

575 Internship in Vocal Pedagogy I (1) Opportunity for vocal pedagogy students to develop and improve applied teaching skills through a shared practicum experience in a seminar setting. Includes supervised instruction.

Repeatability: May be repeated. Maximum 2 hours.

Comment(s): Available only for graduate students majoring in vocal pedagogy.

Registration Permission: Consent of instructor.

580 Choral Literature I (2) A historical survey of the development of the major choral genre.

585 Choral Literature II (2) A survey by historical period of choral literature that is considered part of the standard choral repertoire.

590 Advanced Choral Conducting (2) Expansion and continued refinement of conducting technique. Score reading and preparation, rehearsal techniques, and interpretation of styles and performance practices.

Repeatability: May be repeated. Maximum 8 hours.

594 Project in Choral Conducting Performance (1-3) Public performance, critical document; recording project.

Repeatability: May be repeated. Maximum 36 hours.

Registration Permission: Consent of instructor.

595 Choral Conducting Seminar (3) Topics vary.

Repeatability: May be repeated. Maximum 36 hours.

(DE) Prerequisite(s): 590 or consent of instructor.

Musicology (706)

410 Studies in Genre (3) Historical, cultural, analytical, and musicological issues related to a single musical genre, style, or repertoire. Topics vary.

Repeatability: May be repeated. Maximum 6 hours.

420 History of Opera (3) The development of opera from its inception to the present. Readings and discussion focus on an understanding of the historical trajectory of opera, both as a musico-theatrical work and as a cultural practice.

Recommended Background: 100-level musicology course.

Registration Permission: Consent of instructor.

430 History of the Symphony (3) Overview of orchestral repertoires from 1600 to the present.

Recommended Background: 100-level musicology course.

Registration Permission: Consent of instructor.

450 Composer Seminar (3) Biographical, historical, and cultural study of a composer, or a group of related composers. Topics vary.

Repeatability: May be repeated. Maximum 6 hours.

460 Music Aesthetics (3) Nature of music and musical experience, sense perception and emotions, music, and the role of artist in society. Aesthetic viewpoint of individuals and historical eras through selected writings.

480 Music in Christian Worship (3) Hymnody, liturgies, and liturgical music.

540 Medieval and Renaissance Music (3) Musical phenomena from c. 900 to c. 1600, selected from chant, troubadour song, early polyphony, madrigal, mass, and motet. Genres considered against historical, cultural, analytical, and literary frameworks, including words-music relationships, the role of music in devotion, sacred and secular interchanges, oral and written transmissions.

(DE) Prerequisite(s): 400.

(DE) Corequisite(s): Music General 510.

Registration Permission: Consent of instructor.

550 Music in the Baroque Period (3) Aspects of western European art music, c. 1600 to c. 1750, from historical and cultural perspectives. Genre, national identities, the roles of voices and instruments, the emergence of tonality, issues of gender, and music's role in social, religious and performance practices.

(DE) Prerequisite(s): 400.

(DE) Corequisite(s): Music General 510.

Registration Permission: Consent of instructor.

560 Music in the Classic Period (3) The development of classical style from preclassic to the music of Haydn, Mozart and early Beethoven. Focus on aesthetic, cultural and social frameworks pertaining to various genres and composers. Selected vocal and orchestral works examined with respect to themes of appropriation, politics, narratives, and biographical references.

(DE) Prerequisite(s): 400.

(DE) Corequisite(s): Music General 510.

Registration Permission: Consent of instructor.

570 Music in the 19th Century (3) Music of the nineteenth century from Beethoven to the post-Romantics with a focus on aesthetic, cultural and social contexts. Opera, symphony, art song, piano works, and others examined against the frameworks of cultural theory, gender studies, orientalism, politics and philosophy.

(DE) Prerequisite(s): 400.

(DE) Corequisite(s): Music General 510.

Registration Permission: Consent of instructor.

580 Music in the 20th Century (3) Composers, repertoires, and issues in twentieth-century art music of western Europe and the United States. New roles for composers and performers, confluences of "high" and "low" art forms, influences of technology, and music's place in the formation of national, political, and gendered identities.

(DE) Prerequisite(s): 400.

(DE) Corequisite(s): Music General 510.

Registration Permission: Consent of instructor.

585 Topics in Music of the Americas (3) Historical or cultural study of a topic concerned with music and musical practice in the Americas. Topics vary.

Repeatability: May be repeated. Maximum 6 hours.

(DE) Prerequisite(s): 400.

(DE) Corequisite(s): Music General 510.

Registration Permission: Consent of instructor.

586 Topics in Opera (3) Topics vary within operatic repertory from the 17th century to the present including music and drama; interdisciplinary, race, or gender studies; realism; nationalism; expressionism; minimalism.

Repeatability: May be repeated. Maximum 6 hours.

590 Introduction to Ethnomusicology (3) Ethnomusicology as scholarly discipline. History, theories, and methodologies as applied to study of music in culture.

(DE) Prerequisite(s): 400.

(DE) Corequisite(s): Music General 510.

Registration Permission: Consent of instructor.

593 Independent Study (1-15)

Repeatability: May be repeated. Maximum 18 hours.

Registration Permission: Consent of director.

595 Seminar in Ethnomusicology (3) Exploration of a methodological, theoretical, or ethnographic topic in ethnomusicology. Topics vary.

Repeatability: May be repeated. Maximum 6 hours.

(DE) Prerequisite(s): 400.

(DE) Corequisite(s): Music General 510.

596 Seminar in Historical Musicology (3) Topics vary; specific musical genre, composer, or phenomenon.

Repeatability: May be repeated. Maximum 6 hours.

Nuclear Engineering (716)

403 Nuclear and Radiological Engineering Laboratory II (3) Cross section measurements, diffusion properties of neutrons, shielding, dynamics and controls, alpha and beta spectroscopy, radiation fields and dosimetry.

(DE) Prerequisite(s): 304.

404 Nuclear Fuel Cycle (3) Topics relative to nuclear fuel cycle including, mining, milling, fabrication, in-core management, reprocessing, waste disposal. Regulatory and radiation health issues and requirements.

(DE) Prerequisite(s): 470 or equivalent.

406 Radiation Shielding (3) Types of radiation sources, fundamentals of gamma ray and neutron attenuation, biological effects, approximate methods of shield design, discrete ordinates, and Monte Carlo.

(DE) Prerequisite(s): Physics 232.

421 Introduction to Nuclear Criticality Safety (3) Fundamentals of nuclear criticality safety. Criticality accidents and safety standards. Overview of experiments, computational methods, and applications.

(DE) Prerequisite(s): 301.

431 Radiation Protection (3) External and internal dosimetry, biological effects of radiation, radiation detection, radiation risk assessment.

(DE) Prerequisite(s): 301.

470 Nuclear Reactor Theory I (3) Fundamentals of reactor physics relative to cross sections. Kinematics of elastic scattering. Reactor kinetics, reactor systems and nuclear data. Analytical and numerical methods applicable to general criticality problems, eigenvalue searches, perturbation theory, and multigroup diffusion equations.

(DE) Prerequisite(s): 301.