Sport specific activities and clinical applications involving orthopedic testing and emergency internal abdominal/chest evaluation are key components. *Prerequisite: ATEP 393.*

ATEP 495. Level V Practicum in Athletic Training. 2 credits. *Offered spring.*

This course focuses on clinical performance and application of didactic knowledge. Clinical rotations, clinical competencies, inservices, case studies and professional journals are included in course content. Sport specific activities and clinical applications involving cranial nerve assessment and neurological evaluation are key components of this course. *Prerequisite: ATEP 494.*