HLTH 415, 615 Public Health Issues in Obesity and Eating Disorders 3(3,0) In-depth review of prevalence, risk factors, consequences, and treatments of obesity and other eating disorders. Focuses on the public health importance of cultural norms, prevention, and early intervention related to obesity and eating disorders. Preq: Junior standing in Health Science or consent of instructor.

HLTH 419 Health Science Internship Preparation Seminar 1(1,0) Preparation for internship experience. Includes topics such as résumé development, interviewing skills, internship agency selection, and responsibilities of the student, department, and agency. Preq: Junior standing in Health Science, ENGL 304 or 314.

HLTH 420, 620 Health Science Internship 1-600, 3-18) Under supervision in an approved agency, students have an opportunity for on-the-job experiences. Students are placed in an agency and develop personal/professional goals and objectives appropriate to the setting, population, and health issues. Students create a comprehensive exit portfolio in a digital format. May be repeated for a maximum of six credits. Preq: HLTH 419, minimum grade-point ratio of 2.0, Junior standing in Health Science, consent of instructor.

HLTH 430, 630 Health Promotion of the Aged 3(3,0) Focuses on analysis and evaluation of health issues and health problems of the aged. Emphasizes concepts of positive health behaviors. Health majors and minors will be given enrollment priority. Preq: Developmental psychology, two-semester sequence in science, or consent of instructor.

HLTH 431 Public and Environmental Health 3(3,0) Principles of environmental health emphasizing understanding various health concerns created by the interactions of people with their environment. Students evaluate the impact of environmental factors on public health policy decisions. Meets specific area of need in environmental health issues.

HLTH 440 Managing Health Service Organizations 3(3,0) Provides the conceptual and theoretical foundation of management and organizational theory of health service organizations. Focuses on the role of health services managers and how they modify and maintain organizations.

HLTH 450, 650 Applied Health Strategies 3(3,0) Students plan, implement, and evaluate strategies to promote health through individual behavior change. Both healthful and unhealthful behaviors are included. Examples include smoking cessation, weight management, and stress management. Preq: HLTH 480, Health Science major.

HLTH 460 Health Information Systems 3(3,0) Focuses on the application of information systems to patient care and management support systems. Provides a general understanding of how the information needs of health professionals and health service organizations can be met through the proper acquisition, storage, analysis, retrieval, and presentation of data.

HLTH 470 International Health 3(3,0) Deepens students’ knowledge of global health and how public health work is conducted internationally. Introduction to assessment of international health needs and designing, implementing, managing, and evaluating public health programs in international settings. Preq: HLTH 298.

HLTH 475 Principles of Health Care Operations Management and Research 3(3,0) Provides a foundation in concepts, structure, and analysis that enables an understanding of the importance of production/operations management within health care organizations and systems. Includes training in operations research methods and objectives. Preq: HLTH 490.

HLTH 478 Health Policy Ethics and Law 3(3,0) Critical examination of the legal and ethical dimensions of public health policy formation and change and how legal, ethical, and policy considerations influence health services administration and delivery. Health majors and minors will be given enrollment priority. Preq: HLTH 202, 240, 298, 380 or consent of instructor.

HLTH 479 Financial Management and Budgeting for Health Service Organizations 3(3,0) Overview of basic principles of budgeting and financial management and analysis for health services organizations. Techniques for financial management are provided with an emphasis on health services environments. Preq: HLTH 440.

HLTH 480 Community Health Promotion 3(3,0) Focuses on the participatory approach in the planning and implementation of community health programs. Emphasizes professional ethics, needs assessment, coalition building, proposal writing, and implementation of special events in the community. Preq: HLTH 303, 340, 380, Health Science major.

HLTH 490 Research and Evaluation Strategies for Public Health 3(3,0) Discussion of research in health. Focuses on analysis of reported research. Ethical, moral, and legal issues are discussed. Preq: HLTH 380.

HLTH H495 Honors Thesis Seminar 3(3,0) Senior honors thesis seminar in public health sciences. Independent research is conducted under the supervision and guidance of a faculty mentor for students enrolled in departmental honors program in support of an honors thesis/service learning research project. Preq: HLTH H395, Senior standing, or consent of instructor.

HLTH H496 Honors Research Colloquium 1(1,0) Students enrolled in departmental honors present independent research conducted under the supervision of a faculty member in a public research forum to other honors students and public health professionals and/or submit a paper or presentation based on this research for publication. Preq: HLTH H495, Senior standing.

HLTH 497 Creative Inquiry—Public Health 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue a first phase of scholarly activities in teams. These creative inquiry projects may be discipline-specific or interdisciplinary in nature. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of six credits. Preq: Consent of instructor.

HLTH 499 Independent Study 1-3(1-3,0) Study of selected problems in health under the direction of faculty member chosen by the student. Student and faculty member develop a course of study designed for the individual student and approved by the department chair prior to registration. May be repeated for a maximum of six credits. Preq: Junior standing or consent of instructor.

HEALTH CARE GENETICS

HCG (NURS) 333 Health Care Genetics 3(3,0) See NURS 333.

HEALTH, EDUCATION AND HUMAN DEVELOPMENT

HEHD 199 Creative Inquiry I 1-3(1-3,0) In consultation with and under the direction of a faculty member, students pursue a second phase of scholarly activities in teams. These creative inquiry projects may be discipline-specific or interdisciplinary in nature. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of six credits. Preq: Consent of instructor.

HEHD 299 Creative Inquiry II 1-3(1-3,0) In consultation with and under the direction of a faculty member, students pursue a third phase of scholarly activities in teams. These creative inquiry projects may be discipline-specific or interdisciplinary in nature. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of six credits. Preq: Sophomore standing, consent of instructor.

HEHD 399 Creative Inquiry III 1-3(1-3,0) In consultation with and under the direction of a faculty member, students pursue a third phase of scholarly activities in teams. These creative inquiry projects may be discipline-specific or interdisciplinary in nature. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of six credits. Preq: Junior standing, consent of instructor.

HEHD 400 Introduction to Leadership Theories and Concepts 3(2,1) Interdisciplinary course introduces students to the nature of leadership. Students gain a broad understanding of the history and origins of leadership, theoretical approaches to leadership, and the essence of contemporary leadership. Students are encouraged to test their ability to apply these concepts to life experiences. Preq: Junior standing or consent of instructor.

HEHD 410 Leadership Behavior and Civic Engagement 3(2,1) Students couple concepts of social justice and civic engagement with theoretical foundations from HEHD 400 to complete a comprehensive theory to practice project. Students are introduced to a comprehensive leadership skill set to become active change agents for the common good. Preq: HEHD 400.
Courses of Instruction

HEHD 420 Leadership Application and Experience 3(3,0) Students are immersed in a practical leadership experience utilizing knowledge and skills gained in HEHD 400 and 410. Students identify an issue or problem and practice leadership by developing and implementing a community project. Students are challenged to commit themselves to long-term engagement as agents of change. Prq: HEHD 410.

HEHD 499 Creative Inquiry IV 1-3(1-3,0) In consultation with and under the direction of a faculty member, students pursue a fourth phase of scholarly activities in teams. These creative inquiry projects may be discipline-specific or interdisciplinary in nature. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of six credits. Prq: Senior standing, consent of instructor.

HISTORIC PRESERVATION

Professor: J. Burden

HP 410, 610 History and Theory of Historic Preservation 3(3,0) Survey history of preservation that explores a variety of theoretical issues that impact the discipline. Provides a basis for critical evaluation of historic preservation. Prq: Three semesters of Art and Architectural History or equivalent or consent of instructor.

HP 411, 611 Archival Research and Oral History in Historic Preservation 3(3,0) Introduction to historic buildings and landscapes research. Emphasizes researching the physical and social history of buildings and places. Charleston and its environs provide case study projects for archival research.

HP 412, 612 Materials and Methods of Historic Construction 3(3,0) Survey of traditional materials and methods of construction in America from the 18th through the early 20th century. Scientific examination of historic construction provides case studies. Prq: Three semesters of Art and Architectural History or equivalent or consent of instructor.

HISTORY


HIST 100 Higher Education and Clemson 1(1,0) Introduction to higher education, its background and development in the western world, emphasizing land-grant institutions and Clemson University in particular.

HIST 101, H101 History of the United States 3(3,0) Political, economic, and social development of the American people from the period of discovery to the end of Reconstruction.

HIST 102, H102 History of the United States 3(3,0) Political, economic, and social development of the American people from the end of Reconstruction to the present.

HIST 122, H122 History, Technology, and Society 3(3,0) Topics in the history of technology with emphasis on how technology affects society and how society shapes technology. Emphasis is on 19th and 20th century America, but some material from other periods of Western Civilization and other world regions may be discussed.

HIST 124, H124 Environmental History Survey 3(3,0) Introduction to environmental history, in the United States and globally, with emphasis on changing attitudes toward the environment and the interaction between science and public policy.

HIST 172, H172 The West and the World I 3(3,0) Examines the history of the West from early times until the 16th century. After a comparative evaluation of the emergence of civilization around the globe, course concentrates on the history of the peoples of Europe up to the age of European exploration and overseas expansion.

HIST 173, H173 The West and the World II 3(3,0) Surveys the history of the West in modern times, from the late 15th century to the present. Particular emphasis is placed on Europe's interaction with non-western societies. Through cross-cultural comparisons, European history is placed in global context.

HIST 193 Modern World History 3(3,0) Political, economic, social, and cultural history of the modern world from the 19th century to the present.

HIST 198 Current History 1(1,0) Examination of major events and problem areas in the news emphasizing their historical context and possible long-range significance. May be repeated for a maximum of three credits. Does not count toward the requirements of the major or minor in History.

HIST 200 Fort Hill Internship 1-3 Provides practical experience in public history museum work and/or historical preservation in the setting of Fort Hill. May be repeated for a maximum of three credits. To be taken Pass/Fail only. Prq: Consent of internship committee.

HIST 201 Prelaw Internship 1-3 Faculty-supervised internship in a law firm or other legal setting. Introduces students to the workings of the legal system. To be taken Pass/Fail only. Prq: History major and sophomore standing.

HIST 202 Internship 1-3(0,3-9) Exposes History majors to hands-on experience in research, analysis, and public presentation of historical scholarship. May include working with faculty on research projects, in museums or historical organizations, or at sites. May be repeated for a maximum of three credits. To be taken Pass/Fail only. Prq: Sophomore standing.

HIST 289 Creative Inquiry—History 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of nine credits.

HIST 299 Seminar: The Historian's Craft 4(3,2) Writing and speaking intensive course to introduce History majors to study of what history is and what a historian does, including historiography, research techniques, ethics of the historical profession, and forms of presentation. Prq: History major.

HIST 300 History of Colonial America 3(3,0) Development of American institutions and customs in the period before 1776. Considerable emphasis is placed on the imperial relations between Great Britain and her colonies and upon the movement towards and the philosophy of the American Revolution.

HIST 301 American Revolution and the New Nation 3(3,0) Study of the various historical explanations leading to an understanding of the American Revolution, the establishment of the nation under the Constitution, and the first decade of the new nation. Special emphasis is on developing an understanding of individual motivation and ideological development present during the last four decades of the 18th century.

HIST 302 Age of Jefferson, Jackson, and Calhoun 3(3,0) Formation and growing pains of the new nation through the Federal and Middle periods of its history emphasizing economic and political development, the westward movement, and the conflicting forces of nationalistic and sectionalism.

HIST 303 Civil War and Reconstruction 3(3,0) Study of the political, military, and social aspects of the sectional conflict and of the era of Reconstruction. Some emphasis is placed on the historical controversies inspired by the period.

HIST 304 Industrialism and the Progressive Era 3(3,0) Study of American society in the period between the 1880s and 1930s. Emphasizes the effects of industrialization and urbanization on the American people.

HIST 305 The United States in the Jazz Age, Depression, and War 1918–1945 3(3,0) Starting at Armistice Day, 1918, course analyzes the dawn of the ages of mass consumption and mass communication, the Crash of 1929, Franklin Roosevelt and the New Deal, the gathering war clouds in Europe and Asia, and the Great Crusade of World War II. Prq: Sophomore standing.

HIST 306 The United States in the Postwar World 1945–1975 3(3,0) Examination of the American experience from the end of World War II through the period of the Korean and Vietnam wars, the Cold War, the Civil Rights movement, the counter-culture of the 1960s, assassinations, and Watergate.

HIST 308 The United States in the Age of Reagan and Clinton 1975–Present 3(3,0) The United States and the world in the recent era of economic and political upheaval, the end of the Cold War, the rise of the global economy and terrorism, social and cultural change, and deepening political and social divisions. Prq: Sophomore standing.

HIST 311 African Americans to 1877 3(3,0) Study of the African-American experience in the United States from the African past through slavery to 1877.

HIST 312 African American History from 1877 to the Present 3(3,0) Study of African American experience in the United States from 1877 to the present.

HIST 313, H313 History of South Carolina 3(3,0) Political, economic, and social development of South Carolina from 1670 to the present.
Courses of Instruction

HIST 314 History of the South to 1865 3(3,0) Origins and development of political, social, economic, and cultural institutions of the South from the Colonial period to the end of the Civil War and the role of the South in the nation's development.

HIST 316 American Social History 3(3,0) Study of American society, including the relationship among classes, ethnic groups, regions, and sexes, from the Colonial period to the present.

HIST 318 History of American Women 3(3,0) Survey course of the history of American women emphasizing the changing role of women in American culture and society.

HIST 319 Gender and Law in United States History 3(3,0) Survey of how law has reflected and created distinctions on the basis of gender and sexuality throughout United States history. Emphasizes the relationship between legal rules and social conditions and the way in which groups have challenged these legal categories over time.

HIST (ED F) 320 History of United States Public Education 3(3,0) See ED F 320.

HIST 321 History of Science 3(3,0) Survey of the development of science in the Western world, emphasizing the period from the Renaissance to the present.

HIST 322 History of Technology 3(3,0) History of the major developments in Western technology and their relationships to the societies and cultures in which they flourished.

HIST 323 History of American Technology 3(3,0) History of developments in technology and their role in American life with particular emphasis on the American Industrial Revolution and the 20th century.

HIST 324 History of the South, 1865 to the Present 3(3,0) Development of political, social, and cultural institutions of the South from the end of the Civil War to the present and the South's relationship to the rest of the nation.

HIST 325 American Economic Development 3(3,0) Economic development of the United States from Colonial to recent times, emphasizing the institutional development of agriculture, banking, business and labor, and government regulations and policy.

HIST 326 History of American Transportation 3(3,0) Examines the principal forms of transportation in the United States from colonial times to the present, including water, road, canal, railroad, internal combustion, and air. Emphasizes technological developments and economic, geographic, and social impact of specific transport forms.

HIST 327 American Business History 3(3,0) Survey of the history of American business using a case-study approach. Focuses on the effects that policies and institutions have on individual businesses.

HIST 328 United States Legal History to 1890 3(3,0) Survey of the American legal system in its historical perspective from Colonial times to 1890. Emphasizes the relationship between law and society, the way in which the practice of law changed American society, and the way in which social development affected both the theory and practice of the law.

HIST 329 United States Legal History Since 1890 3(3,0) Examination of the social, cultural, intellectual, economic, and political forces that have helped shape the law in the U.S. since 1890.

HIST 330 History of Modern China 3(3,0) Growth and development of Chinese civilization from ancient times to the present. Emphasis is on 20th century China, particularly since the rise to power of the Communist regime.

HIST 333 History of Modern Japan 3(3,0) Origin and development of Japanese civilization with particular emphasis on modern Japan from mid-19th century to the present.

HIST 334 Premodern East Asia 3(3,0) Introduction to histories of China and Japan, from antiquity to approximately 1850. Political, religious, artistic, and other aspects of premodern society are examined and compared in order to gain significant insights regarding the premodern antecedents of these two dynamic and important nations.

HIST 337 History of South Africa 3(3,0) Examines the important trends in the history of South Africa from earliest times to the present. Topics include the nature of precolonial society, European immigration, rise of industrial capitalism, advent of Apartheid, and the liberation struggle.

HIST 338 African History to 1875 3(3,0) Study of sub-Saharan Africa from antiquity to European colonial rule, exploring the development of Stone Age cultures; agricultural and pastoral societies; ancient civilizations; political, economic, and social systems; gradual shift of initiative from the interior to the coast; and various slave trades.

HIST 339 Modern Africa, 1875 to the Present 3(3,0) Study of sub-Saharan Africa from 1875 to the present, with focus on the development and decline of European imperialism, dilemmas of African independence, and ethnic struggles in Southern Africa.

HIST 340 Latin America: From Conquest to Independence 3(3,0) Examination of the encounters, collaborations, and clashes that characterized the conquest period and beyond in Latin America. Readings are assigned regarding the spiritual, biological, social, and political consequences of the meeting of Indians, Africans, and Europeans. Historical sources include images, artwork, letters, and memoirs.

HIST 341 Modern Mexico 3(3,0) Introduction to the geography of the region; origins and progress of the Independence movements; political, economic, and social developments after 1825; and current domestic and international problems.

HIST 342 South America Since 1800 3(3,0) Introduction to the geography of the region; origins and progress of the Independence movements; political, economic, and social developments after 1825; and current domestic and international problems.

HIST 351 Ancient Near East 3(3,0) History of the peoples and civilizations of the Near East from the Sumerians to the establishment of Roman power in this region. Includes geography, mythology, religious, and economic currents as well as the methods and discoveries of archaeology.

HIST 352 Egypt in the Days of the Pharaohs 3(3,0) Egyptian civilization from its beginning until the period of Roman conquest. Includes a survey of political history but also deals with daily life, making much use of archaeological evidence.

HIST 353 Women in Antiquity 3(3,0) Focuses on women in the ancient period in Mesopotamia, Israel, Egypt, Greece, Rome, and in the early Christian Church. Formation of gender roles and issues related to ancient sexuality also receive attention.

HIST 354 The Greek World 3(3,0) Study of Greek civilization from its beginning until the time of the Roman conquest, concentrating on the social institutions of the Greek city-states.

HIST 355 The Roman World 3(3,0) Considers the rise of Rome to world empire and the international civilization it dominated. Concentrates on the nature of the political change from Republic to monarchy with particular emphasis on city life and the causes of its decline.

HIST 361 History of England to 1688 3(3,0) Evolution of English political, social, economic, and cultural institutions to the 17th century. (Study Abroad)

HIST 363, H363 Britain Since 1688 3(3,0) Study of political, cultural, social, economic, and imperial issues in the history of the British Isles from the late 17th century to the present.

HIST 365 British Cultural History 3(3,0) Examination of topics in British cultural history from the 17th century to the present. Emphasizes the 19th and 20th centuries.

HIST 367 Modern Irish History 3(3,0) Examines Irish history over the past four centuries, with particular attention to the 19th and 20th centuries. Irish political, social, economic, and cultural history, Anglo-Irish relations, and the Irish diaspora are considered.

HIST 370 Medieval History 3(3,0) Survey of the period from the eclipse of Rome to the advent of the Renaissance, emphasizing human migrations, feudalism, rise of towns, and cultural life.

HIST 372 The Renaissance 3(3,0) Examination of the transitional period of European civilization (ca. 1300–1500) emphasizing institutional, cultural, and intellectual developments.

HIST 373 Age of the Protestant Reformation 3(3,0) Evolution of Modern Europe (ca. 1500–1660), as affected by the Reformation, wars of religion, and growth of nation-states. Study includes intellectual advances and the beginnings of European expansion overseas.

HIST 374 Europe in the Age of Reason 3(3,0) Study of the quest for order and the consolidation of the European state system between 1660 and 1789 with emphasis on the idea of absolutism, the question of French hegemony, and the synthesis of the 18th-century Enlightenment.

HIST 375 Revolutionary Europe 3(3,0) History of Europe from the outbreak of the French Revolution through the Revolutions of 1848 emphasizing the conflict between the forces of change and those of conservatism, within the states and in Europe in general.

HIST 377 Europe, 1914–1945 3(3,0) Focuses on Europe during two major wars and the peace-time adjustments Europeans made, or failed to make, during the twenty-year interim between those wars.
HIST 378 Europe Since 1945 3(3,0) Focuses on how World War II completed the destruction of European global hegemony, creating a bipolar continent with the west dominated by the United States and the east by Soviet Russia, and how Europe adjusted to this situation.

HIST 380 Imperial Germany 3(3,0) German history from the beginning of the German Empire, 1870–71, through World War I. Emphasizes the influence of militarism, nationalism, anti-Semitism, and xenophobia on the German culture and political process.

HIST 381 Germany Since 1918 3(3,0) German history from the time of Germany’s defeat in World War I, through the Nazi period and World War II. Concludes with the study of a divided Germany.

HIST 384 History of Modern France 3(3,0) French history from mid-19th century to the present with particular emphasis on France since 1900.

HIST 385 History of Imperial Russia 3(3,0) Survey of the formative years of the Russian Empire from the time of accession of Peter the Great to the time of the Russian Revolution. Social, political, diplomatic, and intellectual developments are given equal treatment.

HIST 386 History of the Soviet Union 3(3,0) Soviet history from the revolution to the present. Surveys the creation and subsequent development of the communist political and social system, with attention given to culture and diplomacy.

HIST 387 The Russian Revolution 3(3,0) History of one of the most formative series of events of the 20th century. Follows the crisis of Imperial Russia, its downfall during World War I, and subsequent revolutionary upheaval leading to the formation of the USSR.

HIST 389 Creative Inquiry—History 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of nine credits.

HIST 390 Modern Military History 3(3,0) Survey of the development of modern warfare and the influence of technological change on warfare. Particular attention is given to the major conflicts of the 20th century.

HIST 391 Post World War II World 3(3,0) Examines the world in the age of the Cold War; the breakdown of the colonial empires; and racial, religious, ethnic, national, and social tensions. The United States provides the central core to the class.

HIST 392 History of the Environment of the United States 3(3,0) Examination of the historical development of the attitudes, institutions, laws, people, and consequences that have affected the environment of the United States from pre-Columbian days until the present. Emphasizes the interaction of human beings within and with the environment.

HIST 393 Sports in the Modern World 3(3,0) Analysis of the global evolution and diffusion of sports in the industrial age emphasizing the linkage of sports structure and performance to the larger social context.

HIST 394 Non-Western History 3(3,0) Examines the important trends in world history since 1500—including capitalism, industrialization, nationalism, migration, and imperialism—with a focus on non-Western regions. Preq: HIST 173.

HIST 395 Civil Rights History 3(3,0) Examines the development of American civil rights from the creation of the Constitution through the present. Emphasis is on the legal struggle of African Americans for civil rights, but how other groups fought for rights in the courts is also considered.

HIST 396 The Middle East to 1800 3(3,0) Examines the histories, cultures, and societies of the Middle East from the rise of Islam in the seventh century to the age of European colonial penetration.

HIST 397 Modern Middle East 3(3,0) Examines the histories, cultures, and societies of the Middle East from the 18th century to the present day with particular emphasis on contemporary issues.

HIST 400, 600 Topics in United States History 3(3,0) Topics and problems in the history of the United States from the Colonial era to the present. May be repeated once for credit with departmental consent.

HIST 409 Kennedy Assassination and Watergate 3(3,0) Journey into the underbelly that examines the diverse elements of national security, divisive politics, the Cold War and Cuba, FBI, CIA, the mob, fanaticism, anomie, and threats to the stability of the republic that seem to have come together in Dallas in 1963 and in Watergate. Preq: Junior standing.

HIST 420, 620 History and Film 3(2,3) Analyzes the role of the cinema in the construction and dissemination of history. May be repeated once for credit with departmental consent.

HIST 424, 624 Topics in History of Medicine and Health 3(3,0) Selected topics in the development of medicine and health care including public attitudes towards health and medicine.

HIST 436, 636 The Vietnam Wars 3(3,0) Wars in Vietnam are seen in two phases. The First Indochina War, 1946–54, is covered briefly. Main body of the course covers the Second Indochina War, which began as a guerrilla conflict in 1959–60 and ended as a mostly conventional war in the Communist victory of 1975.

HIST 438, 638 Problems in African Historiography and Methodology 3(3,0) Concentrates on major issues in the field of African history with an additional focus on methodological concerns. May be repeated once for credit with departmental consent.

HIST 440, 640 Studies in Latin American History 3(3,0) Consideration of selected and varied topics in Latin American history through readings, discussions, and individual or group projects. Special attention is given to the use of an inquiry or problems-solving method of historical analysis and to the cultivation of a comparative perspective. May be repeated once for credit with departmental consent.

HIST 450, 650 Studies in Ancient History 3(3,0) Selected topics in ancient history ranging from pre-Biblical times to the fall of the Roman Empire. May be repeated once for credit with departmental consent.

HIST 451, 651 Alexander the Great 3(3,0) Focuses on the career of Alexander the Great and deals with the history and archaeology of ancient Macedonia.

HIST 460, 640 Studies in British History 3(3,0) Examination of selected topics, themes, or periods in British history from Anglo-Saxon times to the present. May be repeated once for credit with departmental consent.

HIST 470, 670 Studies in Early European History 3(3,0) Study of selected topics or themes in European history from the fall of the Roman Empire to the age of industrialization. May be repeated once for credit with departmental consent.

HIST 471, 671 Studies in Modern European History 3(3,0) Study of selected topics or problems in European history from the end of the Old Regime to the present. May be repeated once for credit with departmental consent.

HIST 482, 687 World War II and the World 3(3,0) World War II was a cataclysm of the twentieth century that touched every part of the globe and ushered in the atomic age. This course examines the war from its origins in the aftermath of World War I to the war crimes trials and the dawn of the Cold War.

HIST 490 Senior Seminar 3(3,0) Seminar in current research themes in history. Students conduct directed research on a particular topic and learn research, writing, and oral presentation techniques. Seminar topics vary from section to section and from semester to semester. Preq: History major, Senior standing, and HIST 299 with a C or better.

HIST 491, 691 Studies in the History of Science and Technology 3(3,0) Selected topics in the development of science and technology emphasizing their social, political, and economic effects. May be repeated once for credit with departmental consent.

HIST 492, 692 Studies in Diplomatic History 3(3,0) Selected topics and problems in international conflict and conflict resolution among nations. Concentration is usually in 20th century history. May be repeated once for credit with departmental consent.

HIST 493, 693 Studies in Social History 3(3,0) Studies in the ways people have earned their livings and lived their lives, individually and as communities, in the confines of different societies. May be repeated once for credit with departmental consent.

HIST 494, 694 Studies in Comparative History 3(3,0) Selected topics in comparative history, contrasting and comparing similar historic developments in different nations, geographic areas, or civilizations. May be repeated once for credit with departmental consent.

HIST 495, 695 Studies in the History of Ideas 3(3,0) Selected topics and themes in the development of ideas that have had an impact on the behavior of individuals and civilizations. May be repeated once for credit with departmental consent.

HIST 496, 696 Studies in Legal History 3(3,0) Study of selected problems in the development of law and the system of criminal and civil justice. May be repeated once for credit with departmental consent.
HIST H497 Senior Honors Research 3(3,0) Research for the preparation of senior honors thesis. Preq: Senior standing, completion of a 400-level history course, approval of the History Department. May be repeated once for credit with departmental consent.

HIST H498 Senior Honors Thesis 3(3,0) Writing of the senior honors thesis. May be repeated once for credit with departmental consent. Preq: HIST H497.

HIST 499 Independent Study 1-3(1-3,0) Study of selected problems in history under the direction of a faculty member chosen by the student. Student and faculty member develop a course of study designed for the individual student and approved by the department chair prior to registration. May be repeated once for credit with departmental consent.

HONORS

HON H190 Freshman Colloquium: Arts and Humanities (Literature) 3(3,0) Intellectually intensive seminar that engages freshman honors students in dialogue about the “idea of the University.” Explores key literary works that enhance understanding of historical eras, intellectual and artistic movements, or cultures. Topics vary. Preq: Membership in Calhoun Honors College.

HON H191 Freshman Colloquium: Arts and Humanities (Non-Literature) 3(3,0) Intellectually intensive seminar that engages freshman honors students in dialogue about the “idea of the University.” Explores historical eras, intellectual and artistic movements, or cultures emphasizing multiple tools of analysis, including literature, art, music, and film. Topics vary. Preq: Membership in Calhoun Honors College.

HON H192 Freshman Colloquium Social Science 3(3,0) Intellectually intensive seminar that engages freshman honors students in dialogue about the “idea of the University.” Explores foundations and consequences of human thought and behavior at the individual and societal levels, with emphasis on concepts and tools that organize scholarly inquiry across the social and behavioral sciences. Topics vary. Preq: Membership in Calhoun Honors College.

HON H193 Freshman Colloquium Cross-Cultural Awareness 3(3,0) Intellectually intensive seminar that engages freshman honors students in dialogue about the “idea of the University.” Explores traditions, customs, and value systems of peoples and cultures. Examines concepts and tools that organize scholarly inquiry into world cultures emphasizing non-Western societies. Topics vary. Preq: Membership in Calhoun Honors College.

HON H194 Freshman Colloquium: Science and Technology in Society 3(3,0) Intellectually intensive seminar that engages honors students in dialogue about the “idea of the University.” Explores interactions of the sciences and technology with society. Examines how science and technology are social enterprises and the impact of science and technology on attitudes, behaviors, and choices. Topics vary. Preq: Membership in Calhoun Honors College.

HON H201 Structures and Society 3(3,0) Interdisciplinary honors seminar that examines selected structures regarded as monuments to artistic creative and technological genius and the ways that structures affect and are affected by the societies that produce them. Preq: Membership in Calhoun Honors College.

HON H202 Science, Culture, and Human Values 3(3,0) Interdisciplinary honors seminar that unifies natural scientific, social scientific, and humanistic disciplines into a holistic view of the modern world and its future. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Membership in Calhoun Honors College.

HON H203 Society, Art, and Humanities 3(3,0) Combines readings and methodologies from the social sciences, arts, and humanities to study the interrelationships among the disciplines and their societal effects. Subjects vary. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Membership in Calhoun Honors College.

HON H204 Honors Study/Travel 1(0,3) Study/travel experience related to a three-credit Calhoun Honors Seminar. May be repeated for a maximum of three credits, but only if different topics are covered. Preq: Membership in Calhoun Honors College.

HON H205 Current Topics 1(1,0) Seminar to expose students to current topics in the interpretation of documents, works of art, structures and scholarly materials. May be repeated for a maximum of three credits, but only if different topics are covered. Preq: Membership in Calhoun Honors College.

HON H206 Controversies in Science and Technology 3(3,0) Interdisciplinary honors seminar that examines social issues related to science and technology, using perspectives from science, the social sciences, and humanities. May be repeated for a maximum six credits, but only if different topics are covered. Preq: Membership in Calhoun Honors College.

HON H207 Reasoning, Critical Thinking, and Problem Solving 3(3,0) Interdisciplinary honors seminar that teaches a particular set of tools for thinking and analysis, showing how these tools can be applied to different kinds of problems in different disciplines. May be repeated for a maximum six credits, but only if different topics are covered. Preq: Membership in Calhoun Honors College.

HON H208 Border Crossings: Experiences in World Cultures 1-3(1,3,0) Readings and studies that heighten understanding of world cultures and societies. Taken in conjunction with international educational experiences approved by Calhoun Honors College. May be repeated for a maximum of six credits, with a maximum of three credit hours per study abroad experience. Preq: Membership in Calhoun Honors College.

HON H210 Experiencing the Arts 3(2,3) Interdisciplinary exploration of the arts through seminar discussions and attendance at performing and visual arts events on campus. Exploration of arts and aesthetics leading to performance previews, reviews, and experiences of Brooks Center and Lee Gallery events. May be repeated for a maximum of nine credits. Preq: Membership in Calhoun Honors College.

HON H220 Studies in Social Science 3(3,0) Disciplinary specific social science seminar including a disciplinary introduction (anthropology, economics, history, political science, psychology or sociology) and a detailed examination of specific theories and methods within that discipline. May be repeated for a maximum of six credits, but only if different disciplines are covered. Preq: Membership in Calhoun Honors College.

HON H221 Studies in Literature 3(3,0) Introduction to selected authors and literary works focused around a specific topic. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Membership in Calhoun Honors College.

HON H222 Studies in Arts and Humanities 3(3,0) Exploration of music, literature, film, philosophy or another area in humanities by examining a discipline specific topic. Focus may be on a particular scholar, era or culture idea or concept specific to a particular arts/humanities discipline. May be repeated for a maximum of six credits, but only if different disciplines are covered. Preq: Membership in Calhoun Honors College.

HON H223 Studies in Communications 3(3,0) Explores various topics in communications. Focus may be on a particular type of communication, medium or theory. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Membership in Calhoun Honors College.

HON H400 Honors Contract 0 Advanced study and research taken in conjunction with any 300-400-level course. Contract requires prior approval by instructor and Honors Director. To be taken Pass/Fail only. May be repeated once, but only if in conjunction with a different course. Preq: Membership in Calhoun Honors College.

HON H499 Honors Research 1-120(3,3-36) Honors directed research in an academic discipline. Topics include, but are not limited to, literature review, research design and execution, and reporting of results. May be repeated for a maximum of 12 credits. Preq: Membership in Calhoun Honors College.

HORTICULTURE

Professors: H. Liu, L.B. McCarty, T. Whithwell; Associate Professors: J.W. Adelberg, J.E. Faust, Chair; D.R. Layne, C.E. Wells; Assistant Professor: D.G. Bielenberg

HORT 101 Horticulture 3(3,0) Environmental factors and horticultural practices affecting optimum production of floral, fruit, ornamental, and vegetable crops. Includes a survey of the various areas of horticulture and their importance to society.

HORT 102 Experience Horticulture 1(0,2) Students experience the art, science, business, and diversity of horticulture through visits to greenhouses, nurseries, botanical gardens, athletic fields, golf courses, orchards, farms, and research fields and laboratories. Students learn about horticulture from a cross section of professionals sharing their work experiences. Preq: Freshman or sophomore standing in Horticulture or Turfgrass.

HORT 202 Selected Topics 1-3(1-3,0) Introduction to developing trends, concepts or technologies in horticulture and/or turfgrass. May be repeated for a maximum of three credits, but only if different topics are covered. Preq: Consent of instructor.
HORT 208 Landscape Appreciation 3(3,0) Deepens students' appreciation of natural and built environments through a study of landscape elements, styles, and professions. Landscapes ranging in scale from residential to regional are critiqued, and design principles and landscape ethics are discussed.

HORT 212 Introduction to Turfgrass Culture 3(3,0) Studies of the introductory principles associated with the art and science of turfgrass culture. Develops an understanding of the history and evolution of turfgrasses and turfgrass culture. Explores career potentials in turfgrass management. Explains the basic scientific principles and techniques associated with the propagation and establishment of fine turfgrasses. Prereq: BIOSC 205, 206.

HORT 213 Turfgrass Culture Laboratory 1(0,2) Provides hands-on activities and understanding of basic principles and techniques in turfgrass culture. Students learn all phases of turfgrass management including identification, turfgrass culture, common turfgrass pest identification and control. Coreq: HORT 212.

HORT 271 Internship 1-6(0,2-12) Preplanned, practical, supervised work experience to give beginning students on-the-job learning opportunities that support classroom experience. Students submit monthly reports and present a departmental internship seminar. Undergraduates may accumulate a maximum of six credits for participation in HORT 271 and/or 471. Prereq: Consent of instructor.

HORT 303 Landscape Plants 3(2,3) Woody, ornamental plants and their aesthetic and functional uses in landscape developments. Study covers habit of growth, ultimate size, texture effect, period of bloom, color, and cultural requirements.

HORT 304 Annuals and Perennials 3(2,3) Annual and perennial flowers' aesthetic appeal and functional uses and needs. Color, texture, bloom time, form, size, and growth requirements as they relate to designing, planting, and maintaining colorful landscapes. Prereq: HORT 208, 303, or consent of instructor.

HORT 305 Plant Propagation 3(2,3) All phases of plant propagation from seeds, bulbs, divisions, layers, cuttings, budding, and other types of grafting are comprehensively treated. Timing, manner, and material for making cuttings; temperature and media requirements and propagation structures for rooting cuttings of ornamental and fruit trees, shrubs, and indoor plants are studied.

HORT 306 Plant Propagation Techniques Laboratory 1(0,3) Techniques of plant propagation including sexual methods: germination, scarification, and stratification. Asexual methods including grafting, budding, cuttings, layering, tissue culture divisions, and separations. Local nurseries are visited. Coreq: HORT 305.

HORT 308 Landscape Design 4(3,3) Landscape planning of residential and public properties in order to achieve best use and most enjoyment from a given piece of ground. Offered fall semester only. Prereq: HORT 208, 303, or consent of instructor.

HORT 310 Growing Landscape Plants 3(2,3) Principles, technologies, and techniques of landscape plant production and growth including environmental control and manipulation, water, nutrient and pest management, scheduling, propagation, and plant problem diagnostics. Emphasizes herbaceous ornamentals along with significant woody landscape plants. Prereq: HORT 101 or equivalent.

HORT 400 Selected Topics 1-6(1-6,0) Advanced study of any aspect of horticulture and/or turfgrass not addressed in other courses. May be repeated for a maximum of six credits, but only if different topics are covered. Prereq: Junior standing or consent of instructor.

HORT 408 Horticulture Discovery and Inquiry 1-3(1-3,0) Students learn about horticulture through research, service learning, and/or creative inquiry projects. They explore a topic of interest with faculty, organize a quality proposal, complete the project, and report results to appropriate professional audiences. May be repeated for a maximum of nine credits. Prereq: Junior standing or consent of instructor.

HORT 409 Seminar 1(1,0) Recent research work on various phases of horticulture, methods of conducting investigations, and preparation of report of investigations.

HORT 412, 612 Advanced Turfgrass Management 3(2,3) Advanced principles and practices associated with turfgrass management for golf courses, sports fields, sod production, and commercial lawn care. Topics include turfgrass physiology, plant growth and development, construction, turfgrass nutrition, irrigation, drainage, pesticide use and fate, and development of effective management systems. Prereq: CSENV 202, HORT 212, or consent of instructor.

HORT 420, 620 Applied Turfgrass Physiology 3(3,0) Advanced course in turfgrass science and management. Provides the current status and development of turfgrass stress physiology and research. Main topics include temperature, drought, traffic, edaphic stresses, new developments in the turf industry and environmental stewardship. Prereq: HORT 212, 213.

HORT (FOR) 427, 627 Urban Tree Care 3(3,0) See FOR 427.

HORT (CSENV) 433, 633 Landscape and Turf Weed Management 3(2,2) Weed management strategies that include cultural, biological, and chemical methods are studied for landscape and turfgrass areas. Problem-solving skills and herbicide characteristics are emphasized. Prereq: HORT 212 or consent of instructor.

HORT 455, 655 Just Fruits 3(3,0) Students explore the origins, biology, culture, and production of major temperate zone fruits—apples, berries, and cherries to pawpaws, peaches, and pomegranates, the familiar to the forbidden. They discover principles, practices, and technologies employed to grow, protect, and harvest the fruits that feed us from commercial orchards, organic farms, and backyards. Prereq: HORT 101 or consent of instructor.

HORT 456, 656 Vegetable Crops 3(3,0) Principles and practices employed in commercial growing and marketing of vegetable crops with emphasis on plant characteristics, cultivars, management practices, harvest, quality factors and grading, storage, economic importance, and areas of production.

HORT 461, H461, 661 Problems in Landscape Design 4(3,3) Landscape planning for larger residential properties, schools, industrial plants, real estate developments; detailed finished plans; further study of materials used; original problems; field study. Prereq: HORT 308 or consent of instructor.

HORT 471, 671 Advanced Internship 1-6(0,2-12) Preplanned work experience under competent supervision in approved agency dealing with horticultural endeavors. Gives advanced students on-the-job learning opportunities to apply acquired knowledge and skills. Monthly reports and final departmental seminar required. Undergraduates may accumulate a maximum of six credits for participation in HORT 271 and/or 471. Prereq: Junior standing and consent of instructor.

HORT 472, 672 Garden Experiences in Youth Development 2(1,3) Exploration of the role of gardening and related outdoor experiences in enhancement of educational development, self-esteem and pro-social behavior in elementary school children. Prereq: Senior standing and consent of instructor.

HUMANITIES

Professor: S.K. Eisminger; Associate Professor: A. Bennett

HUM 301 Humanities 3(3,0) Introduction to humanistic studies focusing on relationships among disciplines—painting, sculpture, architecture, music, literature, philosophy, and drama—beginning with prehistory and continuing to the Renaissance.

HUM 302 Humanities 3(3,0) Introduction to humanistic studies focusing on relationships among disciplines—painting, sculpture, architecture, music, literature, philosophy, and drama—beginning with the 17th century and continuing to the present.

HUM 306 Creative Genius in Western Culture 3(3,0) Investigation of creativity through study of great innovators in art, literature, music, and ideas. May be repeated once for credit.

HUM 309 Studies in Humanities 3(3,0) Interdisciplinary approach to the humanities. Special subject matter varies according to the instructor and as approved by the chair of the English Department. May be repeated once for credit.

HUM (ENGL) 456, 656 Literature and Arts of the Holocaust 3(3,0) See ENGL 456.

INDUSTRIAL ENGINEERING


I E 200 Sophomore Seminar in Industrial Engineering 1(1,0) Addresses the industrial engineering program, best student practices, and career paths. Invited lecturers, as needed, and faculty provide lectures and demonstrations. Prereq: CES 101 or 102.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>I E 201</td>
<td>System Design I 4(3,3)</td>
<td></td>
<td>Introduction to the design of industrial engineering systems. Design methodologies are introduced in the context of a design process that includes identifying user needs; developing a design specification; generating, evaluating, refining, and selecting design concepts; detail design; constructing, testing, and refining prototypes; and delivering the product to the customer.</td>
<td>I E 386.</td>
</tr>
<tr>
<td>I E 210</td>
<td>Design and Analysis of Work Systems 3(2,3)</td>
<td></td>
<td>Work methods engineering, human factors and ergonomics, and workplace design are discussed.</td>
<td></td>
</tr>
<tr>
<td>I E 268, H268</td>
<td>Creative Inquiry Seminar in Industrial Engineering 1(1,0)</td>
<td></td>
<td>Students are introduced to creative inquiry methods, resources, and current activities in a seminar format. To be taken Pass/Fail only.</td>
<td></td>
</tr>
<tr>
<td>I E 280</td>
<td>Methods of Operational Research I 3(3,0)</td>
<td></td>
<td>Introduction to operations research models, including linear programming, integer linear programming, transportation and assignment problems, and network flows.</td>
<td>I E 386.</td>
</tr>
<tr>
<td>I E H300</td>
<td>Junior Honors Seminar 1(1,0)</td>
<td></td>
<td>Acquaints students enrolled in the Departmental Honors Program with current research issues in the profession. This assists students in preparing a research proposal for the senior thesis. Jur: Junior standing, admission to Departmental Honors Program.</td>
<td></td>
</tr>
<tr>
<td>I E 360</td>
<td>Design and Control of Industrial Systems I 3(3,0)</td>
<td></td>
<td>Introduces central concept that overall system performance can be improved by taking uncertainty into account, especially through the reduction of variability. Specific industrial applications, such as decision analysis, reliability and probabilistic inventory models, are emphasized.</td>
<td>I E 360.</td>
</tr>
<tr>
<td>I E 361</td>
<td>Design and Control of Industrial Systems II 3(3,0)</td>
<td></td>
<td>Introduces central concept that apparent conflict between productivity and quality can be resolved through improvements in processes by introducing statistical thinking. Specific industrial applications, such as (static) simulation, quality control and reliability models, are emphasized.</td>
<td>I E 360.</td>
</tr>
<tr>
<td>I E 368</td>
<td>Professional Practice in Industrial Engineering 1(1,0)</td>
<td></td>
<td>Seminar to orient students to issues of professional development and professional practice of industrial engineering.</td>
<td></td>
</tr>
<tr>
<td>I E 381</td>
<td>Methods of Operational Research II 3(3,0)</td>
<td></td>
<td>Probabilistic modeling of engineering systems. Topics include calculus-based probability, decision analysis, Markov processes, queueing, and reliability.</td>
<td>I E 280, 360.</td>
</tr>
<tr>
<td>I E 384</td>
<td>Engineering Economic Analysis 3(3,0)</td>
<td></td>
<td>Basic principles and techniques of economic analysis of engineering projects. Consideration of time, value of money, short- and long-term investments, replacement analysis, depreciation methods, cost allocation, and measures of cost effectiveness.</td>
<td>I E 280, 360.</td>
</tr>
<tr>
<td>I E 386</td>
<td>Production Planning and Control 3(3,0)</td>
<td></td>
<td>Fundamentals of forecasting demand, scheduling production, and controlling the movement and storage of material associated with production are studied. State-of-the-art manufacturing techniques are discussed.</td>
<td>I E 280, ENGR 141.</td>
</tr>
<tr>
<td>I E H400, 600</td>
<td>Honors Thesis I 1-6(1-6,0)</td>
<td></td>
<td>Individual or joint research project performed with a faculty mentor or committee of faculty. May be repeated for a maximum of six credits.</td>
<td>I E H268 and consent of mentor.</td>
</tr>
<tr>
<td>I E 402</td>
<td>Creative Inquiry Research I 1-6(1-6,0)</td>
<td></td>
<td>Research experience promoting reasoning, critical thinking, ethical judgment, communication skills, and an understanding of the scientific method and engineering design. These applied/basic research experiences are usually undertaken with a team under the mentorship of a faculty member or advanced graduate student. May be repeated for a maximum of six credits.</td>
<td>I E 402.</td>
</tr>
<tr>
<td>I E 403</td>
<td>Creative Inquiry Project I 3(1-3,0)</td>
<td></td>
<td>Project-oriented experience promoting reasoning, critical thinking, ethical judgment, communication skills, and an understanding of the scientific method and engineering design. Typical experiences include design projects in cooperative education or sponsored student competitions undertaken with a team, under the mentorship of a faculty member or advanced graduate student. May be repeated for a maximum of three credits.</td>
<td>I E 403.</td>
</tr>
<tr>
<td>I E 418, 618</td>
<td>Human Factors Accident Analysis and Expert Testimony 3(3)</td>
<td></td>
<td>This highly interactive course is divided into two components. Students gain an understanding of how the principles of human factors engineering are used in accident investigation and forensic analysis, and then learn the skills necessary to defend their opinions as an expert witness.</td>
<td>I E 418, 618.</td>
</tr>
<tr>
<td>I E 430</td>
<td>Introduction to Healthcare Systems Engineering 3(3,0)</td>
<td></td>
<td>Focuses on how industrial engineers can partner with healthcare professionals to improve the quality and efficiency of healthcare delivery. Students learn about the current healthcare system, how healthcare is different from traditional industrial engineering sectors, and the experiences of individuals in healthcare from engineering and non-engineering disciplines.</td>
<td>I E 430.</td>
</tr>
<tr>
<td>I E 440</td>
<td>Decision Support Systems in Industrial Engineering 3(2,3)</td>
<td></td>
<td>Study of design of decision support systems for production and service systems based on operations research models. Includes use of spreadsheets, databases, and integrated software development environments to implement decision support systems.</td>
<td>I E 440.</td>
</tr>
<tr>
<td>I E 452, 652</td>
<td>Reliability Engineering 3(3,0)</td>
<td></td>
<td>Probabilistic approach to assessing system reliability. Methods for analyzing serial, parallel, and complex systems. Reliability life testing and its acceleration are covered. Essential elements of maintainability are identified and related to system availability.</td>
<td>I E 452, 652.</td>
</tr>
<tr>
<td>I E 456, 656</td>
<td>Supply Chain Design and Control 3(3,0)</td>
<td></td>
<td>Industrial engineering aspects of supply chains, including design and control of material and information systems.</td>
<td>I E 456, 656.</td>
</tr>
<tr>
<td>I E 457, 657</td>
<td>Transportation and Logistics Engineering 3(3,0)</td>
<td></td>
<td>Introduces transportation and logistics systems analysis, covers methods for identifying level-of-service metrics and measuring system performance. Discusses key aspects of modeling, simulation, and other techniques for economic and quantitative analysis of transportation and logistics planning issues.</td>
<td>I E 457, 657.</td>
</tr>
<tr>
<td>I E 460</td>
<td>Quality Improvement Methods 3(3,0)</td>
<td></td>
<td>Study of modern quality improvement techniques presented in an integrated, comprehensive context.</td>
<td>I E 460.</td>
</tr>
<tr>
<td>I E 461</td>
<td>Quality Engineering 3(3,0)</td>
<td></td>
<td>Design aspects of quality and the engineer’s role in problems of quality in production systems.</td>
<td>I E 461.</td>
</tr>
<tr>
<td>I E 462, 662</td>
<td>Six Sigma Quality 3(3,0)</td>
<td></td>
<td>Study of DMAIC (Define, Measure, Analyze, Improve, and Control) elements of Six Sigma, project management, process analysis, quality function deployment, hypothesis testing, gage R&amp;R, data analysis, multivariate analysis, design of experiments, statistical process control, and process capability analysis.</td>
<td>I E 462, 662.</td>
</tr>
<tr>
<td>I E 463</td>
<td>Quality in the Capital Projects Industry 3(3,0)</td>
<td></td>
<td>Covers topics in quality and lean principles relevant to the capital projects industry. Provides a broad overview on quality concepts and philosophies, quality management and inspection tools applicable to capital projects, Six Sigma Approach, lean concepts and value stream mapping.</td>
<td>I E 463.</td>
</tr>
<tr>
<td>I E 465, 665</td>
<td>Facilities Planning and Design 3(3,0)</td>
<td></td>
<td>Study of the principles and techniques of facility planning and design. Discusses economic selection of materials handling equipment and integration of this equipment into the layout plan to provide effective product flow in production, distribution, and service contexts. Includes quantitative techniques for evaluation of facility design.</td>
<td>I E 465, 665.</td>
</tr>
<tr>
<td>I E 467</td>
<td>Systems Design II 3(2,3)</td>
<td></td>
<td>Provides students with the challenge of integrating and synthesizing general engineering knowledge into creatively solving real-world, open-ended problems. This includes developing the problem statement, objectives, and criteria; data collection; technical analysis; developing and integrating recommendations; and presenting results.</td>
<td>I E 467.</td>
</tr>
<tr>
<td>I E 469</td>
<td>Creative Inquiry Symposium in Industrial Engineering 1(1,0)</td>
<td></td>
<td>Provides a forum for exchange of results and ideas in creative inquiry student projects. To be taken Pass/Fail only.</td>
<td>I E 469.</td>
</tr>
<tr>
<td>I E 482, 682</td>
<td>Systems Modeling 4(3,2)</td>
<td></td>
<td>The purpose, theory, and techniques of modeling systems with dynamic events. Students learn a powerful analytical process to use in the analysis and improvement of systems in several industries, including transportation, logistics, manufacturing, and service systems. Incorporates professional simulation software as a tool in evaluating the system performance.</td>
<td>I E 482, 682.</td>
</tr>
</tbody>
</table>
Courses of Instruction

ITALIAN
Professor: R.G. Bellinger

ITALIAN 400 Image of an Italian City 3(3,0) Study of historical, social, and architectural images of Italian cities through analysis of literary texts and films. Preq: ITAL 202 or consent of instructor.

ITAL 405 Advanced Italian 3(3,0) Advanced language study emphasizing fluency in oral and written expression through discussion and analysis of contemporary Italian media. Preq: One 300-level Italian course or consent of instructor.

ITAL 455 Italian Film 3(2,3) Overview of Italian cinema. Topics may include history, genres, and major directors. Preq: ITAL 305 or consent of instructor.

ITAL 475 Advanced Italian Seminar 3(3,0) Concentrated research and discussion on advanced topics in Italian literature, film, art, or drama. May be repeated for a maximum of six credits. Preq: One 400-level Italian course or consent of instructor.

ITAL 497 Creative Inquiry—Italian 1-4(1-4,0) Continuation of research initiated in ITAL 397. Students complete their project and disseminate their research results. Preq: ITAL 397 or consent of instructor.

ITAL 498 Selected Topics 3(3,0) Study of selected topics in Italian literature, language, and culture. Taught in Italian. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Consent of department chair.

JAPANESE
Associate Professors: T. Kishimoto, E.L. Williams; Lecturer: Y. Kihara

JAPN 101 Elementary Japanese 4(3,1) Course for beginners in which fundamentals are taught and a foundation is provided for further study and the eventual ability to read and speak the language. The Japanese writing system is introduced. Students learn how to recognize and write the two alphabets Hiragana and Katakana. Three hours a week of classroom instruction and one hour a week in the language laboratory. Preq: JAPN 201.


JAPN 297 Creative Inquiry—Japanese 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. Arrangements with faculty members must be established prior to registration. Preq: Consent of department chair.

JAPN 303 Intensive Conversation and Composition in Japanese 3(3,0) Study of Japanese with native instructors at a university in Japan. All coursework conducted in Japanese. May be repeated for a maximum of six credits. Preq: JAPN 202 or consent of instructor.
Courses of Instruction

JAPN 305 Japanese Conversation and Composition 3(3,0) Practice in the spoken language with emphasis on vocabulary, Kanji, pronunciation, and comprehension; learning practical language skills and intercultural communication through various topics. Prereq: JAPN 202 or consent of department chair.

JAPN 306 Japanese Conversation and Composition 3(3,0) Continuation of JAPN 305. More practice in the spoken language emphasizing vocabulary, Kanji, pronunciation, and comprehension. Learning practical language skills and intercultural communication through various topics. Prereq: JAPN 305 or consent of department chair.

JAPN 307 Japanese Civilization I 3(3,0) Study of the significant aspects of the culture of Japan. Prereq: JAPN 202 or consent of department chair.

JAPN 308 Japanese Civilization II 3(3,0) Study of significant aspects of the culture of Japan. Prereq: JAPN 202 or consent of department chair.

JAPN 316 Japanese for International Trade I 3(3,0) Spoken and written Japanese common to the Japanese-speaking world of business and industry emphasizing business practices and writing and translating business letters and professional reports. Cross-cultural references provide opportunity for comparative and contrastive analysis of American and Japanese cultural patterns in a business setting. Prereq: JAPN 306 or consent of department chair.

JAPN 397 Creative Inquiry—Japanese 1-4(1-4,0) Students focus on a special research area under the guidance of a faculty member. After acquiring the requisite background, students formulate hypotheses for a group project, develop a critical framework, and initiate research on a specific topic.

JAPN 398 Directed Reading I 3(1-3,0) Directed study of selected topics in Japanese literature, language, and culture. May be repeated for a maximum of six credits. Prereq: Consent of department chair.

JAPN 401 Japanese Literature in Translation 3(3,0) Introduction to Japanese literature from 712 AD to the present. Cultivates an appreciation for Japanese literature and culture. All readings and discussions are in English. May not be used to satisfy general foreign language requirements.

JAPN 403 Internship in Japan 3(3,0) Minimum of one month of full-time work experience in Japan. All work activities with host companies are conducted in Japanese. May be repeated for a maximum of six credits. Prereq: JAPN 202 or consent of instructor.

JAPN 404 Cultural Studies in Japan 3(3,0) Study of Japanese cultural topics on site in Japan through lectures, field trips, small student group reconnaissances, and reporting sessions. All activities are conducted in Japanese. May be repeated for a maximum of six credits. Prereq: JAPN 202 or consent of instructor.

JAPN 406 Introduction to Japanese Literature 3(3,0) Students read contemporary Japanese narrative fiction, poetry, and drama in their historical and social context. Prereq: 300-level Japanese course or consent of department chair.

JAPN 411 Studies in the Japanese Language I 3(3,0) Advanced training in the spoken and written language with emphasis on formal expressions. Prereq: JAPN 306 or consent of department chair.

JAPN 412 Studies in the Japanese Language II 3(3,0) In-depth study of Kanji characters. Prereq: JAPN 411 or consent of department chair.

JAPN 416 Japanese for International Trade II 3(3,0) Study of language and cultural environment of the Japanese-speaking market, including the linguistic and cultural idioms that support global marketing in general and the international marketing of textiles, agricultural products, and tourism in particular. Prereq: JAPN 316 or consent of department chair.

JAPN (ANTH) 417 Japanese Culture and Society 3(3,0) Focuses on basic themes in Japanese culture found in social interaction and ritual behavior. Japanese social organization, including marriage and family patterns, neighborhood and community organization, and gender roles receive extensive attention. All readings and discussions are in English. May not be used to satisfy general foreign language requirements.

JAPN 490 Classical Japanese 3(3,0) Examination and analysis of premodern Japanese texts. Special emphasis is on the grammar and syntax of the classical language, its divergence from and influence upon the modern idiom. All coursework is conducted in Japanese. Prereq: JAPN 306 or consent of instructor.

JAPN 491 Senior Seminar in Japanese Literature 3(3,0) Close readings of various works of premodern and modern Japanese literature. Includes study of important authors and their representative works in prose and poetry. Familiarizes students with the cultural and linguistic nuances of literature in the original language. All readings and activities are in Japanese. Prereq: JAPN 306.

JAPN 497 Creative Inquiry—Japanese 1-4(1-4,0) Continuation of research initiated in JAPN 397. Students complete their project and disseminate their research results. Prereq: JAPN 397 or consent of instructor.

JAPN 499 Selected Topics in Japanese Culture 3(3,0) Topically generated examination of fundamental cultural themes in premodern and modern Japan, including, but not limited to, such topics as Japanese drama, poetry, prose, religious traditions, cinema, and folklore/mythology. May be repeated for a maximum of six credits, but only if different topics are covered. Readings and discussions are in English. May not be used to satisfy general foreign language requirements.

LANDSCAPE ARCHITECTURE
Professors: F.F. Chamberlain, T. Schurch, Chair, U. Yilmaz; Associate Professors: C.L. Goetcheus, R.R. Hewitt, H.F. Nassar; Assistant Professors: C. Brown, D. Gtsch; Lecturer: M.E. McCabe

LARCH 116 History of Landscape Architecture 3(3,0) History of design on the land from prehistory to the present. Overview of the interface of aesthetics, science, technology, and natural features that influence cultures in shaping places.

LARCH 128 Technical Graphics 3(2,2) Introduction to rendering techniques, plan graphics, 3-D projection drawings, drafting skills, perspective drawing, and overview of computer graphics. Prereq: Landscape Architecture major.

LARCH 151 Basic Design I 3(0,6) Studio introduction to design fundamentals through 2-D and 3-D application of basic systems and development of attitudes essential to the creative design process. Prereq: Landscape Architecture major.

LARCH 152 Basic Design II 3(0,6) Further investigations into design fundamentals through 2-D and 3-D application of basic systems and development of attitudes essential to the creative design process. Prereq: LARCH 151.

LARCH 199 Creative Inquiry—Landscape Architecture I 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration.

LARCH 251 Landscape Architecture Design Fundamentals 6(1,10) Compositional skills introduced in LARCH 151 and 152 are applied to design in the landscape. Through research, design assignments and discussions, students derive and apply design principles to place, study the processes of design and develop an understanding of how design principles, plant materials and structures are used in the landscape. Prereq: LARCH 152 or consent of instructor.

LARCH 252 Site Design in Landscape Architecture 6(1,10) Students apply lessons from LARCH 251 to site designs considering planting design, responsible land management strategies and appropriate use of materials. Also included are participatory and social behavioral aspects of design. Readings and seminar discussions are emphasized as integral to the design and decision making process. Prereq: LARCH 251 or consent of instructor.

LARCH 262 Design Implementation I 3(1,3) Basics of landscape architecture construction methods and construction documents, including site information gathering and analysis, basic site grading and drainage, cut and fill, principles of stormwater management, and sustainable land management related to implementation. Includes explorations in hand and computer graphic techniques used in construction drawings. Prereq: Consent of instructor.

LARCH 293 Field Studies Internship 1-3(0,39) Skill-based practical work experience to give beginning students on-the-job learning opportunities. Requires a minimum of five weeks of uninterrupted, supervised, practical experience with a preapproved commercial firm or public agency dealing with landscape architectural site issues. May be repeated for a maximum of six credits. To be taken Pass/Fail only. Prereq: Consent of instructor.

LARCH 299 Creative Inquiry—Landscape Architecture II 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. Prereq: LARCH 199.

LARCH 351 Regional Design and Ecology 6(1,10) Study and analysis of natural and cultural landscapes at the regional scale. Introduction of landscape ecology as an informant to design. Basic overview of geographic information systems. Regional and ecological issues are applied in a final site design. Also includes relevant reading, discussion, and writing. Prereq: LARCH 252 or consent of instructor.
LARCH 352 Urban Design Studio 6(1,10) Landscape architectural design in the urban context. Students study urban issues and offer design and sustainable management solutions for urban areas. Includes readings and theory component as well as an opportunity to collaborate with architecture students. Prq: LARCH 351 or consent of instructor.

LARCH 362 Design Implementation II 3(1,2) Advanced landscape architecture construction methods and construction documents, including site information gathering, analysis, site grading and drainage, cut and fill, principles of stormwater management, sustainable land management related to implementation, materials research and use, sustainable planting strategies, site demolition and construction management. Includes explorations in appropriate graphic communication techniques. Prq: Consent of instructor.

LARCH 399 Creative Inquiry—Landscape Architecture III 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. Prq: LARCH 299.

LARCH 405, 605 Urban Genesis and Form 3(3,0) Exploration of urban forms and developments within their historical context through off-campus, on-site lectures and exposure to historic cities and sites. Students visit historic and contemporary cities and analyze those places through readings and direct observations. Offered in the summer only. Prq: LARCH 252 or consent of instructor.

LARCH 418 Off-Campus Study Seminar 1(1,0) Students study various cultural and environmental factors to inform and enhance their off-campus experiences in Istanbul, Barcelona, Genoa, or Charleston. Prq: Landscape Architecture major or consent of instructor.

LARCH 419 Off-Campus Field Study 3(3,0) Intensive study of place in an off-campus setting as context for design. Numerous class trips to significant sites in the area of the off-campus programs. Bus trips to distant sites are also planned. Prq: LARCH 451 or consent of instructor.

LARCH 421 Landscape Architectural Seminar 3(3,0) Lectures and seminars dealing with pertinent topics related to environmental, technological, and theoretical issues in landscape architecture, land planning, and urban design. May be repeated for a maximum of six credits. Prq: Senior standing or consent of instructor.

LARCH 423, 623 Environmental Issues in Landscape Architecture 3(3,0) Overview of environmental and ecological issues and their relationship to landscape architecture practice and design. Prq: LARCH 452 or consent of instructor.

LARCH 428 Landscape Architecture Computer-Aided Design 3(2,2) Introduces students to the use of computer technology in the landscape architectural design process. Covers the basics of computer applications used in the industry for conceptualizing, drafting, modeling, and graphic communications. Prq: Landscape Architecture major or consent of instructor.

LARCH 433, 633 Historic Preservation in Landscape Architecture 3(3,0) Study of historic landscape preservation in a number of contexts, including gardens, vernacular landscapes, parks, cemeteries, and battlefields. Prq: LARCH 452 or consent of instructor.

LARCH 438 Advanced Computer-Aided Design 3(2,2) Advanced study in computer-aided design for students wishing to develop their skills beyond LARCH 428. Students develop advanced skills in illustrative drawings, construction drawings, desktop publishing, and other computer-based applications. Prq: LARCH 428 or consent of instructor.

LARCH 443, 643 Community Issues in Landscape Architecture 3(3,0) In-depth study of issues relevant to community design. Overview of physical design and related social issues. Prq: LARCH 452 or consent of instructor.

LARCH 451 Community Design Studio 6(1,10) Studio focused on the study and design of communities and public spaces. Students explore multicultural, historical and ecological layers of community, as well as the role of landscape management and the creative design process to add new dimensions of meaning to these places. Prq: LARCH 352 or consent of instructor.

LARCH 452 Off-Campus Studio 6(1,10) Off-campus landscape architecture studio in Istanbul, Charleston, Genoa, or Barcelona. Prq: LARCH 451 or consent of instructor.

LARCH 453, 653 Key Issues in Landscape Architecture 3(3,0) Overview of research in landscape architecture and study of relevant research methods. Students write proposals for their own projects positioned within the larger context of research in the profession. Prq: Fifth-year Landscape Architecture student or consent of instructor.

LARCH 462 Landscape Architectural Technology III 3(2,2) Advanced overview of construction materials and methods used in project implementation. Study characteristics, strengths, nominal sizes and uses of materials (asphalt, brick, concrete, stone, wood). Field trips, exercises, and preparation of construction documents develop understanding of how design ideas are realized in built form. Prq: LARCH 362.

LARCH 490 Directed Studies and Projects in Landscape Architecture 1-5(1-5,0) Comprehensive studies and/or research of special topics not covered in other landscape architecture courses. May be repeated for a maximum of ten credits. Prq: Consent of instructor.

LARCH H491 Honors Research Methods for Landscape Architecture 1-3(1-3,0) Students investigate various research methodologies in landscape architectural design or related areas and apply to student generated project(s). Students generate a proposal for Landscape Architecture Honors Research. Prq: Junior standing; membership in Calhoun Honors College, consent of Department Honors Program Advisor.

LARCH 493 Professional Office Internship 1-3(0,39) Office experience for advanced students. On-the-job learning requires a minimum of five uninterrupted sequential weeks of employment under the direct supervision of a preapproved registered landscape architect, architect, urban planner, or civil engineer. May be repeated for a maximum of six credits. To be taken Pass/Fail only. Prq: LARCH 352, 362, consent of instructor.

LARCH H494 Landscape Architecture Honors Research 2-3(2-3,0) Independent, student-generated research on a preapproved topic conducted under the supervision and weekly guidance of a faculty member. Second in a sequence of three required courses for students enrolled in Departmental Honors Program. Written interim report and presentation to faculty and honors students are required before the end of the semester. May be repeated for a maximum of six credits. Prq: LARCH H491, membership in Calhoun Honors College.

LARCH H495 Landscape Architecture Honors Thesis 2-3(2-3,0) Continuation of independent research, conducted under the supervision and weekly guidance of a faculty member. Third in a sequence of three required courses for students enrolled in Departmental Honors Program. Written thesis is submitted and presented before the end of the semester to qualify for Departmental Honors. Prq: LARCH H494.

LARCH 499 Creative Inquiry—Landscape Architecture IV 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. Prq: LARCH 399.

LARCH 503 Landscape Architecture Portfolio 3(3,0) Presentation of the concepts of conventional portfolios, as well as electronic portfolios, both of which are designed to record and communicate students’ academic experiences and achievements. The role of a portfolio within the landscape architecture profession is emphasized through lectures, demonstrations and presentations.

LARCH 551 Landscape Architecture Design V 3(1,10) Studio work and adjunct lectures featuring complex problem-solving projects involving regional design analysis and planning, city planning and urban design, complex building relationships and intense site utilization in an urban setting. Studio may be taken in Charleston, Genoa, or Barcelona. Prq: LARCH 452.

LARCH 552 Landscape Architecture Exit Project 6(0,12) Studio work on student-selected professional level exit project including design/build project or substantive research project. Exit studio synthesizes and builds on skills developed throughout the Landscape Architecture program. Also provides opportunities for students to inquire into areas of interest not otherwise covered. Prq: LARCH 452.

LARCH 562 Landscape Architectural Technology IV 2(0,4) Studio course for the integration of design and technology. Prq: LARCH 462, professional standing. Coreq: LARCH 552.
LARCH 581 Landscape Architectural Professional Practice 3(3,0) Lectures dealing with general consideration of landscape architectural office procedures. Study of the professional relationships of the landscape architect to client and contractor including problems of ethics, law, and business. Prq: Professional standing or consent of instructor.

LANGUAGE

LANG 297 Creative Inquiry—Language 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. Arrangements with faculty members must be established prior to registration.

LANG 300 Introduction to Linguistics and Foreign Language Learning 3(3,0) Introduction to the field of linguistics, including the study of phonetics, phonology, morphology, syntax, and semantics. Includes discussion of issues pertaining to foreign language acquisition.

LANG 303 Study Abroad Transfer 3-6(3-6,0) Course for credit transfer of any course taken abroad during a department-approved study. Requires a minimum of two contact hours per week for at least 15 weeks or equivalent. Students may take a course outside their concentration. May be repeated for a maximum of six credits. To be taken Pass/Fail only. Prq: Consent of department chair.

LANG 340 Cosmopolis: The Myth of the City 3(3,0) Cross-cultural inquiry into the idea of the city through literary, political, and philosophical texts as well as film and architecture. Prq: Junior standing or consent of instructor.

LANG 342 Sacred and Profane Bodies 3(3,0) Cross-cultural inquiry into the ambivalence surrounding female sexuality implicit in images of women and, in particular, the division of women into “earthly” and “divine” categories. Prq: Junior standing or consent of instructor.

LANG 356 Faces of Evil 3(3,0) Cross-cultural inquiry into evil as an ineradicable challenge to representation disclosed by notions of the monstrous, the enemy, the infinite, and death in literature, cultural theory, and the arts. Prq: Junior standing or consent of instructor.

LANG (ANTH) 371 Language and Culture 3(3,0) Surveys key topics, theories, and methodological approaches in linguistic anthropology. Examines the complex relationships among language, culture, and communicative behavior and provides students with conceptual tools that inform the study of language in its cultural contexts.

LANG 397 Creative Inquiry—Language 1-4(1-4,0) Students focus on a special research area under the guidance of a faculty member. After acquiring the requisite background, students formulate hypotheses for a group project, develop a critical framework, and initiate research on a specific topic.

LANG 400, 600 Phonetics 3(3,0) Study of basic phonetic concepts used in the study of sounds in language.

LANG 420, H420 France and the Francophone World 3(3,0) Selected masterpieces of French and Francophone Culture are considered within their historical and cultural context. All readings and instruction are in English. No knowledge of the foreign language is required. May be repeated for a maximum of six credits. Prq: Sophomore standing or consent of department chair.

LANG 450 Risk and Danger 3(3,0) Cross-cultural inquiry into the meanings of risk and danger as they are articulated in various literary and philosophical texts and films about gambling, duels, bullfights, wilderness adventure, and smoking. Prq: Junior standing or consent of instructor.

LANG (ENGL) 454 Selected Topics in International Film 3(2,3) Presents subtitled films of specific world cultures and basic film theory and discourse applicable to the selected areas. Taught in English. May be repeated for a maximum of six credits with consent of department chair. Prq: ENGL 310 or consent of instructor.

LANG 455 Hispanic Film: Documentary and Feature 3(3,0) Overview of theory and discourse on Hispanic film. Through lectures, discussions, and films, students become acquainted with film as a vehicle for understanding the Hispanic World. Taught in English. Films are in Spanish with English subtitles. Prq: Sophomore standing or consent of department chair.

LANG 460 Propaganda and the Totalitarian Recreation of the World 3(3,0) Cross-cultural inquiry into the various languages (philosophical, political, literary, and filmic, among others) that form a crucial weapon in the striving for hegemony over desire that marks the modern totalitarian project. Prq: Junior standing or consent of instructor.

LANG 462 Borders 3(3,0) Cross-cultural inquiry into representations of physical and non-physical borders. Provides a theoretical framework in which various forms of borders, limits, and boundaries can be studied through literature and other artistic media. Prq: Junior standing or consent of instructor.

LANG (PO SC) 485, 685 Global Affairs and Governments 3(3,0) See PO SC 485.

LANG 497 Creative Inquiry—Language 1-4(1-4,0) Continuation of research initiated in LANG 397. Students complete their project and disseminate their research results. Prq: LANG 397 or consent of instructor.

LANG 499 Language Portfolio 2(2,0) Students create a digital portfolio to demonstrate competencies in reasoning, critical thinking, problem solving skills, cross-cultural awareness, ethical judgment, and to document a study abroad or internship experience. Course also serves as a resource for academic and professional development. To be taken Pass/Fail only.

LANGUAGE AND INTERNATIONAL HEALTH

Professors: C.R. Adams, G.E. Tissera, Director; Associate Professor: D.J. Smith

L&IH 127 Introduction to Language and International Health 1-4(1,0) Survey of international health and related career opportunities, focusing on the two distinct emphasis areas of the major: community development and health administration. To be taken Pass/Fail only.

L&IH 297 Creative Inquiry—Language and International Health 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. Arrangements with faculty members must be established prior to registration.

L&IH 397 Creative Inquiry—Language and International Health 1-4(1-4,0) Students focus on a special research area under the guidance of a faculty member. After acquiring the requisite background, students formulate hypotheses for a group project, develop a critical framework, and initiate research on a specific topic.

LANGUAGE AND INTERNATIONAL TRADE

Professors: P.R. Heusinkveld, Director, C.K. Nakuma, Associate Dean; Associate Professors: T. Kishimoto, M.M. Rojas-Masei, J. Schmidt, G.E. Tissera, Y. Zhang; Assistant Professor: E.R. Touya; Lecturers: C.S. Edwards, L.J. Ferrell, M. Zamora

L&IT 127 Introduction to Language and International Trade 1(1,0) Survey of the nature of international trade and related career opportunities. Information and applications of specific relevance to tourism, agriculture, and textile industries are offered. To be taken Pass/Fail only.

L&IT 297 Creative Inquiry—Language and International Trade 1-4(1,4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. Arrangements with faculty members must be established prior to registration.

L&IT 397 Creative Inquiry—Language and International Trade 1-4(1-4,0) Students focus on a special research area under the guidance of a faculty member. After acquiring the requisite background, students formulate hypotheses for a group project, develop a critical framework, and initiate research on a specific topic.
LAW 400 Language and International Trade Internship 1-3 Mandatory internship with an international company in the U.S. or abroad. May be part-time or full-time during the summer or academic semester for a minimum of 140 hours. After completing the internship, students register for three credits of L&IT 400 and write a research paper in the target language. To be taken Pass/Fail only. Prereq: CHIN 316, FR 316, GER 316, JAP 316 or SPAN 316; and twelve credit hours in a Language and International Trade technical option.

LAW 402 Language and International Trade Directed Study 3 Directed study of an individual project in language and international trade. To be taken Pass/Fail only.

L&IT 497 Creative Inquiry—Language and International Trade 1-4(1-4) Continuation of research initiated in L&IT 397. Students complete their project and disseminate their research results. Prereq: L&IT 397 or consent of instructor.

LATIN

LATIN 101 Elementary Latin 4(4) Course for beginners designed principally to teach the reading of the language.


LATIN 201 Intermediate Latin 3(3) Review of the fundamental principles of grammar in conjunction with readings from the Classical period. Prereq: LATIN 102 or equivalent.

LATIN 202 Intermediate Latin 3(3) Continuation of LATIN 201 with the introduction of writings from the late Latin and Medieval periods. Prereq: LATIN 201 or equivalent.

LEISURE SKILLS

L S 100 Selected Topics 1(0,3) Presentation of leisure skills not covered in other courses. May be repeated for a maximum of three credits, but only if different topics are covered. Prereq: Senior standing and consent of instructor.

L S 101 Challenge Recreation Activities 1(1) Encourages students to broaden their leisure skills and improve self-image through challenge activities. Classroom instruction stresses how to get started safely in flying, scuba, canoeing, skiing, windsurfing, mountaineering, hanggliding, ballooning, and other challenge activities. Prereq: Junior standing.

L S 102, H322 Legal Environment of Business 3(3) Examination of both state and national regulation of business. Attention is given to the constitution and limitations of power, specific areas in which governments have acted, and the regulations that have been imposed in these areas. Prereq: Junior standing.

L S 333 Real Estate Law 3(3) The nature of real property and means of acquiring rights therein: conveyance of ownership, creation and execution of deeds, mortgages, etc., landlord and tenant relationships, shared concepts, and government regulation.

L S 399 Internship in Legal Studies 1-3 Faculty-supervised legal internship to give students learning opportunities that support their classroom experiences. Requires a minimum of six full-time weeks. Course enrollment and internship must occur in the same semester. Simultaneous credit cannot be received for another internship offering. May be repeated for a maximum of three credits. To be taken Pass/Fail only. Prereq: Junior standing or consent of instructor.

LAW 405, 605 Construction Law 3(3) Provides a practical knowledge of legal principles applied to the construction process and legal problems likely to be encountered by practicing construction professionals. Topics include construction contracting, liability, claims and warranties, documentation, and responsibility and authority of contracting parties. Prereq: LAW 322 or consent of instructor.

LAW 406 Sports Law 3(3) Provides awareness of sport-related legal issues. Topics include contracts, torts, arbitration, mediation, criminal liability, intellectual property, gender equity, disabilities, drug testing, and professional and amateur organizations. Prereq: LAW 322, Senior standing.

LAW 420, 620 International Business Law 3(3) Intensive examination of the historical background of modern public and private international law; selected issues of public international law—human rights, law of war, United Nations’ system, and international litigation; selected issues of private international law—international sales, international trade, and formation and operation of multinational businesses. Prereq: LAW 322 or consent of instructor.

LAW 499 Selected Topics 1-3(1-3) Intensive examination of timely topics in legal studies. May be repeated for a maximum of six credits, but only if different topics are covered. Prereq: Senior standing and consent of instructor.

LAW 100 Selected Topics 1(0,3) Presentation of leisure skills not covered in other courses. May be repeated for a maximum of three credits, but only if different topics are covered. Prereq: Junior standing and consent of instructor.

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LEISURE SKILLS

Lecturer: D.M. Anderson

L S 100 Selected Topics 1(0,3) Presentation of leisure skills not covered in other courses. May be repeated for a maximum of three credits, but only if different topics are covered. Prereq: Junior standing and consent of instructor.

L S 101 Challenge Recreation Activities 1(1) Encourages students to broaden their leisure skills and improve self-image through challenge activities. Classroom instruction stresses how to get started safely in flying, scuba, canoeing, skiing, windsurfing, mountaineering, hanggliding, ballooning, and other challenge activities. Prereq: Junior standing.

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Courses of Instruction

L S 159 Hunting Traditions 1(0,3) Basic, hands-on instruction in the shooting sports (shotgun, rifle, and archery) and the sport of hunting. Designed to introduce students to the safe and responsible use of firearms and archery equipment and safe hunting practices. Students are required to complete the South Carolina Department of Natural Resources Hunter Education certification.

L S 161 Turkey Hunting 1(0,3) Exposes students to the skills, techniques, and history of turkey hunting. Students learn gun and hunting safety; shotgun, muzzleloading, and archery hunting techniques; tracking; and basic calling techniques.

L S 164 Whitewater Kayaking 1(0,3) Flat-water and whitewater skills, techniques, safety, rescue, equipment selection and maintenance, and selection of routes/trips to participate in basic white-water kayaking. Prereq: Basic swimming skills.

L S 165 Inland Kayak Touring 1(0,3) Introduction to basic skills necessary for safe enjoyment of flat-water (non-tidal waters: lakes, slow moving rivers) kayak touring. Students learn equipment selection, strokes, safety, and rescue techniques. Prereq: Demonstrated swimming competence.

L S 167 Canoeing 1(0,3) Basic instruction in the nomenclature, strokes, and safety techniques in canoeing. Prereq: Basic swimming skills.

L S 169 Sailing 1(0,1) Basic instruction in the nomenclature, safety and rescue techniques, and skills required to skipper sailing craft. Prereq: Basic swimming skills.

L S 171 Windsurfing 1(0,3) Basic windsurfing instruction including rigging, launching, tacking, jibbing, rig and foot steering, safety, maintenance, equipment selection, rules-of-the-road, and racing techniques are covered. Offered Fall Break and first summer session. There is an extra fee for this course. Prereq: Ability to swim 300 yards and tread water for five minutes.

L S 173 Bass Fishing 1(0,3) Provides basic knowledge and skills necessary to participate successfully in bass fishing.

L S 175 Fly Fishing 1(0,3) Introductory course in the techniques of fly-fishing. Students learn casting, fly-tying, and equipment selection.

L S 176 Beginning Fly Tying 1(0,3) The art of fly tying. Students learn basic fly tying techniques and gain a knowledge of materials and tools used in fly tying.

L S 177 Saltwater Fly Tying 1(0,3) Introduction to tying flies for saltwater applications of fly fishing.

L S 179 Scuba 1 1(0,3) Teaches basic open water diving techniques; prepares students to complete requirements for the open water diving certification. Certifications are granted by an internationally recognized and accepted certifying agency. Prereq: Swim test required by certifying agency.

L S 183 Introduction to Rugby 1(0,3) Introduces students to the sport of Rugby. Covers history of the game, rules, and skills such as passing, kicking, and decision making.

L S 185 Bowling 1(0,3) Basic instructional program on techniques of bowling.

L S 187 Frisbee Sports 1(0,3) Focuses on the rules, history, and skills necessary for participating in various frisbee sports. Heavy emphasis is placed on Ultimate Frisbee and Frisbee Golf.

L S 189 Tennis 1(0,3) Fundamental course stressing rules, strokes, and strategy, with ample opportunity for practice.

L S 194 Racquetball 1(0,3) Basic skills, knowledge of rules, strategy, and basic strokes.

L S 195 Intermediate Racquetball 1(0,3) Builds on knowledge gained in L S 194. Students learn advanced swing mechanics, game strategy, and other advanced skills. Prereq: L S 194 or equivalent skill.

L S 196 Introduction to Billiards 1(0,3) Introductory course in the history, rules, and skills necessary to participate in billiards. Students learn different types of games, proper shot techniques, and equipment selection.

L S 198 Golf 1(0,3) Fundamental course stressing rules, strategy, and basic strokes.

L S 199 Intermediate Golf 1(0,3) Builds on the knowledge gained in L S 198. Students learn to apply rules to common golf situations, improve ball striking, and course management. The skills and strategies taught are designed to improve existing golf scores. Prereq: L S 198 or equivalent skill.

L S 200 Traditional Sports 1(0,3) Introductory course in the history, rules, and skills necessary to participate in traditional sports. Students learn about and participate in basketball, volleyball, softball, and enneagolf. Prereq: Demonstrated swimming competence.

L S 202 Field Hockey 1(0,3) Introduces the fundamental skills, history, and rules of field hockey.

L S 203 Lacrosse 1(0,3) Introduces the fundamental skills, history, and rules of men’s and women’s lacrosse.

L S 204 Soccer 1(0,3) Introduces the history, rules, and fundamental skills of soccer.

L S 210 Learn to Dance 1(0,2) Students develop an understanding of the qualities of dance, recognize the importance of dance as a leisure pursuit, and learn to dance to difference types of music. Dances include shag, waltz, cha-cha, foxtrot, as well as current dance trends.

L S 211 Introduction to Belly Dance 1(0,2) Introduces students to the Middle Eastern belly dance. In addition to learning choreography and belly dance skills, students are introduced to the traditions and origins of Middle Eastern belly dance.

L S 214 Modern Dance 1(0,3) Introduction to modern dance techniques with emphasis on developing the style of movement and understanding the dance art form.

L S 216 Contra Dance 1(0,2) Introduces students to the social dance of Contra. Students learn the origin and history of Contra along with the basic dance steps and styles.

L S 218 Ballroom Dance 1(0,2) Students develop an understanding of advanced dance methods, learn about dance at social and competitive levels, and increase knowledge of a variety of both smooth and Latin steps. Dances include tango, cha-cha, waltz, foxtrot, and swing.

L S 219 Country Western Dance 1(0,2) Introduces traditional country western dance. Students learn traditional couples dances, line dances, and barn dances.

L S 220 Shag 1(0,2) Develops an understanding of the South Carolina state dance, its history and impact on the state. Students learn more advanced steps in shag, including bellyroll, sugarfoot, slide step, tip-toe up the ladder, pivot, and the thirteen steps.

L S 221 Intermediate Shag Dance 1(0,2) Builds on skills learned in L S 220. Students improve their ability to improvise, add style, and add many different moves to their dance vocabulary. Prereq: L S 220.

L S 222 Advanced Shag 1(0,2) Explores to a competition level of shag. Students learn to break down a dance routine and to choreograph short routines. Prereq: L S 221.

L S 227 Introduction to Swing Dance 1(0,2) Introduction to vintage swing dance created in the 1920s–1950s, including Charleston, Lindy Hop, Jitterbug, and optional acrobatic moves used in performance and competition.

L S 228 Intermediate Swing Dance 1(0,2) Builds on skills learned in L S 227 by improving students’ ability to improvise, add style, musicality, and many additional moves to add to their dance vocabulary. Prereq: L S 227.

L S 229 Advanced Swing Dance 1(0,2) Focuses on competition level and style of swing dance. Students learn to break down and teach a routine to beginners. Students also learn the skills necessary to create and choreograph a short routine. Prereq: L S 228 or consent of instructor.

L S 231 Bosu 1(0,3) Introduces the group aerobic style of Bosu, which concentrates on physical stability, core strength, and general fitness.

L S 232 Core Stability Training 1(0,3) Teaches fundamentals of core training. Students learn basic anatomy, proper strength training, and how to design a program to fit their fitness goals.

L S 233 Aerobic Dance 1(0,3) Instruction in the development of skills for the safe improvement and maintenance of cardiovascular fitness, flexibility, and muscle tone utilizing dance movements and techniques.

L S 235 Basic Yoga 1(0,3) Develops flexibility, strength, sensitivity, energy, and a sense of relaxation through the study of basic yoga postures, conscious breathing, and meditation techniques.

L S 236 Power/Ashtanga Yoga 1(0,3) Power/Ashtanga Yoga is a comprehensive workout based on the Eastern philosophy of K. Pattabhi. Students learn the eight limbs of this philosophy and the rigorous series of postures that produce a high power, athletic workout with the purpose of detoxifying impurities in the body.

L S 237 Kripalu Yoga 1(0,3) Great emphasis is placed on learning breath work techniques to combine directly with the various kripalu yoga postures. The goal is to teach individuals the physiological reactions produced by this type of yoga in developing and restoring health.

L S 238 Vinyasa Flow Yoga 1(0,3) Explores the energetic, fluid movement of Yoga postures in sync with conscious breathing. Students study creative sequences using classical as well as innovative and advanced Yoga postures. Prereq: L S 235 or consent of instructor.
L S 242 Meditation and Relaxation 1(0,2) Examines students to the benefits of relaxation and meditation techniques. Students learn different techniques used to relieve stress and promote relaxation.

L S 245 Pilates 1(0,3) Study of the history, philosophy, and fundamental movement concepts of Pilates.

L S 251 Running and Jogging 1(0,3) Introduces the various components important to improving overall fitness level through a running or jogging activity. Topics include proper stretching exercises, nutrition, workout program design, and proper running techniques.

L S 258 Self Defense 1(0,3) Basic physical defense that incorporates risk avoidance and awareness techniques with basic physical defense options.

L S 264 Aikido 1(0,3) Introduces the modern Japanese martial art of Aikido.

L S 266 Hapkido 1(0,3) Introduces the fundamental skills and techniques of the self-defense based Korean martial art of Hapkido.

L S 270 Sports Officiating 1(0,3) Practical study of officiating for various sports. Includes studies and practical application of officiating rules and mechanics. Sports studied include football, basketball, softball, soccer, and introductions to a variety of other team sports.

L S 275 Red Cross First Aid/CPR 1(0,3) Gives students the knowledge and skills necessary to prevent, recognize, and provide basic care for infants, children, and adults with injuries and sudden illness.

L S 276 First Aid/CPR for the Professional 1(0,2) This American Red Cross CPR/AED for the Professional Rescue course teaches those with a duty to act the skills needed to respond appropriated to breathing cardiac emergencies, including the use of an Automated External Defibrillator (AED) to care for a victim of cardiac arrest.

L S 277 Lifeguarding 1(0,3) Students gain the knowledge and skills to prevent, recognize and respond to emergencies and to provide care for injuries and sudden illness. Upon course completion, students receive a lifeguarding certification from the American Red Cross.

L S 278 Wilderness First Aid 1(0,2) This American Red Cross Wilderness First Aid with Adult CPR course provides individuals involved with wilderness activities with the knowledge and skills to prevent, recognize and provide basic care for injuries and sudden illness when more advanced help is not immediately available.

L S 291 Outdoor Leadership 1(0,3) Introduces the skills necessary to lead others in a backcountry environment. Focus is on wilderness travel skills, minimum impact, group dynamics, leadership skills and decision making. Course also includes certification in Wilderness First Aid.

L S 347 Advanced Alpine Skiing 1(0,3) Advanced downhill snow skiing instruction in such techniques as mogul skiing, check turns, free-style, and racing. There is an additional fee for course. Taught over Christmas break. Credit is awarded for spring semester. (Contact Department of Parks, Recreation and Tourism Management in October.) Preq: L S 147 or consent of instructor.

L S 389 Intermediate Tennis 1(0,3) Develops skills necessary to play at a competitive level of tennis. Students learn mechanically sound tennis skills, court positioning, court movement, proper shot selection, and strategic insight into the game. Preq: L S 189 or consent of instructor.

LIBRARY


LIB 100 Clemson Connect 0 Introduction to the learning environment at Clemson University. Includes instruction in information technology and information skills. To be taken Pass/Fail only.

LIB 199 Creative Inquiry—The Libraries 1(4-1,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

LIB 299 Creative Inquiry—The Libraries 1(4-1,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

LIB 301 Introduction to Patent Searching 1(1,0) Introduction to patents with an emphasis on how patents fit into the research process. Students develop skills in creating effective patent search strategies, and evaluating and presenting their search results.

LIB 399 Creative Inquiry—The Libraries 1(4-1,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

LIB 499 Creative Inquiry—The Libraries 1(4-1,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

MANAGEMENT


MGT 201, H201 Principles of Management 3(3,0) Management’s role as a factor of economic production. Functions of management, principles of organization, and behavior in organizations.

MGT 218 Management Personal Computer Applications 3(0,6) Personal computer applications that support managers. Students learn from hands-on work rather than lecture. To be taken Pass/Fail only.

MGT 297, H297 Creative Inquiry—Management 3(3-1,0) Students plan, develop, and execute a research project related to the field of management and present their findings. The development of the project includes lectures about research design, conduct, and data analysis. May be repeated for a maximum of six credits.

MGT 305 Economics of Transportation 3(3,0) Topics include history and structure of transportation systems in the United States, the nature of transportation costs and rates, transportation systems as factors in industrial location, transportation policy, and transportation’s role in national security. Preq: Junior standing.

MGT (ECON) 306 Managerial Economics 3(3,0) See ECON 306.

MGT 307, H307 Human Resource Management 3(3,0) Principles, concepts, and techniques concerned with effective and efficient utilization of personnel. Emphasizes motivation, leadership, and human behavior related to employer-employee relations. Topics include personnel recruitment, classification, selection, training, development, and performance evaluation. Preq: MTHSC 309 or equivalent.

MGT 310, H310 Intermediate Business Statistics 3(3,0) Quantitative methods of the management scientist with applications to business and industrial problems. Topics include regression analysis, correlation analysis, analysis of variance, sampling, and nonparametric methods. Credit toward a degree will be given for only one of MGT 310 or EXST 311. Preq: MTHSC 309 or equivalent.

MGT 312, H312 Decision Models for Management 3(3,0) Exploration of ways in which management science decision models can help in making sound managerial decisions. Problem solving is Excel-based. Topics include linear programming, project scheduling, and simulation. Preq: MTHSC 309 or equivalent.

MGT (E L E) 315 New Venture Creation II 3(3,0) Second of a two-part series examining entrepreneurship. Using opportunity analysis developed in MKT (E L E) 314, course focuses on designing and managing an organization capable of effectively pursuing the opportunity. Topics include organization strategy and design, start-up capital, operations and sourcing issues, leadership, team building, and management of rapid growth. Preq: MKT (E L E) 314.

MGT 317 Logistics Management 3(3,0) Management of physical distribution and supply systems with emphasis on design concepts, cost determinants, and performance evaluation.
MGT 318 Management of Information Systems 3(3,0) Introduction to information systems concepts and applications in business. Topics include software, hardware, decision support and knowledge-based systems, database, information systems design and implementation, and the management of information systems. Prereq: MGT 201 or consent of instructor.

MGT 390 Operations Management 3(3,0) Examines the role of operations management in both manufacturing and service organizations. Discusses the concepts, tools, and techniques for managing the operations function. Topics include operations strategy, design, planning, and control. Prereq: MTHSC 309 or equivalent.

MGT 398 Internship in Management 1-3 Faculty-supervised management internship to give students learning opportunities that support their classroom experiences. Requires at least 150 hours of internship work per credit hour received. Course enrollment and internship must occur in the same semester. May be repeated for a maximum of three credits. To be taken Pass/Fail only. Prereq: Junior standing, 2.0 cumulative grade-point ratio, consent of instructor.

MGT 400 Management of Organizational Behavior 3(3,0) Provides management students with a framework for understanding how behavior within business organizations is managed. Particular emphasis is on integrating management theory with recent developments in the behavioral sciences with distinct management applications. Theory, research, and business applications are considered. Prereq: MGT 201.

MGT 402, H402 Operations Planning and Control 3(3,0) Managing, planning, and controlling production and service operations emphasizing demand forecasting, aggregate planning, production scheduling, and inventory management. Prereq: MGT 390 or consent of instructor.

MGT 403 Special Problems 1-3(1-3,0) Students plan, develop, and execute a research project related to the field of management. May be repeated for a maximum of six credits. Prereq: Senior standing in Management, consent of instructor.

MGT 404 Advanced Statistical Quality Control 3(3,0) Statistical quality control techniques as applied to all areas of quality control: process control, process capability, acceptance sampling, and economic aspects of quality decisions. Prereq: MGT 390.

MGT 408 Lean Operations 3(3,0) Examines the use of scientific methods for the design of operating systems for both manufacturing and services. Special emphasis is on the development of the Toyota Production System for continuous improvement and the application of the relevant techniques to the design of facilities, jobs, and systems. Prereq: MGT 390.

MGT 411 Project Management 3(3,0) Examination and application of the project management body of knowledge. This consists of theory, tools, and techniques to organize, plan, and control individuals, teams, quality, and operations while conducting a project. Prereq: MTHSC 309 or equivalent.

MGT 412 Sourcing and Supplier Management 3(3,0) Provides an understanding of the key issues in selecting and developing suppliers. Provides a conceptual framework to understand purchasing’s function within the firm and its role in supply chain management. Prereq: MGT 390.

MGT 415, H415 Business Strategy 3(3,0) Capstone course for seniors. Various methods are used in analyzing complex business problems, requiring students to integrate their knowledge of all areas of business. Student participation and written and oral communications are stressed. Prereq: FIN 306 or 311; MGT 201; MKT 301; Senior standing.

MGT 416 Management of Human Resources 3(3,0) Recent developments in the management of human resources with emphasis on results of research into the motivation, development of potential, and full utilization of the human resources. Prereq: MGT 307, 400.

MGT 422 Small Business Management 3(3,0) Study of management of the small independently owned and operated business. Emphasizes analyzing new business opportunities, planning and establishing a growing concern, and managing the contemporary small business. Field experience in consulting with small businesses enhances students’ understanding of the unique opportunities and problems of small business organizations. Prereq: MGT 301 or consent of instructor.

MGT 423 International Business Management 3(3,0) Survey of theoretical and institutional complexities of international business operations. Topics include exporting, importing, foreign investment, multinational corporations, and international payment system. Prereq: Junior standing.

MGT 424 Global Supply Chain Management 3(3,0) Design, planning, control, and improvement of supply chains for competing effectively in the context of global operations. Topics include supply chain structure and configuration, approaches to intra-organizational and inter-firm integration, and complexities of material, information, and cash flows across international borders. Prereq: MGT 390 or consent of instructor.

MGT 425 Compensation Management 3(3,0) Examination of compensation employees seek in exchange for their efforts and contributions. Topics include government and union influences; job content analysis, description, and evaluation; developing pay structures; measuring and paying for performance; employee benefits; administration of the compensation plan; executive, managerial, professional, and sales. Prereq: MGT 307, 400.

MGT 427 Managing Continuous Improvement 3(3,0) Examination of issues related to continuous improvement, including a systematic approach to selecting improvement areas, determining how to improve, plan, and manage the improvement process. Topics include selecting performance measurements, using teams to achieve breakthrough change, identifying root causes of problems, and developing and implementing solutions to problems. Prereq: MGT 390 or consent of instructor.

MGT 430 Senior Seminar in Management 3(3,0) In-depth study of current business topics; allows senior Management students to relate their academic studies to real-world problems. Senior paper is required. May be repeated for a maximum of six credits, but only if different topics are covered. Prereq: Senior standing.

MGT 431 Employee Diversity, Rights, and Responsibilities 3(3,0) Focuses on employee and organizational rights and responsibilities. Topics include various types of discrimination (race, sex, religious, national origin, age, and disability status); drug and alcohol testing; AIDS in the workplace; employee discipline and termination issues; privacy and safety concerns; and union organizing campaigns. Prereq: MGT 307, 400.

MGT 435 Personnel Interviewing 3(3,0) Helps students understand current interviewing theory, conduct an employment interview, and advise their future employers how to improve interviewing programs. Topics include job analysis, legal issues, types of interviews, and evaluating applicants. Prereq: MGT 307, 400.

MGT 436 White-Collar Crime 3(3,0) White-collar crime and corruption are examined from a managerial perspective. Topics include financial crimes, crimes against consumers, environmental crimes, acts of institutional corruption, the impact of organized crime on legitimate businesses, and computer crime. Prereq: Senior standing; Coreq: FIN 306.

MGT (I E) 444 International Perspectives in Industrial Management 1-6(1-6,0) Provides an international perspective to industrial management via organized plant visits to businesses in a foreign country and lectures by and discussions with senior operations managers. Cultural visits and lectures are also organized to provide a holistic perspective to cover cultural and economic environment of the host country. Students are responsible for travel costs. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

MGT 452 Systems Analysis and Design 3(3,0) Follows the traditional systems development life cycle (SDLC), although alternative methodologies are also discussed. Focuses on earlier phases of the SDLC, from IS planning through specification of structured requirements and on the methods, techniques, and tools used to determine information requirements and their unambiguous documentation. Prereq: Junior standing.

MGT 454 Systems Implementation 3(3,0) Builds upon skills of programming, database, and systems analysis and design by involving students with the later phases of the systems development life cycle (SDLC). Students design and develop a system using various platforms. Focus is on the logical and physical system design. Prereq: CPSC 462 or equivalent, MGT 452.

MGT 455 Emerging Information Technology Trends in Business 3(3,0) In-depth study, through case studies, readings, and hands-on experience, of emerging information technologies in and across business organizations. Focuses on understanding, effective deployment, and impact of these technologies on business outcomes. Prereq: Junior standing.
MKT 456 Business Information Management 3(3,0) In-depth study, through case studies, readings, and hands-on experience, of decision support systems and related knowledge-based technologies. Focus is on organizational decision making and its data, information, and knowledge-based support systems. Preq: Junior standing.

MGT 490 Selected Topics in Industrial Management 3(3,0) In-depth examination of advanced topics in Industrial Management. Topics may vary in keeping with developments in the management profession and interests of faculty. Emphasizes the application of these topics to the production and operations management environment. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: MGT 402 or 404 or 408.

MGT 497, H497 Creative Inquiry—Management 1-3(1-3,0) Direct a research project related to the field of management and present their findings. The project includes lectures about research design, conduct, and data analysis. May be repeated for a maximum of six credits.

MKT 298 Creative Inquiry—Marketing 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of six credits.

MKT 301, H301 Principles of Marketing 3(3,0) Principles and concepts involved in planning, pricing, promoting, and distributing of goods and services. Preq: ECON 200 or 211 or 212; sophomore standing.

MKT 302 Consumer Behavior 3(3,0) Examination of selected individual and group behavioral science concepts and their application to the understanding of consumer decision making. Preq: MKT 301.

MKT (E L E) 314 New Venture Creation I 3(3,0) First in a two-part series that continues with MGT (E L E) 315 assessing entrepreneurial opportunities. Focuses on creativity, idea generation, market opportunity analysis, strategy, and methods of entry. Opportunity analysis may be developed into a full new venture plan in MGT (E L E) 315. Preq: Junior standing.

MKT 321 Sports Marketing 3(3,0) Exploration of the essentials of effective sports marketing. Topics include application of marketing principles in the sports area, licensing issues, sponsorships and endorsements, stadium and arena marketing, broadcasting and media considerations, public policy and sports, and unique marketing challenges for sport specific products (football, basketball, baseball, motorsports, etc.) Preq: MKT 301 or consent of instructor.

MKT H390 Junior Honors Research 1(1,0) Students select and complete a research project approved by a faculty advisor, in conjunction with an approved three-credit marketing course (other than MKT 301, H301, or 431). Students are expected to display a command of marketing theory and an ability to apply theory to their research. Preq: MKT 301 or H301, membership in Calhoun Honors College, consent of faculty member supervising research.

MKT 398 Creative Inquiry—Marketing 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of six credits.

MKT 399 Marketing Internship 3(0,9) Pre-approved, faculty-supervised marketing internships. Credit will only be given for internships of at least ten full-time, consecutive weeks with the same internship provider. Restricted to students with a major in Marketing. To be taken Pass/Fail only. Preq: MKT 301 and consent of instructor.

MKT 420 Professional Selling 3(3,0) Current theories about the selling of goods and services to organizational buyers in the context of long-term relationships. Role playing, videotaped presentations, and other techniques are generally employed to enhance interpersonal communication skills. Preq: Junior standing, MKT 301.

MKT 423, 623 Promotional Strategy 3(3,0) Emphasizes promotion as the communication function of marketing. Attention is given to communication theory and promotion’s relation to mass and interpersonal communication. Factors affecting promotional decision-making process are explored, and promotion as a competitive tool is examined. Preq: MKT 301 or consent of instructor.

MKT 424 Sales Management 3(3,0) Comprehensive examination of the planning, implementation, and control of professional sales organizations. Preq: MKT 301 and 420 or consent of instructor.

MKT 425 Retail Management 3(3,0) Retailing is studied from a decision-making approach. Topics include target market analysis, location analysis, merchandising, human resources, pricing and promotion. Preq: MKT 301 and 420, or consent of instructor.

MKT 426 Business-to-Business Marketing 3(3,0) Study and analysis of the unique aspects of marketing goods and services to organizational buyers rather than household consumers. Emphasis is on developing strategic responses to market opportunities given competitive behavior. Preq: MKT 301 or consent of instructor.

MKT 427, 627 International Marketing 3(3,0) Study of marketing from the international point of view. Emphasis is on the necessary modification of marketing thinking and practice for foreign markets due to individual environmental differences. Preq: MKT 301.

MKT 428, 628 Services Marketing 3(3,0) Exploration and study of the nature of service organizations and the principles that guide the marketing of their products. Emphasis is on a marketing mix that is fundamentally different than that found in traditional goods marketing. Preq: MKT 301 or consent of instructor.

MKT 429, 629 Public and Nonprofit Marketing 3(3,0) Examines the role and application of marketing in public and nonprofit settings. Focuses on a conceptual understanding of the marketing discipline and marketing processes and shows how basic concepts and principles of marketing are applicable to public and nonprofit organizations. Preq: MKT 301 or consent of instructor.

MKT 430, 630 Marketing Product Management 3(3,0) Management of the firm’s product or service offerings. Topics include new product screening, evaluation, and development; product line and mix analysis, abandonment decisions, brand manager’s role, new product development department, and others. Emphasis is on decision making. Preq: MKT 310, MKT 301; or consent of instructor.

MKT 431 Marketing Research 3(3,0) Research used in marketing decision making. Emphasizes methods and techniques used in planning, collection, processing, and utilizing information. Topics include research design, sources of information, questionnaire design, sampling, data collection, and data analysis. Preq: Marketing major; MKT 310; MKT 301; MTHSC 309 or equivalent.

MKT 433 Sport Marketing Strategy 3(3,0) Provides students with basic knowledge about brand management as it applies to sport. Addresses basic principles and guiding precepts of how sport-based organizations build strong brands. Preq: MKT 321 or consent of instructor.

MKT 434 Sport Promotion 3(3,0) Emphasizes the promotional function of sport. Topics include event sponsorship, developing media relationships, endorsements, promotion objective setting and budgeting, media planning and scheduling, and utilizing the tools of promotion within a sport context. Integrated Marketing Communication provides the theoretical and managerial framework for how these factors are utilized optimally. Preq: MKT 321, 423.

MKT 443 Advertising Strategy 3(3,0) Advertising strategy emphasizing knowledge of target audiences, along with the messages to communicate effectively with them. Foundations include knowledge, motivating, and changing behavior of target audience. Issues include models for decisions, tools for promotion, and integrated advertising plans. Preq: MKT 301.

MKT 445 Macromarketing 3(3,0) Examines the relationship between marketing and society, focusing on the social impact of marketing practices. Topics include technology, ethics, materialism, globalization, environmental sustainability, and the political and economic philosophy underlying marketing. Course is multidisciplinary and uses a variety of readings to cover each topic area. Preq: MKT 301 and junior standing, or consent of instructor.
Courses of Instruction

MS&E 450 Strategic Marketing Management 3(3,0)
Application of marketing constructs in analyzing and solving marketing problems. Emphasizes information systems, data analysis, and critical-thinking skills in solving marketing problems in a wide range of managerial decision areas, including, but not limited to, new product development, pricing, advertising, personal selling, promotion, and international marketing. Preq: Marketing major, MKT 301, six credits of 400-level marketing courses.

MS&E 490 Senior Honors Thesis Research 3(3,0)
Students, in consultation with a Marketing faculty member, choose a topic for the honors thesis and produce a research proposal that involves an imaginative approach to the subject, a sufficient literature review, a comprehensive introduction to the research topic, and a detailed research plan. Preq: MKT H390.

MKT 491 Senior Honors Thesis Writing and Presentation 3(3,0) Students implement their research plans, write up their reports, and present and defend their Senior Honors Theses to an audience of Marketing faculty, Honors students, and invited others. Preq: MKT H490.

MKT 495, 695 Selected Topics 3(3,0) In-depth examination of timely topics in marketing. May be repeated for credit, but only if different topics are covered. Preq: MKT 301 or consent of instructor.

MKT 498 Creative Inquiry—Marketing 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of six credits. Preq: MKT 301 and consent of instructor.

MKT 499 Independent Study 1-3(1-3,0) Directed readings or independent research in selected marketing areas. Topics must be selected and proposed by student. Proposals must be approved by instructor. May be repeated for a maximum of three credits. Preq: MKT 301 and consent of instructor.

MATERIALS SCIENCE AND ENGINEERING

MS&E 101 Materials Technology in Everyday Life 3(3,0) Introduces principles of materials science benefiting citizens. Students learn how to make intelligent choices about everyday materials and devices and present their informed opinions through class discussion and group projects involving controversial topics such as recycling, green manufacturing, and nanotechnology.

MS&E 201 Yarn Structures and Formation 4(3,3)
Study of fiber processing systems required to transform various fibrous materials into yarn. Involves the machine principles and theories, relationship of the fibers to the process and the resultant yarn structures, and subsequent analysis of the yarn structure to define quality and to determine suitable manufacturing practices. Preq: MS&E 250 or consent of instructor.

MS&E 202 Fabric Structures, Design, and Analysis 4(3,3) Study of fabric formation techniques designed to explore the principles and theories of modern technology. Evaluation and analysis of weaving, knitting, and nonwoven fabrication of textile structures. Preq: MS&E 201 or consent of instructor.

MS&E 210 Introduction to Materials Science 3(3,0) Introductory course in materials science designed primarily for engineering students. Studies the relation between the electrical, mechanical, and thermal properties of products and the structure and composition of these products. All levels of structure are considered from gross structures easily visible to the eye through electronic structure of atoms. Preq: CH 101, MTHSC 108, or consent of instructor.

MS&E 241 Metrics Laboratory 1(0,3)
Provides basic knowledge of statistical techniques and testing procedures used to evaluate materials. Includes sampling procedures, calculation of averages, confidence intervals, Weibull statistics, precision and accuracy to enable quality decision making. Coreq: MS&E 210.

MS&E 250 Polymer and Fiber Science I 3(3,0) Introduction to the broad fields of textile, fiber, and polymer science and engineering with emphasis on the scientific, technological, and business principles utilized in producing fibers, yarns, and fabrics; enhancing fabric functionality by dyeing, finishing, and printing; and establishing end-use products.

MS&E 251 Materials Science and Engineering Portfolio I 1(1,0) Introduces students to the concept of self-paced professional development throughout their plans of study. Each student is assigned a faculty member to act as mentor and advisor. Preq: Consent of instructor.

MS&E 300 Honors Seminar 1(1,0) Acquaints students enrolled in the Departmental Honors Program with current research issues in the profession. This assists students in preparing a research proposal for the Senior Thesis. To be taken Pass/Fail only. Preq: Junior standing, admission to departmental honors program.

MS&E 303 Textile Chemistry 3(3,0) Study of the properties and reactions of aliphatic and aromatic organic compounds. Emphasizes mechanistic interpretations and the development of synthetic schemes leading to polyfunctional compounds of the types encountered in the textile industry. Preq: CH 102, Coreq: MTHSC 206 or 207.

MS&E 319 Materials Processing I 3(3,0) Introduction into the principles underlying the processing/manufacturing of ceramic, polymeric, and metallic materials. Coreq: MS&E 210 or consent of instructor.

MS&E 324 Statistics for Materials Science and Engineering 3(3,0) Introduction to statistics with particular application to the material industry. Covers measures of central value and variation, probability, the normal curve, tests of hypotheses, elementary correlation, and regression. Preq: Sophomore standing or consent of instructor.

MS&E 326 Thermodynamics of Materials 3(3,0) Introduction to physical laws that govern the equilibrium products of chemical and thermal reactions. Covers the three laws of thermodynamics, phase equilibrium, energy requirements for reactions, material corrosion, and environmental stability. Preq: CH 102, MS&E 210, MTHSC 108, PHYS 221.

MS&E 327 Transport Phenomena 3(3,0) Kinetic aspects of mass, heat, and fluid transport as they relate to the processing and performance of materials. Coreq: MS&E 210, 326, MTHSC 208.

MS&E 328 Phase Diagrams for Materials Processing and Applications 3(3,0) Teaches students to use single component, binary, and ternary phase diagrams to analyze material processing routes and utilization. Considers reaction pathways by which material microstructure evolves and the relationship of reaction pathway to equilibrium phase diagrams. Also considers material interactions/ degradation during use. Preq: MS&E 326.

MS&E 342 Structure/Property Laboratory 20(0,6) Provides a basic understanding of how microstructure interrelationships and processes affect the physical properties of materials and how environmental effects modify structure and mechanical behavior of materials. Preq: MS&E 241.

MS&E 361 Processing of Metals and Their Composites 3(3,0) Examines the control of microstructure-property relationships in metallic materials and their composites through development and selection of innovative manufacturing methods. Coreq: MS&E 327.

MS&E H395 Honors Research 1-3(0,9) Individual research under the direction of a Ceramic and Materials Engineering faculty member. Coreq: MS&E 327, 328.

MS&E 402, 602 Solid State Materials 3(3,0) Discussion of the properties of solids as related to structure and bonding with emphasis on electronic materials. Band structure theory, electronic, and optical properties are treated. Preq: MS&E 326, MTHSC 208, PHYS 221.

MS&E 407 Senior Capstone Design 3(1,6) Work with industrial partners who have materials-related processes or product problems. Emphasizes interdisciplinary team approach and global perspective of products and problems. Incorporates critical thinking, group effectiveness, and problem solving with materials and processes. Collaborative efforts between industry and student academic teams are employed. Preq: E 384; Preq or Coreq: MS&E 441; or consent of instructor.

MS&E 413 Noncrystalline Materials 3(3,0) Study of the fundamentals of the noncrystalline state. Includes cooling kinetics and effects on formation as well as physical properties of noncrystalline substances in metallic, polymeric, and ceramic systems. Preq: MS&E 326; Coreq: MS&E 402.

MS&E 415, H415, 615 Introduction to Polymer Science and Engineering 3(3,0) Chemistry of monomers and polymers and the chemical and physical properties of polymers are discussed emphasizing fiber forming, synthetic polymers. Includes molecular characterization, structure, morphology, and mechanical properties as they relate to the design of polymer systems for end uses in textiles, geotextiles, plastics and fiber-reinforced composite materials. Preq: CH 201 and 330 or 224, or consent of instructor.

MS&E 416, 616 Electrical Properties of Materials 3(3,0) Covers a range of topics dealing with electrical and magnetic materials, including metal and polymer conductors, insulators, ceramic and polymer materials for dielectric applications, and ferroelectric, piezoelectric, pyroelectric, and electrorotopic materials. Metal and ceramic magnetic materials are also discussed.
Covers the microstructural basis of deformation and fracture in ceramic, metallic, and polymeric systems. Prep: C E 201, MTHSC 208 or consent of instructor.

MS&E 424, 624 Optical Materials and Their Applications 3(3,0) Introduces the interaction of materials with light. Specific topics include fundamental optical properties, materials synthesis, optical fiber and planar waveguides, and the componentry and systems-level aspects of optical communication systems. Prep: MS&E 402, 413.

MS&E 432 Manufacturing Processes and Systems 3(3,0) Plant layout and design for manufacturing of ceramic products. Emphasizes process control and verification of processing results. Includes adaptation of computers in process simulation/robotics and the use of programmable logic controllers and robotics in processing. Prep: MS&E 326.

MS&E 433 Combustion Systems and Environmental Emissions 3(3,0) Study of the application of burners, burner controls, firing atmospheres, hydrocarbon fuels, and other energy resources to industrial kilns, furnaces, and firing operations. Topics include energy resources, fuel chemistry, combustion analysis, ratio control systems, flow and pressure measurement and control, kiln atmosphere controls, industrial burners, and flames. Prep: MS&E 342.

MS&E 441 Practice of Materials Engineering 1(1,0) Students working in groups present and discuss practical, ethical, safety, business, and selected technical topics. Invited speakers discuss various aspects of the engineering world. To be taken Pass/Fail only. Prep: MS&E 432.

MS&E 450 Materials Science and Engineering Portfolio 2(2,0) Students working in groups present and discuss practical, ethical, safety, and business topics in the polymer and textile industries. Students are required to complete their electronic portfolios. To be taken Pass/Fail only.

MS&E 451 Materials Science and Engineering Portfolio II 1(1,0) Student continues self-paced professional development throughout the rest of his/her plan of study by working with the faculty member assigned to act as mentor and advisor. Prep: MS&E 251 and consent of instructor.

MS&E 455 Polymer and Fiber Laboratory 1(0,3) High molecular weight polymers are prepared from monomers, and their chemical and physical properties are measured as functions of critical end use parameters using instrumental and physical methods. Coreq: MS&E 415.

MS&E 456, 656 Polymer and Fiber Science II 3(2,3) Chemicals used in the preparation of fabric for dyeing and finishing. Oxidizing and reducing agents and their control and effect on various fibers. Colloidal and surface active properties of various compounds and the fundamental factors influencing these properties.

MS&E 457, 457, 457 Color Science 3(3,0) Understanding of physical, chemical, and mechanical principles behind the application of colors and finishes to textiles. Requires an appreciation of fiber chemistry and morphology, dye and finish structures and reactivity and mechanical principles behind equipment used to effect transfer of these chemicals onto the textile substrate.

MS&E 458, 658 Surface Phenomena in Materials Science and Engineering 3(3,0) Introduction to surface phenomena focusing on fiber science. Fundamentals of interfacial phenomena embrace thermodynamics of surfaces, physics of adhesion, wetting, and finishing emphasizing specific features associated with interactions of liquids and chemicals with fibers and fibrous materials. Prep: Junior standing in engineering or science.

MS&E 459 Color Science Laboratory 1(0,3) Introduction to common dying and printing methods and to some of the machinery necessary to carry out dyeing operations. Coreq: MS&E 457.

MS&E 460 Surface Phenomena in Materials Science and Engineering Laboratory 1(0,3) Covers finishing in addition to dyeing operations and their instrumental control. Coreq: MS&E 458.

MS&E 461, 461, 461 Polymer and Fiber Science III 3(2,2) Familiarizes students with the physical properties of textile and high performance fibers and how these properties influence process and end-use performance; method of measuring those properties and how those properties are related to structural features of the fiber.

MS&E 462, 662 Properties of Textile Structures 3(2,2) Yarn and fabric properties, their scientific significance and analysis. Dimensional, structural, and mechanical interrelationships are established and evaluated.

MS&E 464, 464, 464 Nonwoven Structures 3(2,2) Nonwoven fabric structures, their manufacture, properties, and applications. Methods of nonwoven fabric formation, resultant material characteristics and end-use applications are examined. Prep: MS&E 201.

MS&E 490, 490, 490 Selected Topics in Materials Science and Engineering 1-3(1,3,0) Study of topics not ordinarily covered in other courses. Taught as the need arises. Typical topics could include current research in a specific area or technological advances. May be repeated for a maximum of six credits, but only if different topics are covered. Prep: Consent of instructor.

MS&E 491 Undergraduate Research 1-3(0,2-6) Investigation of a typical materials science and engineering problem under the direct supervision of a faculty member. After completing the research, students prepare a formal written and oral report. Prep: Consent of instructor.

MS&E H495 Honors Research II 3(0,9) Individual research under the direction of a Ceramic and Materials Engineering faculty member. Prep: MS&E H395.

MS&E H497 Honors Thesis 1(1,0) Preparation of honors thesis based on research conducted in MS&E H395 and H495. Prep: MS&E H495.

MATHLETIC SCIENCES


MTHSC 101 Essential Mathematics for the Informed Society 3(3,0) Topics include logic and computers, probability and statistics, and financial mathematics. Specific topics include Boolean algebra, digital data formats, randomness, graphical representation of data, inference and estimation; interest, annuities, and amortization. Not open to students who have received credit for MTHSC 301, 302, 309, or EX ST 301. Prep: Satisfactory score on the Clemson Mathematics Placement Test or consent of department.

MTHSC 102 Introduction to Mathematical Analysis 3(3,0) Intuitive approach to the concepts and applications of calculus. Topics include functions and graphing, differentiation, and integration. Applications from social, biological, and management sciences are presented. Not open to students who have received credit for MTHSC 106. Prep: Satisfactory score on the Clemson Mathematics Placement Test or consent of department.

MTHSC 103 Elementary Functions 3(2,2) Gateway course for MTHSC 106. Comprehensive treatment of functions and analytic geometry with applications including polynomial, rational, algebraic, exponential, logarithmic, and trigonometric functions. Not open to students who have received credit for MTHSC 105. To be taken Pass/Fail only. Prep: MTHSC 104 or satisfactory score on the Clemson Mathematics Placement Test.

MTHSC 104 Precalculus and Introductory Differential Calculus 4(4,0) Relevant precalculus and algebra review, limits, continuity and introduction to differential calculus. The combination of MTHSC 104 and MTHSC 107 covers the same calculus material as MTHSC 106. MTHSC 104 alone cannot be substituted for any calculus course. To be taken Pass/Fail only. Not open to students who have received credit for MTHSC 106. Prep: MTHSC 103, 105, 199, or satisfactory score on Clemson Mathematics Placement Test or consent of department.
Courses of Instruction

MTHSC 105 Precalculus 5(4,2) Extensive treatment of topics chosen to prepare students for the study of calculus. Special emphasis is given to polynomial, rational, exponential, logarithmic, and trigonometric functions and their graphs, as well as basic and analytic trigonometry. Students who have received credit for any other mathematical sciences course will not be allowed to enroll in or receive credit for MTHSC 105. To be taken Pass/Fail only.

MTHSC 106, H106 Calculus of One Variable I 4(4,0) Topics include analytic geometry, introduction to derivatives, computation and application of derivatives, integrals, exponential and logarithm functions. Preq: MTHSC 103 or 105 or satisfactory score on the Clemson Mathematics Placement Test or consent of department.

MTHSC 107 Differential and Integral Calculus 4(4,0) Continuation of MTHSC 104. Successful completion of MTHSC 104 and MTHSC 107 is equivalent to the completion of MTHSC 106. Continuation of differential calculus and an introduction to integral calculus. Not open to students who have received credit for MTHSC 106. Preq: MTHSC 104.

MTHSC 108, H108 Calculus of One Variable II 4(4,0) Topics include transcendental functions, applications of integration, integration techniques, indefinite forms, improper integrals, parametric equations, polar coordinates, and infinite series. Preq: MTHSC 106.

MTHSC 111 Calculus II for Biologists 4(4,0) Selected topics from integral calculus, eigenvalues and eigenvectors of matrices and differential equations are used to encourage the use of mathematics, computational tool and biological science in the study of relevant biological models. Credit toward a degree will be given for only one of MTHSC 108 and MTHSC 111. Preq: MTHSC 106.

MTHSC 115 Contemporary Mathematics for Elementary School Teachers I 3(3,0) Cooperative learning groups, manipulatives, and concrete models are used to demonstrate logical reasoning, problem-solving strategies, sets and their operations, numerication systems, properties and operations of whole numbers, number theory, prime and composite numbers, divisibility, common factors and multiples. Open to Elementary, Early Childhood, and Special Education majors only. Preq: MTHSC 104 or satisfactory score on the Clemson Mathematics Placement Test.

MTHSC 116 Contemporary Mathematics for Elementary School Teachers II 3(3,0) Continuation of MTHSC 115. Manipulatives and concrete models are used for properties, operations, and problem solving for integers, elementary fractions, rational numbers, and real numbers. Selected topics in statistics and probability are introduced with a hands-on approach to learning. Restricted to Elementary, Early Childhood, and Special Education majors. Preq: MTHSC 115 or consent of instructor.

MTHSC 117 Mathematics for Elementary School Teachers I 3(2,2) Problem-solving strategies, logic, algebraic thinking, sets, relations, functions, numerication systems, whole numbers, integers, number theory, fractions, decimals, applications of percent, real numbers with their computational algorithms and properties are explored. Content, according to state standards, is taught with appropriate methodology for teaching K–6. Preq: MTHSC 101.

MTHSC 118 Mathematics for Elementary School Teachers II 3(2,2) Simple probability and descriptive statistics are reviewed. Two- and three-dimensional geometry including polygons, polyhedra and their properties; congruence, similarity, and constructions; coordinate system; standard measurement, area, surface area, volume; and motion geometry are explored. Content, according to State standards, is taught with appropriate methodology for teaching K–6. Preq: MTHSC 101.

MTHSC 119 Introduction to Discrete Methods 3(3,0) Topics normally include elementary logic and methods of proof; sets, functions, and relations; graphs and trees; combinatorial circuits and Boolean algebra. Preq: Satisfactory score on the Clemson Mathematics Placement Test or consent of department.

MTHSC 129 Problem Solving in Discrete Mathematics 3(2,2) Problem-solving approach to learning mathematics is applied to topics in modern discrete mathematics. Typical selection of topics includes logic and proof, sets, relations, functions, mathematical induction, graphs and trees, counting techniques, recurrence equations. For Bachelor of Science and Bachelor of Arts majors in Mathematical Sciences only. Credit may not be received for both MTHSC 119 and 119. Preq: MTHSC 106.

MTHSC 199 Problem Solving in Mathematics 3(2,2) Functions and graphs, mathematical modeling, and applications. Applications from management and life and social sciences are presented. Specific topics include linear, quadratic, polynomial, exponential, and logarithmic functions with emphasis on problem solving. Students who have received credit for any other mathematics courses will not be allowed to enroll in or receive credit for MTHSC 199. To be taken Pass/Fail only.

MTHSC 203 Elementary Statistical Inference 3(3,0) Data-based course in statistical methodology: collecting and summarizing data, the normal distribution, one and two sample inference on means and proportions, simple linear regression, analysis of categorical data. May not be taken for credit by students who have passed MTHSC 301, 302, 309, or EX ST 301. Preq: Satisfactory score on the Clemson Mathematics Placement Test or MTHSC 101 or consent of department.

MTHSC 206, H206 Calculus of Several Variables 4(4,0) Topics include real valued functions of several variables, multiple integration, differential calculus of functions of several variables, vector field theory. Preq: MTHSC 108.

MTHSC 207 Multivariable Calculus 3(3,0) Introduction to the calculus of several variables, differential calculus and optimization of several variables, multiple integrals. Topics from the management sciences are used to illustrate the above concepts. May not be taken by students who have passed MTHSC 206. Preq: MTHSC 102, or 106 with consent of instructor.

MTHSC 208, H208 Introduction to Ordinary Differential Equations 4(4,0) Introduction to the study of differential equations and their application to physical problems. Topics include exact, series, and numerical solutions; solutions by means of Laplace transforms; and solutions of systems of differential equations. Preq: MTHSC 206.

MTHSC 210 Applied Matrix Algebra 3(3,0) Introduction to the basic principles of matrix algebra with applications to the behavioral and managerial sciences. Major areas of application include linear programming, directed graphs, and game theory. Preq: MTHSC 101 and 102 or 106.

MTHSC 216 Geometry for Elementary School Teachers 3(3,0) Informal treatment of the basic concepts of geometry. Open to Elementary, Early Childhood, and Special Education majors only. Preq: MTHSC 116 or consent of instructor.

MTHSC 250 Introduction to Mathematical Sciences 1(1,0) Introduction to areas of study, degree options, career choices, and professional development in mathematical sciences. Includes guidelines and requirements for portfolio development and an introduction to ethical issues.

MTHSC 299 Creative Inquiry—Mathematical Sciences 1-3(1-3,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of three credits.

MTHSC 301, H301 Statistical Methods I 3(3,0) Principal topics include collecting and summarizing data, probability distributions, inferences about central values and variation, analysis of categorical data, simple linear regression, basic experimental designs, and the analysis of variance. Credit toward a degree will be given for only one of MTHSC 301, 302, 309, EX ST 301. Preq: MTHSC 106 or 207 or 210.

MTHSC 302 Statistics for Science and Engineering 3(3,0) Methodology for collecting, organizing, and interpreting data. Topics include understanding variability, graphical and numerical summarization of data, introductory probability, normal and related distributions, statistical inference, experimental design, simple linear regression. Statistical microcomputer software is used. Credit toward a degree will be given for only one of EX ST 301, MTHSC 301, 302, 309. Preq: MTHSC 206.

MTHSC 308 College Geometry 3(3,0) Theorems and concepts more advanced than those of high school geometry. Treatment of the various properties of the triangle, including the notable points, lines, and circles associated with it. Preq: MTHSC 106.
MTHSC 309 Introductory Business Statistics 3(3,0)
Introductory probability and statistics for business students, particularly those who will take MGT 310. Topics include descriptive statistics, probability, expectations, binomial, normal, sampling distributions, one and two sample estimation and testing. Credit toward a degree will be given for only one of EX ST 301, MTHSC 301, 302, 309. Prq: MTHSC 106 or 207 or 210.

MTHSC 311, H311 Linear Algebra 3(3,0)
Introduction to the algebra of matrices, vector spaces, polynomials, and linear transformations. Prq: MTHSC 108 or consent of instructor.

MTHSC 315 Advanced Topics in Mathematics for Elementary Teachers 3(3,0)
Course builds and expands upon content from previous elementary mathematics courses. Covers investigation of two- and three-dimensional shapes; scale and scale factor; ratio and proportional reasoning; relationships between perimeter, area, surface area and volume; relationships between fractions, decimals, and percents. Prq: MTHSC 115, 116, and 216.

MTHSC 316 Problem Solving for Mathematics Teachers 3(3,0)
Course emphasizes problem solving and builds and expands upon previous mathematics content courses by examining connections between number and operations; algebra; data analysis and probability; geometry; and measurement. Prq: MTHSC 115, 116, and 216.

MTHSC 360 Intermediate Mathematical Computing 3(3,0)
Intermediate-level introduction in using computers to solve problems in the mathematical sciences. Fundamental concepts of procedural programming including flow control, modular construction, primitive data structures, recursion, and graphics are applied to problems in applied mathematics, probability, statistics, discrete mathematics, and operations research. Prq: MTHSC 108.

MTHSC 365 Numerical Methods for Engineers 3(3,0)
Application of undergraduate mathematics and basic engineering principles with emphasis on numerical methods, computer programming and the use of mathematical software packages in the solution of engineering problems. Prq: ENGR 141; and MTHSC 208 or concurrent enrollment.

MTHSC H382 Honors Seminar 1(1,0)
Weekly seminar to prepare students in Departmental Honors Program for independent senior research. At the end of the second semester, each student must have identified a research topic and a faculty advisor. May be repeated for a maximum of two credits. Prq: Junior standing in departmental honors program.

MTHSC 399 Creative Inquiry—Mathematical Sciences 1-3(1-3,0)
In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of three credits.

MTHSC 400, H400, 600 Theory of Probability 3(3,0)
Principal topics include combinatorial theory, probability axioms, random variables, expected values; special discrete and continuous distributions, jointly distributed random variables, correlation, conditional expectation, law of large numbers, central limit theorem. Prq: MTHSC 206 or consent of instructor.

MTHSC 403, H403, 603 Introduction to Statistical Theory 3(3,0)
Principal topics include sampling distributions, point and interval estimation, maximum likelihood estimators, method of moments, least squares estimators, tests of hypotheses, likelihood ratio methods, regression and correlation analysis, introduction to analysis of variance. Prq: MTHSC 400 or equivalent.

MTHSC 405, H405, 605 Statistical Theory and Methods II 3(3,0)
Principal topics include simple linear regression, multiple regression and correlation analysis, one-way analysis of variance, multiple comparison, multifactor analysis of variance, experimental design. Computation and interpretation of results are facilitated through the use of statistical computer packages. Prq: MTHSC 301.

MTHSC 406, H406 Sampling Theory and Methods 3(3,0)
Probability-based treatment of sampling methodology. Theory and application of estimation techniques are treated using simple and stratified random sampling, cluster sampling, and systematic sampling. Prq: MTHSC 302 and 400, or consent of instructor.

MTHSC 407, H407 Regression and Time-Series Analysis 3(3,0)
Theory and application of the regression and time series. Approaches to empirical model building and data analysis are treated. Computation and interpretation of results are facilitated through the use of interactive statistical packages. Prq: MTHSC 302, 311, 400; or consent of instructor.

MTHSC 408, H408 Topics in Geometry 3(3,0)
Introduction to topics in special geometries which include non-Euclidean space concepts such as projective geometry, finite geometries, and intuitive elementary topology. Brief introduction to vector geometry. Prq: MTHSC 206.

MTHSC 410 Number Theory 3(3,0)
Introduction to theory of integers and related number systems. Topics include historical development, principle of mathematical induction, divisibility, primes, congruences, number-theoretic functions, primitive roots, quadratic residues, and diophantine equations. Prq: MTHSC 108 or consent of instructor.

MTHSC 412, H412, 612 Introduction to Modern Algebra 3(3,0)
Introduction to the concepts of algebra. Topics include the number system and the elementary theory of groups, rings, and fields. Prq: MTHSC 311.

MTHSC 419, H419, 619 Discrete Mathematical Structures I 3(3,0)
Applies theoretical concepts of sets, functions, binary relations, graphs, Boolean algebra, propositional logic, semigroups, groups, homomorphisms, and permutation groups to computer characteristics and design, words over a finite alphabet and concatenation, binary group codes, and other communication or computer problems. Prq: MTHSC 311.

MTHSC 430 Actuarial Science Seminar I 1(1,0)
Problem-solving seminar to prepare students for the Society of Actuaries' Exam P or the Casualty Actuarial Society's Exam 1 (Probability). Prq: MTHSC 400 or consent of instructor.

MTHSC 431 Theory of Interest 3(3,0)
Comprehensive treatment of the theory of interest including from a calculus-based continuous viewpoint. Topics include simple and compound interest and discount, nominal and effective rates, force of interest, basic and general annuities, yield rates, amortization and sinking funds, and applications to bonds, mortgages, and other securities. Prq: MTHSC 206.

MTHSC 432 Actuarial Science Seminar II 1(1,0)

MTHSC 434, H435, 635 Advanced Engineering Mathematics 3(3,0)
Fourier series, Laplace and Fourier transform, and numerical methods for solving initial value and boundary value problems in partial differential equations are developed. Applications to diffusion wave and Dirichlet problems are given. Matrix methods and special functions are utilized. Prq: MTHSC 208.

MTHSC 435, H435, 635 Complex Variables 3(3,0)
Elementary functions; differentiation and integration of analytic functions; Taylor and Laurent series; contour integration and residue theory; conformal mapping; Schwartz-Christoffel transformation. Prq: MTHSC 206.

MTHSC 440, H440, 640 Linear Programming 3(3,0)
Introduction to linear programming covering the simplex algorithm, duality, sensitivity analysis, network models, formulation of models, and the use of simplex codes to solve, interpret, and analyze problems. Prq: MTHSC 206, 311, or consent of instructor.

MTHSC 441, H441, 641 Introduction to Stochastic Models 3(3,0)
Introductory treatment of stochastic processes, finite-state Markov chains, queueing, dynamic programming, Markov decision processes, reliability, decision analysis, and simulation. Both theory and applications are stressed. Prq: MTHSC 400.

MTHSC 450 Introduction to Mathematical Models 3(3,0)
Includes a study of the modeling process and examples of existing models chosen from physical, biological, social, and management sciences, depending on the instructor. Written and oral report is required for at least one of the models studied. May be repeated for a maximum of six credits. Prq: MTHSC 302, 360, 440, or consent of instructor.

MTHSC 453, H453, 653 Advanced Calculus I 3(3,0)
Limits, continuity, and differentiation of functions of one and several variables, the Riemann integral, and vector analysis. Prq: MTHSC 206.

MTHSC 454, H454, 654 Advanced Calculus II 3(3,0)
Continuation of MTHSC 453. Transformations, multiple integrals, line and surface integrals, infinite sequences and series, and improper integrals. Prq: MTHSC 453.
MECHANICAL ENGINEERING


M E 200 Sophomore Seminar 1(1,0) Seminars address the Mechanical Engineering program, the profession, best student practices, and career paths. Invited presenters and faculty provide lectures and demonstrations. Preq: M E 201 (or concurrent enrollment).

M E 201 Statics and Dynamics for Mechanical Engineers 5(3,4) Vector analysis of the effects of forces, couples, and force-systems on rigid bodies. Conditions of static equilibrium for simple structures, including pulleys, trusses, beams, frames. Kinematics and kinetics of general rigid body motion in 2-D. Applications of Newton’s laws, energy methods, and impulse momentum methods to simple machine elements. Preq: MTHSC 206 or 207 and 360 or equivalent.

M E 202 Foundations of Mechanical Systems 3(3,0) Introduction to basic physical elements of mechanical engineering systems. Problem solving, design, and resourceful application of mathematics and general principles from students’ science courses are emphasized throughout. Preq: M E 201 and 222 (or concurrent enrollment).


M E 222 Mechanical Engineering Laboratory I 2(0,6) Discovery of mechanical engineering principles and phenomena. Introduction to laboratory safety practices, instrumentation, calibration techniques, data analysis, and report writing. Introduction to basic manufacturing processes. Preq: PHYS 122 and 124.

M E H300 Junior Honors Seminar 0 Acquaints students enrolled in Departmental Honors Program with current research activities in the Department of Mechanical Engineering. Faculty provide seminars in which research interests are summarized. These seminars are planned to prepare students in choosing a research topic for the senior thesis. Preq: Junior standing in departmental honors program.

M E 302, H302 Mechanics of Materials 3(3,0) Relationships between external loads on solid bodies or members and the resulting internal effects and dimension changes, including the derivation of rational formulas for stresses and deformations and the identification and use of important mechanical properties of engineering materials. Preq: M E 201, M E 303, M S&E 210, MTHSC 206. Coreq: MTHSC 208.

M E 303 Thermodynamics 3(3,0) Study of the second law and entropy. Includes applications to fixed mass systems and control volumes; vapor and gas power cycles; mixtures of gases; vapor psychrometrics; combustion and the third law. Thermochemical equilibrium. Preq: M E 203.


M E 306 Fundamentals of Machine Design 3(3,0) Introduction to failure theory, fatigue analysis, and energy methods for deflection analysis. Integration of these topics with selected portions of mechanics of materials and application of them to the design and analysis of machine elements. Preq: M E 202, 302.

M E 308, H308 Fluid Mechanics 3(3,0) Behavior of fluids at rest or in motion, including the study of fluid properties. Emphasizes a rational, analytical approach from which are developed basic principles of broad applicability to all fields of engineering. Preq: M E 201, 203, MTHSC 208 (or concurrent enrollment).

M E 310 Thermodynamics and Heat Transfer 3(3,0) Introduction to thermodynamics and heat transfer for nonmajors: properties of liquids and gases, first and second law analysis, introduction to cycles for power and refrigeration, heat flow by conduction and radiation, and convective heat flow and heat exchangers. Preq: Junior standing in an engineering curriculum.

M E 312 Manufacturing Processes and Their Application 3(3,0) Fundamental principles associated with production processes and their application to the manufacture of products from metals, polymers, ceramics, and composites. Emphasizes the physical and quantitative aspects of processing, the selection of processes to create products, and the identification processes used to manufacture existing products. Preq: M E 304 (or concurrent enrollment), 306 (or concurrent enrollment), 333 (or concurrent enrollment).

M E 333 Mechanical Engineering Laboratory II 2(0,6) Mechanical engineering principles and phenomena are reinforced through student conducted experiments. Presentation of fundamentals of instrumentation, calibration techniques, data analysis, and report writing in the context of laboratory experiments. Preq: MTHSC 208, M E 203, 222.

M E 400 Senior Seminar 1(1,0) Seminars address the problems encountered by engineering graduates in professional practice. Invited lecturers as well as faculty provide the lectures and demonstrations. Preq: All required 300-level M E courses.

M E 401 Mechanical Engineering Design 3(3,0) Project-oriented course in mechanical engineering emphasizing the role of analysis, synthesis, and evaluation in design and on written reporting of design solutions. Influence of economics and optimization, concurrent development, integration of design and manufacturing, and system creation are utilized for engineering design decisions. Preq: ENGL 314; M E 303, 304, 305, 306 (Concurrent enrollment in one of these M E courses is permitted.) Coreq: M E 312.
M E 402 Internship in Engineering Design
3(1,6) Creative application of general engineering knowledge in solving an open-ended design problem provided by a sponsor typically external to the University. Progress is evaluated by a faculty sponsor. Students present results to the faculty and sponsor through written reports and oral presentations addressing University written/oral competency goals. Prereq: All required 300-level M E courses, M E 401.

M E 403 Control and Integration of Multidomain Dynamic Systems 3(3,0) Introduction of control theory with sensor, actuator, and dynamic plant integration to develop, model, control, and analyze mathematical models of dynamic systems, including mechanical, electrical, electromechanical, hydraulic and pneumatic systems. Transient dynamics are determined using analytical and numerical methods with feedback control systems. Strong emphasis is placed on system design using computer simulation tools. Prereq: M E 305.

M E 405 Kinematics and Dynamics of Machinery I 3(3,0) Graphical, analytical, and numerical techniques are used in the dynamic analysis and synthesis of machines. Emphasis is on the application of these analysis techniques to planar linkages. Prereq: M E 202, 302.

M E 407, 607 Applied Heat Transfer 3(3,0) Application oriented extension of M E 304, considering topics in transient conduction, flow of fluids, energy exchange by radiation, and mass transfer. Applications in heat-exchanger design with emphasis on economics and variation of operating conditions from the design point. Prereq: M E 304, consent of instructor.

M E 415, H415 Undergraduate Research 1-3 Individual research projects conducted under the direct supervision and guidance of a faculty member. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

M E 416, 616 Control of Mechanical Systems 3(3,0) Physical modeling and feedback principles are presented for control of mechanical systems. Transient response, root locus, and frequency response principles are applied to the control of basic mechanical systems such as electric motors, fluid tanks, or thermal processes. PID control laws are emphasized. Prereq: M E 305.

M E 417, 617 Mechatronics System Design 3(2,3) Mechatronics integrates control, sensors, actuators, and computers to create a variety of electromechanical products. Includes concepts of design, appropriate dynamic system modeling, analysis, sensors, actuating devices, and real time microprocessor interfacing and control. Laboratory experiments, simulation, and design projects are used to exemplify the course concepts. Prereq: M E 305 or consent of instructor.

M E 418 Finite Element Analysis in Mechanical Engineering Design 3(2,3) Introduction to the finite element method and solid modeling, finite element modeling and analysis using commercial codes; analysis strategies using finite elements; applications to heat transfer, fluid flow, and structures. Prereq: M E 302, 304, 308, or consent of instructor.

M E 420, 620 Energy Sources and Their Utilization 3(3,0) Covers availability and use of energy sources such as fossil fuels, solar (direct and indirect), and nuclear; addresses energy density and constraints to use (technical and economic) for each source. Prereq: M E 303, 304.

M E 421, 621 Introduction to Compressible Flow 3(3,0) Introductory concepts to compressible flow; methods of treating one-dimensional gas dynamics including flow in nozzles and diffusers, normal shocks, moving and oblique shocks, Prandtl-Meyer Flow, Fanno Flow, Rayleigh Flow, and reaction propulsion systems. Prereq: M E 303, 308.

M E 422, 622 Design of Gas Turbines 3(3,0) Guiding principles in gas turbine cycles are reviewed. Turbine and compressor design procedures and performance prediction for both axial and radial flow machines are presented. Methods of design of rotary heat-exchangers and retrofitting gas turbine for regenerative operation are presented. Design projects are used to illustrate the procedures. Prereq: M E 308.

M E 423, 623 Introduction to Aerodynamics 3(3,0) Basic theories of aerodynamics are presented for the purpose of accurately predicting the aerodynamic forces and moments which act on a vehicle in flight. Prereq: M E 308.

M E 426 Nuclear Energy 3(3,0) Engineering methods and science principles are considered for the design of components to nuclear power stations. A systems level understanding is emphasized. Includes nuclear fuel cycle and regulatory considerations. Prereq: M E 303, 304 or consent of instructor.

M E 429, 629 Thermal Environmental Control 3(3,0) Mechanical vapor compression refrigeration cycles, refrigerants, thermoelectrical cooling systems, cryogenics, thermodynamic properties of air, psychometric charts, heating and cooling coils, solar radiation, heating and cooling loads, insulation systems. Prereq: M E 303, 308.


M E 431 Applied Fluids Engineering 3(3,0) Applications-oriented course in industrial fluids engineering, primarily directed toward the analysis and design of piping systems and components for liquid and gas flow. Topics include friction factors, head loss, flow capacities, piping networks, flow measurement, pumps, control valves, and hydraulic and pneumatic components. Prereq: M E 308, 333.

M E 432, 632 Advanced Strength of Materials 3(3,0) Topics in strength of materials not covered in M E 302. Three-dimensional stress and strain transformations, theories of failure, shear center, unsymmetrical bending, curved beams, and energy methods. Other topics such as stress concentrations and fatigue concepts are treated as time permits. Prereq: M E 302.

M E 440 Materials for Aggressive Environments 3(3,0) Emphasizes the engineering aspects of selecting materials for applications in aggressive environments. Various types of materials degradation are discussed as are methods for wastage prevention, including especially engineering design and materials selection approaches. Structural metallic alloys are emphasized; however, technically important ceramics and polymers are also discussed. Prereq: M E 306.

M E 444 Mechanical Engineering Laboratory III 3(1,6) Continuation of M E 333. Mechanical engineering principles and phenomena are reinforced through student-conducted experiments. Presentation of fundamentals of instrumentation, calibration techniques, data analysis, and report writing in the context of laboratory experiments. Prereq: M E 306 (or concurrent enrollment), 333, MTHSC 302 or EX ST 411.

M E 453, 653 Dynamic Performance of Vehicles 3(3,0) Introduces techniques for analyzing the dynamic behavior of vehicles. Types of vehicles to be considered are chosen from aircraft, surface ships, automobiles and trucks, railway vehicles, and magnetically levitated vehicles. Prereq: M E 305, or consent of instructor.

M E 454, 654 Design of Machine Elements 3(3,0) Design of common machine elements including clutches, brakes, bearings, springs, and gears. Optimization techniques and numerical methods are employed as appropriate. Prereq: M E 306 or consent of instructor.

M E 455, 655 Design for Manufacturing 3(3,0) Concepts of product and process design for automated manufacturing are considered. Topics include product design for automated manufacturing, inspection and assembly, using automation, industrial robots, knowledge-based systems and concepts of flexible product manufacture. Prereq: M E 306, 312 (or concurrent enrollment), or consent of instructor.

M E (E C E) 457 Fundamentals of Wind Power 3(3,0) See E C E 457.

M E 471, 671 Computer-Aided Engineering Analysis and Design 3(2,3) Students are exposed to geometric and solid modeling, finite elements, optimization, and rapid-prototyping. Students design an artifact, represent it on the computer, analyze it using FEA, then optimize before prototyping it. Emphasizes the use of computer-based tools for engineering design. Prereq: ENGR 141, M E 202, or consent of instructor.

M E 493, 693 Selected Topics in Mechanical Engineering 1-6(1,6) Study of topics not found in other courses. May be repeated for a maximum of six credits, but only if different topics are covered. Prereq: Consent of instructor.

MICROBIOLOGY

Professors: T.A. Hughes, C.D. Rice, S.W. Scott; Associate Professors: J.M. Henson, X. Jiang; Assistant Professors: M. Cao, H.D. Kurtz, T.L. McNally, K.S. Paul, T.R. Tseng; Senior Lecturer: J.G. Abercrombie; Lecturer: K.B. Rudolph
MICRO 101 Microbes and Human Affairs 1(1,0) Introduces Microbiology majors to University career and library services, evaluation of computer program proficiency, Web page development, Microbiology emphasis areas, and Microbiology faculty. Students initiate their own Web-based student portfolios, which showcase their skills and experiences (e.g., resumes, accomplishments, and work samples) during their undergraduate programs. Preq: BIOL 103/105 or 110 or consent of course coordinator.

MICRO 205 Introductory Microbiology 4(3,3) Basic concepts of microbiology, introduced through classroom and laboratory experiences. Emphasizes practical applications in various areas of importance to man. Recommended for students not majoring in a biological science. Not open to Microbiology majors. Preq: CH 101, 102, BIOL 103/105.


MICRO 394, H394 Selected Topics in Creative Inquiry I 2-3(1,3-6) Disciplinary and multidisciplinary group research projects with the goal of developing the students’ ability to discover, analyze, and evaluate data. Students are required to document their research activities in their portfolios. May be repeated for a maximum of six credits. Honors students must take at least six credits over a two-semester period with the same research advisor and write an honors thesis. These credits may include MICRO 394, MICRO 494 or both. Preq: Consent of instructor.

MICRO 400, H400, 600 Public Health Microbiology 3(3,0) Epidemiology of transmissible diseases including pathogenic characteristics of the infectious organism, modes of transmission, mechanism of infection, diagnostic aids, effective treatments, immunizing procedures, and methods of preventing infection. Preq: MICRO 305.

MICRO 401, H401, 601 Microbial Diversity and Ecology 4(2,6) In-depth survey of microbial morphology, ecology, and diversity. Study of the interaction and adaptation of microbes in a wide range of environmental conditions, including consideration of their metabolism, nutrition, growth and the use of microbiological assays. Preq: CH 201 or 223, 227, MICRO 305.

MICRO 402, 602 Environmental Microbiology 3(3,0) Discussion of microorganisms in air, terrestrial, and aquatic environments and how they are used for environmental restoration activities. Topics include the nature of biofilms, interactions of microbes with inorganic and organic constituents, processes to implement bioremediation in surface/subsurface environments, and treatment of solid, liquid, and gaseous waste streams. Preq: MICRO 305, 401, one semester of organic chemistry, or consent of instructor.

MICRO 403, 603 Marine Microbiology 3(2,3) Discussion of the microbes that inhabit the marine environment, their peculiar physiological traits, and contributions to the ecology of oceans. Preq: MICRO 305, organic chemistry.


MICRO 410, H410, 610 Soil Microbiology 3(2,3) Role of microorganisms in the decomposition of organic substances, transformation of nitrogen and mineral substances in the soil; interrelationships between higher plants and microorganisms; importance of microorganisms in soil fertility. Preq: MICRO 305.

MICRO 411, H411, 611 Pathogenic Bacteriology 3(3,0) Study of pathogenic bacteria and their virulence mechanisms. Emphasizes host-microbe interactions, responses to infection and treatment, and research strategies for various topics of bacterial pathogenesis. Preq: MICRO 305, 414.

MICRO 412, H412, 612 Bacterial Physiology 4(3,3) Consideration of the cytology, physiology, metabolism, and genetics of bacteria. Includes studies of growth and death, reproduction and mutation, nutrition and metabolic pathways, regulatory mechanisms, and effects of environment. Preq: CH 224, MICRO 305, one semester of biochemistry, or consent of instructor.

MICRO 413, H413, 613 Industrial Microbiology 3(2,3) Microbial aspects of large-scale processes for the production of foods, antibiotics, enzymes, fine chemicals, and beverages. Topics include strain selection, culture maintenance, biosynthetic pathways, continuous cultivation and production of single cell protein. Preq: MICRO 305.

MICRO (BIOSC) 414, H414, 614 Basic Immunology 4(3,3) Consideration of the nature, production, and function of basic immune responses in animals. Procedures and mechanisms of antigen-antibody and other immune reactions. Preq: MICRO 305, organic chemistry.

MICRO 415, H415, 615 Microbial Genetics 4(3,3) Investigates the molecular basis of microbial lives. Topics include essential genes involved in DNA, RNA and protein metabolism; mutations and genome evolution; global gene regulation; and genetic analysis, using both forward and reverse genetics. Preq: BIOC 301, MICRO 305 and 412.

MICRO 416, H416, 616 Introductory Virology 3(3,0) Introduction to the field of virology, including animal, bacterial, and plant viruses. Topics include nomenclature and classification, biochemical and biophysical characteristics, mechanisms of replication, chemotherapy, and techniques for isolation, assay, and purification. Preq: BIOC 301, MICRO 305, or consent of instructor.

MICRO 417, H417, 617 Molecular Mechanisms of Carcinogenesis and Aging 4(3,3) Discusses alterations that occur at molecular, cellular and tissue levels during cell transformation and aging. Topics include the cell division cycle, signal transduction pathways, oncogenes and tumor suppressors, cell death and cell aging. Preq: BIOC 301 or 305, MICRO 305, and BIOSC 461, or consent of instructor.

MICRO 419, 619 Selected Topics in Molecular Medicine 3(3,0) Introduction to various areas of molecular medicine. Examines the latest research and developments in molecular medicine. Designed for students interested in medicine and biomedical research. Graduate students may repeat for a maximum of six credits. Preq: BIOC 301, MICRO 305, or consent of instructor.

MICRO 421 Pathogenic Bacteriology Laboratory 1(0,3) Complements the pathogenesis research topics covered in the pathogenic bacteriology lecture. These topics are important at practical levels for prevention and treatment of bacterial diseases. Laboratory is used to teach pathogen handling, basic identification techniques, and modern molecular protocols for pathogen identification. Preq: MICRO 305, 414. Coreq: MICRO 411.

MICRO (BIOSC) 456, H456, 656 Medical and Veterinary Parasitology 3(3,0) See BIOSC 456.

MICRO (BIOSC) 457, H457, 657 Medical and Veterinary Parasitology Laboratory 2(1,2) See BIOSC 457.

MICRO 491, H491 Undergraduate Research in Microbiology 1-4(0,3,12) Individually mentored research problems in various areas of microbiology that introduce undergraduate students to the planning and execution of research experimentation and the presentation of research findings. May be repeated for a maximum of eight credits with consent of instructor. Honors students must take at least six hours under a single research advisor over two semesters. Honors thesis is required. Preq: Consent of instructor.

MICRO 492 Internship in Microbiology 1-4(0,3,12) Preplanned internship at an advisor-approved facility to give students learning opportunities beyond their classroom experiences. Students submit a Student Internship Contract and a two-page study plan before the internship and a comprehensive report within one week of the end of the internship. May be repeated for a maximum of six credits. To be taken Pass/Fail only. Preq: Consent of advisor.

MICRO 493 Senior Seminar 2(2,0) Capstone course engaging students in analysis and discussion of publications from the technical and non-technical literature in biological sciences and from current topics of biology appearing in other media. Students complete their undergraduate on-line digital portfolios. Emphasis is placed on ethical issues that arise as a result of biological research. Preq: Senior standing; COMM 150 or ENGL 314; or consent of instructor.

MICRO (BIOSC) 494, H494 Selected Topics in Creative Inquiry II 2-3(1,3-6) See BIOSC 494.

MICRO 495 Service Learning in Biology 2-4(1,2,3) Combines service and academic learning while helping pre-college or college students learn about the fundamental aspects of science. Provides lecture and laboratory experiences as students learn to prepare and participate in supervised laboratory teaching for precollege or college students. May be repeated for a maximum of six credits. Preq: Consent of instructor.
Courses of Instruction

MILITARY LEADERSHIP

Professor: D.M. Bedard, Chair; Assistant Professors: T.A. Bras, W.A. Matheny Jr., C.A. Wells; Instructors: P.C. Gutzler, G.E. Nettles, J.R. Starkey Jr.

M L 101 Leadership Fundamentals 1 2(2,1) Study of leadership focused at the individual level. Students learn effective communicating skills, ethical decision making, small group management, and mental and physical conditioning. Skills are applied in a variety of challenging training events during laboratory, including rappelling, water survival, land navigation, and team athletics.

M L 102 Leadership Fundamentals II 2(2,1) Continued study of leadership focused at the individual and team levels. Topics include problem solving, critical thinking, leadership styles, and group cohesion. Leadership laboratory training includes small tactics and weapons firing.

M L 201 Leadership Development I 2(2,1) Study of leadership focused at the team level. Students develop leadership skills through public speaking, managing small groups, and mentoring first-year students. Skills are applied in a variety of challenging training events during leadership laboratory, including rappelling, water survival, land navigation, and team-building exercises.

M L 202 Leadership Development II 2(2,1) Continued study of leadership at the team and small group levels. Focuses on moral leadership, officer citizenship, and the Army as a profession. Leadership laboratory training includes small unit tactics, air mobile operations, and weapons firing. Students lead teams throughout the semester.

M L 210 Leaders’ Training Course 4(2,6) Five-week leadership camp conducted on an Army post. Students’ pay and expenses are provided by the U.S. Army. Environment is rigorous and focused on leadership development. No military obligation is incurred. Completion of this course qualifies students for entry into the Army ROTC Advanced Course.

M L 211 Cadet Field Leadership Training 1-6 Eight-week program of instruction conducted by the U.S. Military Academy to develop leadership skills of sophomore students. Seven weeks of the course are held at West Point with one week at Fort Knox, KY, for Mounted Maneuver Training. To be taken Pass/Fail only. Preq: M L 202.

M L 301 Advanced Leadership I 3(2,2) Study of leadership focused on decision making, planning, communicating, and executing. Addresses motivational techniques, the role of a leader, and performance assessment. Provides students with leadership management tools and methodology. Students are responsible for training, developing, and mentoring Basic Course students. Students apply learned techniques in leadership laboratory. Preq: M L 202 or 210.

M L 302 Advanced Leadership II 3(2,2) Continued study of leadership focused on collective skills training, tactics, and small group instruction. Synthesizes various components of training, leadership, and team-building learned during the Basic Course and M L 301. Final step in students’ progression prior to the Leader’s Development and Assessment Course. Preq: M L 301.

M L 401 Organizational Leadership I 3(2,2) Culmination of leadership study in preparation for commissioning as Army officers. Students continue exercising leadership and management skills as senior cadet leaders. Leadership instruction focuses on coordinating activities with staffs, communicating effectively, counseling and mentoring subordinates, training management and ethics. Preq: M L 302, Leader’s Development and Assessment Course.

M L 402 Organizational Leadership II 3(2,2) Continued study of M L 401. Focuses on the continued study of moral, ethical, and legal issues faced by leaders. Includes instruction in administrative and logistical management. Requires students to apply their knowledge individually and collectively to solve problems and improve the organization. Preq: M L 401.

M L 451 Organizational Leadership III 3(2,3) Transitional leadership development and training for completion cadets and others designed to enhance practical experiences in managing organizational training programs, develop leadership skills by serving in cadet staff positions, develop small group decision making and conflict management skills, and reinforce physical fitness and lifestyle skills required of leaders. May be repeated for a maximum of six credits. Preq: M L 302.

MUSIC


MUSIC 101 Beginning Class Piano I 1(0,2) Thorough introduction to basic keyboard skills including solo and ensemble repertoire, technique, applied keyboard theory, and performance. Applied music fee is assessed. Preq: Consent of instructor.

MUSIC 102 Beginning Class Piano II 1(0,2) Continued work on keyboard skills, applied keyboard theory, solo and ensemble repertoire, and performance. Applied music fee is assessed. Preq: MUSIC 101 or consent of instructor.

MUSIC 111 Beginning Class Guitar I 1(0,2) Introduction to basic guitar skills, including finger-style technique, strumming, and song accompaniment. Students develop skills and appreciation of the discipline through teacher-led drills, ensemble playing, and the exploration of guitar history, style, and the impact of various players and composers on the medium. Applied music fee is assessed. Preq: Consent of instructor.

MUSIC 112 Beginning Class Guitar II 1(0,2) Continued work on guitar skills, including finger-style, strumming, pick playing, ensemble playing, and soloing. Also includes music theory for guitarists such as keys, scales, and chord building, as well as discussions of the impact of various players and composers on the medium. Applied music fee is assessed. Preq: MUSIC 111 or consent of instructor.

MUSIC 121 Beginning Class Voice I 1(0,2) Introduction to basic vocal skills, including breathing, tone production, diction, intonation, and interpretation. Includes solo and ensemble repertoire. Inclass group and individual performances are required. Applied music fee is assessed. Preq: Consent of instructor.

MUSIC 131 Beginning Instrumental Class 1(0,2) Introduction to basic instrumental skills in a class setting, including proper playing position, tone production, intonation, and ensemble playing. Includes brief history and usage of the given instruments. Different instrumental groups are taught as separate course sections. May be repeated for a maximum of six credits, but only on other instruments. Applied music fee is assessed. Preq: Consent of instructor.

MUSIC 142 Music Fundamentals 3(3,0) Covers the rudiments of music theory and aural skills. Includes notation, scales, key signatures, intervals, and chord construction, as well as sight singing and ear training.

MUSIC 151 Applied Music 1(0,1) Individual study in performance medium (piano, voice, strings, woodwinds, brass, percussion, guitar, organ, or cello). One 30-minute lesson each week, for which a minimum of four hours practice is required. May be repeated for credit with departmental approval of differing performance media. Applied music fee is assessed. Preq: Consent of instructor, based upon a qualifying audition.

MUSIC 152 Applied Music 1(0,1) Continuation of MUSIC 151. May be repeated for credit with departmental approval of differing performance media. Applied music fee is assessed. Preq: MUSIC 151.

MUSIC 153 Applied Music for Majors 1(0,1) Individual study in vocal or instrumental performance (voice, woodwinds, brass, strings, percussion or keyboards). One 45-minute lesson each week. Jury required. May be repeated for credit with departmental approval of differing performance media. Applied music fee is assessed. Preq: Performing Arts major (Music Concentration) and consent of instructor, based upon qualifying audition.

MUSIC 154 Applied Music for Majors 1(0,1) Continuation of MUSIC 153. Jury and performance on a recital are required. May be repeated for credit with departmental approval of differing performance media. Applied music fee is assessed. Preq: MUSIC 153, consent of instructor.

MUSIC 180 Introduction to Music Technology 3(2,1) Introduction to music notation, sequencing, digital audio, sound reinforcement, analog and digital recording, and other current music technologies. Preq: Performing Arts major or consent of instructor.

MUSIC 195 Creative Inquiry—Music 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

MUSIC 206 Music Theory II 3(3,0) Continuation of MUSIC 205, with added emphasis on modulation and formal structures. Preq: MUSIC 205. Coreq: MUSIC 208.
MUSIC 208 Aural Skills II 1(0,2) Continuation of MUSIC 207 with music of greater complexity and the use of C clefs. Coreq: MUSIC 206.

MUSIC 210, H210 Music Appreciation: Music in the Western World 3(3,0) Deepens students’ appreciation of their musical heritage through study of the elements of the musical language and its development in Western culture.

MUSIC 242 Music Theory 3(3,0) Beginning analytical techniques in both the classical and popular genres, including aspects of harmony, melody, and rhythm. Prereq: MUSIC 142, satisfactory score on departmental placement exam, or consent of instructor; and Performing Arts—Audio Technology Concentration major or Music minor. Coreq: MUSIC 243.

MUSIC 243 Aural Skills 1(0,2) Beginning studies in sight-singing and dictation (melodic, harmonic, and rhythmic). Coreq: MUSIC 242.

MUSIC 246 Accelerated Music Theory I 3(3,0) Accelerated beginning analytical techniques in both the classical and popular genres, including aspects of harmony, melody and rhythm. Prereq: MUSIC 142, satisfactory score on departmental placement exam, or consent of instructor; and Performing Arts—Music Concentration major. Coreq: MUSIC 247.

MUSIC 247 Accelerated Aural Skills I 1(0,2) Accelerated beginning studies in sight-singing and dictation (melodic, harmonic and rhythmic). Coreq: MUSIC 246.

MUSIC 248 Accelerated Music Theory II 3(3,0) Continuation of MUSIC 246, with added emphasis on modality and formal structures. Prereq: MUSIC 246. Coreq: MUSIC 249.

MUSIC 249 Accelerated Aural Skills II 1(0,2) Continuation of MUSIC 247, with music of greater complexity and the use of C clefs. Coreq: MUSIC 248.

MUSIC 251 Applied Music 1(0,1) Continuation of MUSIC 152. Applied music fee is assessed. Prereq: MUSIC 152, consent of instructor.

MUSIC 252 Applied Music 1(0,1) Continuation of MUSIC 251. May be repeated for credit with departmental approval of differing performance media. Applied music fee is assessed. Prereq: MUSIC 251, consent of instructor.

MUSIC 253 Applied Music for Majors 1(0,1) Continuation of MUSIC 154. May be repeated for credit on other performance media with departmental approval. Jury is required. Applied music fee is assessed. Prereq: MUSIC 154, consent of instructor.

MUSIC 254 Applied Music for Majors 1(0,1) Continuation of MUSIC 253. May be repeated on other performance media with departmental approval. Jury and performance on a recital are required. Applied music fee is assessed. Prereq: MUSIC 253, consent of instructor.

MUSIC 295 Creative Inquiry—Music 1(4-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

MUSIC (THEA) 308 Survey of Broadway Musicals I 3(3,0) Introduction to Broadway musical repertoire from the Golden Age of Broadway: 1943–1964. Emphasizes the music with attention to production detail, historical perspective, and social milieu.

MUSIC (THEA) 309 Survey of Broadway Musicals II 3(3,0) Survey of Broadway musical repertoire from new conceptual shows from 1965 to the present day. Emphasizes the music with attention to production detail, historical perspective, and social milieu.

MUSIC 310 Survey of Music History 3(3,0) Comprehensive survey of the Western art music tradition from the Middle Ages to the present. Prereq: MUSIC 206, Performing Arts major; or consent of instructor.

MUSIC 311 History of American Music 3(3,0) Music in America from 1620 to the present. Indigenous and borrowed influences are examined.

MUSIC 312 History of Jazz 3(3,0) Comprehensive survey of jazz elements and styles. A historical perspective from Dixieland to bebop to jazz/rock is included.

MUSIC 313 History of Rock and Roll 3(3,0) Comprehensive survey of rock elements, styles, and artists. Emphasizes the evolution of rock and roll including a broad examination of musical influences. Course content examines how rock and roll both reflected and influenced social issues.

MUSIC 314 World Music 3(3,0) Introduction to ethnomusicology and music of the world’s peoples. Emphasis is placed on music through culture.

MUSIC 317 History of Country Music 3(3,0) Chronological study of country music origins, styles, and artists. Emphasizes the evolution of country music from a cultural expression of the South to a commercial art form of worldwide appeal.

MUSIC 318 History of Audio Technology 3(3,0) Surveys the historical development of audio technology and its social impacts and consequences. Technologies include automatic instruments, recording devices, radio, amplification, consumer listening devices, and distribution formats.

MUSIC 321 Principles of Piano Performance I 3(3,0) In-depth study of the principles of piano performance focusing on how to interpret a musical score, develop technical skills and practice techniques, and use the body correctly at the keyboard. Prereq: By audition.

MUSIC 323 Piano Accompanying I 1(0,3) Group study in piano accompanying. Focuses on sight-reading and choral, vocal, and instrumental accompanying. Students take group lessons and accompany choral groups and/or applied music students. Prereq: Consent of instructor.

MUSIC 325 CU Carillonneurs 1(0,2) Group study in playing the 47-bell University carillon. One two-hour meeting each week for which a minimum of two hours of individual practice is required. Participation in a recital is required. Prereq: Musical keyboard experience, consent of instructor.

MUSIC (THEA) 329 Musical Theatre Vocal Performance 3(2,2) Trains singer-actors in musical theatre repertoire. A study of repertoire via master classes, individual instruction, research of the historical context of Broadway music, studio performance, observation, and peer evaluation, culminating in a public showcase performance. Prereq: Consent of instructor.

MUSIC 330 Small Ensemble 1(0,3) Ensembles devoted to the musical training of instrumental, vocal ensemble members through reading and rehearsal of appropriate music. Public performances are given periodically in addition to the minimum rehearsal time. Enrollment in simultaneous sections is allowed. Prereq: Consent of director.

MUSIC 331 Pep Band 1(0,3) Ensembles devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given in addition to the minimum rehearsal time. Simultaneous enrollment in multiple sections is allowed. Prereq: Consent of director.

MUSIC 332 Woodwind Quintet 1(0,3) Ensembles: advanced study of woodwind chamber music. One-hour class meeting each week, for which a minimum of two hours of ensemble practice is required. Prereq: By audition only; concurrent enrollment in MUSIC 362.

MUSIC 333 String Quartet 1(0,3) Ensembles: advanced study of string quartet repertoire. Two 90-minute meetings each week for which a minimum of two hours of practice is required. Prereq: By audition only. Coreq: MUSIC 369, Applied Music.

MUSIC 334 Flute Choir 1(0,3) Ensembles: study of flute ensemble literature. One 60-minute meeting each week for which a minimum of two hours of practice is required. Prereq: By audition only.

MUSIC 336 Percussion Ensemble 1(0,2) Ensembles: study and performance of percussion ensemble literature. One two-hour class meeting each week, for which a minimum of two hours of individual practice is required. Coreq: MUSIC 331, 362, 363, 364, or 369.

MUSIC 337 Steel Drum Band 1(0,2) Ensembles: devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given in addition to the minimum rehearsal time. Rehearsals also include discussions of steel band history and performance practice. Prereq: Consent of director.

MUSIC 341 Men’s Breakout Ensemble 1(0,2) Small ensembles: study of male a cappella/popular music on an advanced level. Coreq: MUSIC 370 or 372 or consent of instructor.

MUSIC 342 Women’s Breakout Ensemble 1(0,2) Small ensembles: study of women’s a cappella/popular vocal music on an advanced level. Enrollment is limited with priority given to students who are enrolled in a large choral ensemble. Coreq: MUSIC 370 or 371 or consent of instructor.

MUSIC 343 Men’s Small Ensemble 1(0,2) Small ensembles: study of male a cappella/popular, barbershop, and nostalgic music on an advanced level. Coreq: MUSIC 370 or 372 or consent of instructor.

MUSIC 344 Vocal Jazz Ensemble 1(0,3) Ensembles: devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given periodically in addition to the minimum rehearsal time. Coreq: MUSIC 370, 371, 372 or consent of instructor.

MUSIC 351 Applied Music 1(0,1) Continuation of MUSIC 252. May be repeated for credit with departmental approval of differing performance media. Applied music fee is assessed. Prereq: MUSIC 252, consent of instructor.
MUSIC 352 Applied Music 1(0,1) Continuation of MUSIC 351. Students are required to perform an appropriate solo in a student recital. May be repeated for credit with departmental approval of differing performance media. Applied music fee is assessed. Prereq: MUSIC 351, consent of instructor.

MUSIC 353 Applied Music for Majors 1(0,1) Continuation of MUSIC 254. May be repeated on other performance media with departmental approval. Jury is required. Applied music fee is assessed. Prereq: MUSIC 254, consent of instructor.

MUSIC 354 Applied Music for Majors 1(0,1) Continuation of MUSIC 353. May be repeated on other performance media with departmental approval. Juryed half-recital performance is required. Applied music fee is assessed. Prereq: MUSIC 353, consent of instructor.

MUSIC 361 Marching Band 1(0,3) Ensembles devoted to musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given periodically in addition to the minimum rehearsal time. Offered fall semester only. Prereq: Consent of director.

MUSIC 362 Symphonic Band 1(0,3) Ensembles devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given periodically in addition to the minimum rehearsal time. Prereq: Consent of director.

MUSIC 363 Jazz Ensemble 1(0,3) Ensembles devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given periodically in addition to the minimum rehearsal time. Prereq: Consent of director.

MUSIC 364 Concert Band 1(0,2) Devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given periodically in addition to the minimum rehearsal time. Prereq: Consent of director.

MUSIC 369 Symphony Orchestra 1(0,3) Mid-sized, college-community orchestra devoted to performing works from standard repertoire. Weekly evening rehearsals with one or more performances per semester. Prereq: Consent of director.

MUSIC 370 Clemson University Singers 1(0,3) Ensembles devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given periodically in addition to the minimum rehearsal time. Prereq: Consent of director.

MUSIC 371 Women’s Glee 1(0,3) Ensembles devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given in addition to the minimum rehearsal time. Prereq: Consent of director.

MUSIC 372 Men’s Glee 1(0,3) Ensembles devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given in addition to the minimum rehearsal time. Prereq: Consent of director.

MUSIC 373 University Chorus 1(0,3) Ensembles devoted to the musical training of ensemble members through reading and rehearsal of appropriate music. Public performances are given periodically in addition to the minimum rehearsal time. Prereq: Consent of director.

MUSIC 395 Creative Inquiry—Music 1(0,1-4) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

MUSIC 400, 600 Music in the Elementary Classroom 3(3,0) Familiarizes teachers in the elementary classroom with traditional, Kodaly, Orff, and Kindermusik approaches in correlating music with language arts, mathematics, and social studies.

MUSIC 405 Instrumental and Vocal Arranging 3(2,3) Advanced study of the properties of instruments and voices and their combination in various small and large ensembles. Emphasis is placed on applying this knowledge to the creation of instrumental and vocal arrangements. Prereq: MUSIC 180, 205, or consent of instructor.

MUSIC 415 Music History to 1750 3(3,0) Development of Western music from antiquity to 1750, emphasizing representative literature from various styles and periods. Prereq: MUSIC 210, 310, or consent of instructor.

MUSIC 416 Music History Since 1750 3(3,0) Continuation of MUSIC 415. Music from 1750 to the present. Prereq: MUSIC 210, 310, or consent of instructor.

MUSIC 430 Conducting 3(3,0) Study of choral and instrumental conducting. Emphasis is on manual conducting techniques, attitudes, philosophies, and responsibilities necessary for the preparation, planning, and execution of artistic conducting. Prereq: MUSIC 205.

MUSIC 451 Applied Music 1(0,1) Continuation of MUSIC 352, guiding students in interpretation of advanced solo and ensemble literature. Students are required to perform an appropriate solo in a student recital. May be repeated for credit with departmental approval of differing performance media. Applied music fee is assessed. Prereq: MUSIC 352 and consent of instructor.

MUSIC 452 Applied Music 1(0,1) Continuation of MUSIC 451. Students are required to perform an appropriate solo in a student recital. Applied music fee is assessed. Prereq: MUSIC 451 and consent of instructor.

MUSIC 453 Applied Music for Majors 1(0,1) Continuation of MUSIC 354. May be repeated on other performance media with departmental approval. Jury is required. Applied music fee is assessed. Prereq: MUSIC 354, consent of instructor.

MUSIC 454 Applied Music for Majors 1(0,1) Continuation of MUSIC 453. May be repeated on other performance media with departmental approval. Juried full recital performance is required. Applied music fee is assessed. Prereq: MUSIC 453, consent of instructor.

MUSIC 495 Creative Inquiry—Music 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

MUSIC 499, 699 Independent Studies 1-3(1-3,0) Tutorial work for students with special interests in music study outside the scope of existing courses. May be repeated for a maximum of six credits. Prereq: Consent of department chair.

This course may be repeated for credit with a maximum of 16 hours of ensemble credit allowable toward a degree.

NONPROFIT LEADERSHIP

NPL 300 Foundations in Nonprofit Leadership 2(2,0) Students develop an understanding of historical and philosophical aspects of nonprofit organizations, as well as special skills needed to develop boards, recruit volunteers, raise funds, and manage day-to-day operations. Career development opportunities are also explored.

NPL 390 Practicum I 1(0,3) Under agency supervision, students spend 60 hours observing and implementing activities, events, and programs in a nonprofit, faith-based, grassroots, or organization approved by instructor. To be taken Pass/Fail only. Prereq: NPL 300, enrollment in Nonprofit Leadership minor, consent of instructor.

NPL 490 Practicum II 2(0,6) Under agency supervision, students spend 100 hours planning, organizing, and implementing activities, events, and programs in a nonprofit, faith-based, grassroots, or other organization approved by instructor. To be taken Pass/Fail only. Prereq: NPL 300, enrollment in Nonprofit Leadership minor, consent of instructor.

NURSING


NURS 102 Nursing Success Skills 2(2,0) Introduction to a variety of topics critical to a student’s success as a Nursing major and future professional. Topics include time management, goal setting, test taking, campus and nursing department resources and policies, critical thinking, and diversity. Students have the opportunity to discover and practice many procedures, techniques, and tips, as well as apply principles learned to their future career in nursing. Prereq: Acceptance to the nursing program.
NURS 140 Computer Applications in Nursing 3(3,0) Introduces students to nursing and the application of computer technology in the delivery of health care. Covers existing computer health-care applications, emerging trends and forecast future needs. Social and ethical issues related to technology are discussed. Nursing majors will be given priority enrollment.

NURS 198 Creative Inquiry—Nursing 14(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

NURS 298 Creative Inquiry—Nursing 14(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

NURS 300 Seminar in Health Care Topics 14(1-4,0,9) Individualized in-depth study in a selected health care area; may have a clinical component and/or special projects. Open to non-Nursing majors. May be repeated for a maximum of six credits. Prq: Consent of instructor.

NURS 303 Medical-Surgical II: Nursing of Adults 7(3,12) Incorporates theoretical and empirical knowledge from physical and social sciences. Uses critical thinking to provide holistic, safe, individualized nursing care to adults, including health promotion, maintenance, restoration, and health teaching. Prq: NURS 304, 310, 312, 340. Prq or Coreq: NURS 320.

NURS 304 Pathophysiology for Health Care Professionals 3(3,0) Focuses on disease mechanisms and recognition of the manifestations of these mechanisms in body systems. Discussion also includes pharmacologic and mechanical interventions commonly associated with specific disease processes and application to patient-care situations. Prq: BIO SCI 223 and junior standing in Nursing.

NURS 305 Psychosocial Nursing 3(3,0) Lifespan approach to examine psychosocial, developmental, family, and cultural factors that influence individuals from diverse populations and their families in the promotion, maintenance, and restoration of health. The use of the nursing process, critical thinking, therapeutic communication, and psychosocial nursing interventions is explored. Prq: Second semester junior standing in Nursing.

NURS 307 Family Nursing in the Community 4(3,2) Bridge course for registered nurse students that focuses on nursing care of families across the lifespan in the context of the community. Major emphasis is on practice activities to assist individuals in achieving or maintaining wellness in the family, home, and community environments. Prq: Admission to RN/BS program.

NURS 310 Health Assessment 3(2,3) Introduces concepts of health, wellness, and illness. Focuses on physical, psychosocial, and cultural assessment for the well adult client with variations across the lifespan. Includes interviewing techniques. Prq: Junior standing in Nursing. Coreq: NURS 312, 340.

NURS 311 Health Promotion Across the Lifespan 2(2,0) Focuses on health promotion and illness prevention activities across the lifespan for individuals and families in the community. Major emphasis is on nursing’s role in the acquisition and maintenance of health as well as the identification and modification of health risk factors. Prq: NURS 310, 312, 320. Prq or Coreq: NURS 304, 340.

NURS 312 Medical-Surgical I: Foundations of Nursing 4(2,6) Focuses on therapeutic nursing interventions, including selected psychomotor skills, communication skills, and teaching/learning. Prq: Junior standing in Nursing. Coreq: NURS 310, 340.

NURS 313 Health Assessment Through the Lifespan 4(3,2) Expands on RN’s knowledge of health assessment. Focuses on physical and psychosocial assessment for the well client throughout the lifespan. Interviewing techniques are included. Prq: Admission to RN/BS program.

NURS 317 Development of the Nursing Profession 3(3,0) Explores the evolution of nursing as a profession, the social and technological factors and challenges, struggles, and accomplishments of past nursing leaders. Includes strategies for effecting change based on experiences of the past.

NURS 318 Multidisciplinary Approach to End-of-Life Care 3(3,0) Integrates principles of care to increase comfort at the end of life, presented within a framework that encompasses the physical, psychosocial, and spiritual dimensions of an individual. Coursework also includes ethical and legal issues related to advance directives, reimbursement, and regulatory topics. Prq: PSYCH 201, SOC 201, or consent of instructor.

NURS 319 Health Assessment for RNs 2(2,0) Expands knowledge of health assessment techniques utilized with well or ill adult clients. Emphasizes data collection as a basis for critical thinking in professional nursing practice. Prq: Admission to RN/BS program.

NURS 320 Professionalism in Nursing 3(3,0) Application of critical thinking skills is the core of professional nursing roles in multidisciplinary approaches to health care. Analysis of the historical development of modern nursing. Examination of issues of providing nursing care to diverse populations within the context of professional standards. Includes medical nomenclature. Prq: All required non-nursing courses and electives or consent of instructor.

NURS 323 Gerontological Nursing 2(2,0) Introduces theories of aging. Focuses on complex health care issues of aging and chronic care, including promotion, maintenance, and restoration of health of the elderly. Scientific concepts address physiological, psychological, and sociocultural issues of aging and chronic illness. Prq: NURS 310, 312, 320, PSYCH 201, SOC 201. Prq or Coreq: NURS 304, 340.

NURS 328 Honors Seminar I 2(2,0) Serves as the foundation for senior honors projects. Students identify a topic of interest, a faculty mentor, and team members for their honors project and begin to review the literature in their areas of interest. Prq: Admission to Nursing Department Honors program.

NURS 330, H330 Research in Nursing 3(3,0) Introduction to conceptual frameworks, models, and theories related to nursing. Analysis of reported research in nursing and related disciplines. Ethical, moral, and legal issues are discussed in relation to nursing research. Prq: NURS 310, 312, 320 or admission to RN/BS program.

NURS (HCG) 333 Health Care Genetics 3(3,0) Focuses on the new genetics and the implications for health care professionals. Discussion includes applications of the evolving genetics technology and services to changing life stages. Issues of ethics relevant to various genetic disorders is also addressed. Prq: BIOC 222 or consent of instructor.

NURS 334 Integrative Healing: Complementary/Alternative Healthcare 3(3,0) Introduction to healing practices that are complementary with and/or alternative (C/A) for conventional Western medicine. Includes exploration of research, principles, techniques, and methods of C/A used in health and healing.

NURS 340 Pharmacotherapeutic Nursing Interventions 3(3,0) Focuses on the integration of nursing process with pharmacotherapeutics, administration, monitoring, and related client education. Includes major drug classifications, indications for use, side effects, interactions, routes of administration, usual dosages and contraindications. Prq: Junior standing in Nursing. Coreq: NURS 310, 312.

NURS (PHIL) 350 Technology and Philosophy in Nursing 3(3,0) Studies the application of emerging technology to health care delivery and concomitant ethical issues.

NURS 398 Creative Inquiry—Nursing 14(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

NURS 401 Mental Health Nursing 5(3,6) Application of theories and the nursing process to identify, implement, and evaluate nursing interventions for the care of clients with psychiatric disorders. Prq: All required 300-level nursing courses.

NURS 403 Medical-Surgical III: Complex Nursing of Adults 5(3,6) Focuses on the biological, psychological, philosophical, and sociocultural influences on complex health problems related to acute and traumatic conditions. Emphasizes the concepts of circulation, oxygenation, homeostasis, and compensation in acutely ill adults. Prq: NURS 401, 411, 412.

NURS 405 Leadership and Management in Nursing 3(2,2) Focuses on the role of the professional nurse in managing nursing care. Theories and research related to leadership, power, management, organizations, regulation, and ethics are discussed. Directed laboratory experiences are provided. Prq: NURS 401, 411, 412, or admission to RN/BS program.
NURS 406 Issues in Professionalism 3(3,0) Analysis of the development of professional nursing. Consideration of educational issues, legal and economic issues, health policy, leadership, cultural variations, and the influence of values in ethical decisions and nursing practice. Prq: Admission to RN/BS program.

NURS 410 Leadership Management and Nursing Care Practicum 6(3,9) Focuses on the role of the professional nurse in practicing and managing nursing care. Theories and research related to clinical practice, leadership, power, management, organizations, regulation, ethics, and licensure preparation are discussed. Directed lab experiences are provided under preceptor supervision. Prq: NURS 403.

NURS 411 Nursing Care of Children 5(3,6) Focuses on child health problems and health maintenance. Emphasizes biological, pathophysiological, psychological, and sociocultural concepts related to nursing care of children with acute, critical, and chronic illnesses. Includes strategies for alleviation of illnesses, restoration of wellness, promotion and maintenance of health, growth, and development. Prq: All required 300-level Nursing courses.

NURS 412 Nursing Care of Women and Their Families 5(3,6) Emphasizes biological, psychological, and sociocultural concepts; identification of appropriate nursing strategies to enhance individual capacity to achieve or maintain wellness in the family, home, community, and hospital environment. Prq: All required 300-level Nursing courses.

NURS 414 Community Health Nursing and Health Promotion 5(3,6) Focuses on community health nursing of families and community groups, including community assessment, screening, health promotion and health education, with emphasis on the health of clients and population groups in homes, schools, industries and other community agencies and organizations. Prq: NURS 401, 411, 412.

NURS 415 Community Health Nursing 4(2,6) Consideration of health promotion activities for family and community groups with emphasis on community assessment, screening, and health teaching/counseling. Practice activities are related to health promotion in population groups and nursing care of homebound clients. Laboratory settings include homes, schools, industries, and other community organizations. Prq: NURS 401, 411, 412, or admission to RN/BS program.

NURS H420 Senior Honors I 2(2,0) Students develop a proposal for a major directed study project, or research project under the guidance of a faculty preceptor. Prq: Senior Honors standing. NURS H330.

NURS 425 Community Nursing 4(3,2) Consideration of health promotion activities for groups within the community with emphasis on community assessment, screening, and health teaching/counseling. Practice activities are related to health promotion in population groups and nursing care of homebound clients. Laboratory settings include homes, schools, industries, public health department, and other community agencies. Prq: Admission to RN/BS program.

NURS H428 Senior Honors II 2(2,0) Students implement a proposal for a major directed study project or research thesis under the guidance of a faculty preceptor. Prq: Senior Honors standing. NURS H405, H420.

NURS 485 Nurse Extern Practicum 6(0,18) Practicum consisting of preceptor-supervised and faculty-directed nursing clinical experiences in a regional health care facility. Prq: Completion of at least one adult health and one pathophysiology course or consent of instructor.

NURS 498 Creative Inquiry—Nursing 1-4(1,0,4) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

NURS 499 Independent Study 1-4(1,0,4) In-depth study in an area of special interest in Nursing. Students develop specific objectives with a faculty member with expertise in the area of interest. May be repeated for a maximum of six credits. Prq: Consent of instructor.

NUTR 203 Principles of Human Nutrition 3(3,0) Study of nutrient functions and requirements, food choices, dietary adequacy, and role of nutrition in physical fitness. Deals with social and scientific issues; health care policy; evaluation and interpretation of nutrition sources from government, private, academic, and the health care sectors. Credit toward a degree will be given for only one of NUTR 203, 205, 451.

NUTR 205 Nutrition for Nursing Professionals 3(3,0) Investigation of targeted general and clinical nutrition topics, including principles of nutrition, life-cycle nutrition, relationships of diet to health and disease, and the role of nursing professionals and nutrition. Credit toward a degree will be given for only one of NUTR 203, 205, 451. Prq: Nursing major, BIOSC 222. Conq: BIOSC 223.

NUTR 210 Nutrition and Physical Activity 3(3,0) Topics include role of carbohydrates, fats, and proteins on energy utilization during exercise; altering body composition and improving fitness with diet and physical activity; importance of fluid intake on performance; effectiveness of dietary supplements and ergogenic aids; and choosing a diet appropriate for individual physical activity levels. Prq: BIOL 120 and 121, 122, 123, or 124; or equivalent.

NUTR 216 Current Issues in Nutrition 1(1,0) Explores current issues in nutrition with emphasis on areas of research and inquiry by faculty.

NUTR 401, H401, 601 Fundamentals of Nutrition 3(3,0) Biochemical and physiological fundamentals of nutrition applicable to man and domestic animals. Considers digestive processes and absorption and metabolism of carbohydrates, lipids, proteins, water, minerals, and vitamins. Discusses energy metabolism and comparative anatomy and physiology of digestive systems. Offered fall semester only. Prq: BIOSC 305, CH 223, or consent of instructor.

NURS 419 Professional Development in Dietetics 1(1,0) Provides the steps for dietetic application process; career development in the dietetics field; and concepts of professional standards. Prq: Senior standing.

NURS 420 Professional Development in Nutrition 1(1,0) Career development in nutrition and concepts of professional standards and development. Prq: Senior standing.

NURS 421 Special Problems in Nutrition 1-4 (0,3-12) Independent research investigation in nutrition. Special emphasis is on developing a research proposal, conducting the research, and reporting the findings. May be repeated for a maximum of six credits, but only if different topics are covered. Prq: Senior standing or consent of instructor.

NURS 424, 624 Medical Nutrition Therapy I 4(3,3) Principles of nutritional assessment, education, and counseling skills; development of medical nutrition therapy for individuals with obesity and eating disorders, gastrointestinal disorders, metabolic and renal disorders. Prq: BIOSC 223, NUTR 451, or consent of instructor.

NURS 425, H425, 625 Medical Nutrition Therapy II 4(3,3) Development of medical nutrition therapy for individuals with various disease states, including cardiovascular, hepatic, musculoskeletal, and neoplastic disorders. Also considers sociocultural and ethnic aspects of food consumption and alternative nutrition therapies. Prq: BIOSC 223, NUTR 424, or consent of instructor.

NURS 426, 626 Community Nutrition 3(3,0) Study of fundamentals of nutrition care delivery in community programs beginning with assessment and problem identification and continuing through the development, implementation, and evaluation of nutrition intervention programs. Prq: NUTR 451 or equivalent or consent of instructor.

NUTR 451, H451, 651 Human Nutrition 3(3,0) Essentials of nutrition and principle nutritional deficiency conditions. Factors affecting adequacy of dietary intake, methods of determining nutritional status, development of nutrition standards, and recent advances in human nutrition. Credit toward a degree will be given for only one of NUTR 203, 205, 451. Prq: BIOSC 223/305/306 or equivalent or consent of instructor.
NUTR 455, 655 Nutrition and Metabolism 3(3,0)
Concepts of metabolism fundamental to understanding normal and therapeutic nutrition are examined. Bioenergetics as well as metabolism of carbohydrates, lipids, amino acids, vitamins, and minerals as they relate to nutrition are discussed. Preq: NUTR 451 and BIOCH 305 or 423 or 406 or consent of instructor.

PACKAGING SCIENCE


PKGSC 101 Packaging Orientation 1(1,0) Overview of the various principles and practices in packaging science, historical development, packaging as a career.

PKGSC 102 Introduction to Packaging Science 2(2,0) Considers functions of a package; materials, processes, and technology used in package development; and the relationship of packaging to the corporation, consumer, and society as a whole. Preq: PKGSC 101 or consent of instructor.

PKGSC 103 Packaging Science E-Portfolio 1(1,0) Packaging Science majors initiate professional electronic portfolios that showcase their skills and experiences and lead to career e-portfolios. Students demonstrate proficiency in using important software tools; are introduced to Packaging Science faculty, emphasis areas, and targeted library services; and discuss academic integrity. Preq: PKGSC 101. Coreq: PKGSC 102 or consent of instructor.

PKGSC 201 Packaging Perishable Products 3(3,0) Covers fundamental characteristics and applications of various materials and systems used to package perishable products such as foods and pharmaceuticals. Discusses packaging issues regarding food, pharmaceutical, and medical packaging. Includes product/package interactions and packaging requirements to address basic theory in food and pharmaceutical protection. Preq: CH 201, PKGSC 202, or consent of instructor.

PKGSC 202 Packaging Materials and Manufacturing 4(3,3) Detailed study of packaging materials including glass, metal, metal foils and sheets, wood, paper, paperboard, plastics, composites, adhesives, coatings, cushioning media; their functional properties in packaging application; laminating and combining of different packaging materials. Preq: PKGSC 102 or consent of instructor.

PKGSC 203 Packaging Research Fundamentals 2(2,0) Principles, methods, and resources for organizing, researching, and reporting technical work in packaging science. Preq: PKGSC 102, 103, ENGL 103, and Packaging Science major; or consent of instructor.

PKGSC 204 Container Systems (Rigid and Flexible) 3(0,0) Examination of all the packages and containers used to develop systems to distribute products. Compatibility of product and package, structural design, costs, and merchandising considerations are stressed. Preq: PKGSC 202, 206 (or concurrent enrollment) or consent of instructor.

PKGSC 206 Container Systems Laboratory 1(0,3) Laboratory practice in sample making, designing and constructing various containers. Preq: PKGSC 204 (or concurrent enrollment).

PKGSC 220 Package Drawing/CAD 2(1,3) Overview of practices specific to packaging design. Introduces drawing fundamentals and computer software as a means of technical drafting and creative expression. Focuses on perception, 2-D rendering, 3-D rendering, and graphic design programs.

PKGSC 299 Creative Inquiry—Packaging Science 1(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits. To be taken Pass/Fail only.

PKGSC 320 Package Design Fundamentals 3(2,3) Study of specific package design concepts. Students understand how the design affects manufacturing processes, costs, and protective functions; begin skill development using hand-drawing and model packages; then move to software-based design and real packages. Preq: CTE 180, PKGSC 204, 206.

PKGSC 368, H368 Packaging and Society 3(3,0) Study of the role of packaging in society as it specifically relates to the responsibilities of the packaging scientist in protecting people and the environment. Includes study of packaging and environmental regulations and guidelines currently in place to achieve these goals. Ability to make informed decisions and ethical judgments is an encompassing goal.

PKGSC 399 Creative Inquiry—Packaging Science 1(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits. To be taken Pass/Fail only.

PKGSC 401, 601 Packaging Machinery 3(3,0) Systematic study of types of machinery used to form, fill, seal, and handle various packaging, products, and packaging materials. Emphasizes basic mechanical, electrical, pneumatic, and hydraulic components of packaging machinery along with packaging machinery terminology. Discusses methods for machine line optimization and layout. Preq: PKGSC 204, PHYS 208, or consent of instructor.

PKGSC 403 Packaging Career Preparation 1(1,0) Preparation for a successful career in Packaging Science by completing the professional e-portfolio, and finalizing a résumé and career e-portfolio. Refines career skills through role playing. Topics include presentations, interviewing, effective collaboration and communication, business and foreign travel etiquette. Coreq: PKGSC 420, second semester senior standing or consent of instructor.

PKGSC 404, H404, 604 Mechanical Properties of Packages and Principles of Protective Packaging 3(3,0) Study of the mechanical properties of products and packages and standard methods of determining these properties. Focuses on the functional properties of packages related to shock and vibration isolation and compression. Preq: MTHSC 106, PHYS 207, PKGSC 204, or consent of instructor.

PKGSC 409 Total Quality Management for the Food and Packaging Industries 3(3,0) See FD SC 409.

PKGSC 416, 616 Application of Polymers in Packaging 4(3,3) Detailed study of polymer science and engineering as applied to packaging science. Includes polymer morphology, rheology, physical properties, processing methods, and polymerization. Emphasizes relationships among processing, structure, and properties. Preq: PKGSC 204, 206; CH 201 or 223; PHYS 207; or consent of instructor.

PKGSC 420, 620 Package Design and Development 3(2,3) Study of the principles and methods practiced in designing and developing packages and packaging systems and of methods used to coordinate and analyze package development activities including interfacing with product development, manufacturing, marketing, purchasing, and accounting. Preq: Second semester Senior standing; PKGSC 320, 368, 401, 404, 416, 430, 440, 464, or consent of instructor.

PKGSC 421 Special Problems in Packaging Science 1(0,3-12) Independent research investigations in packaging science related to packaging materials, machinery, design, and applications. Special emphasis is placed on organizing a research proposal, conducting research, and reporting results. May be repeated for a maximum of 15 credits. Preq: Consent of instructor.

PKGSC 422 Selected Topics in Packaging Science 1-3(1-3,0) Comprehensive study of selected topics in packaging science not covered in detail or contained in other courses. Contemporary developments in each area are stressed. May be repeated for a maximum of 15 credits, but only if different topics are covered. Preq: Consent of instructor.

PKGSC 430, 630 Converting for Flexible Packaging 3(1,6) Study of materials, methods, processes, and equipment used in converting web materials for flexible packaging. Laboratory provides hands-on experience preparing and operating pilot-scale converting equipment. Preq: PKGSC 204, 206; or consent of instructor.

PKGSC 440, 640 Packaging for Distribution 3(3,0) Packages are exposed to various shipping methods and numerous hazards during distribution. To ensure adequate product protection, packaging professionals need to understand the fundamental principles of distribution packaging design. Topics include ASTM and ISTA packaging test methods, packaging design guidelines for distribution, terminology, transport modes, distribution hazards, and protective packaging materials. Preq: PKGSC 454 or consent of instructor.

PKGSC 454, 654 Product and Package Evaluation Laboratory 1(0,3) Laboratory experiments to determine properties of packaging materials and to evaluate the response of packages and products to shock, vibration, and compression. Students operate standard testing equipment and become familiar with industry recognized test methods and standards. Preq: PKGSC 404 (or concurrent enrollment).
Courses of Instruction

PARKS, RECREATION AND TOURISM MANAGEMENT


PRTM 101 Concepts of Leisure 3(3,0) Introduces recreation professions and organizations; government, voluntary, and commercial; overview professional preparation; outlines development of man's uses of leisure and evolution of recreation, city parks, natural resources conservation, and preservation movements as philosophical forces affecting leisure services. Restricted to Parks, Recreation and Tourism Management majors.

PRTM 195 PGM Seminar I 1(1,0) Covers career planning and professional development training needed in the industry with special emphasis on topics covered in the PGA/PGM Level I Training Program. Preq: PRTM 281, consent of instructor.

PRTM 198 Creative Inquiry—Parks, Recreation and Tourism Management 1 1-4(1-3-1-12) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits. To be taken Pass/Fail only.

PRTM 200 The Profession and Practice in Parks, Recreation, and Tourism Management 1 1(0,3) Introduces students to the Parks, Recreation and Tourism Management field. Covers the history and development of the PRTM profession, including professional organizations, current issues and trends, ethical principles and professionalism, and professional competencies and development. To be taken Pass/Fail only.

PRTM 201, H201 The Recreation/Leisure Environment 3(3,0) Discusses the development characteristics of built and natural environmental resource settings for recreation, tourism development, and community expression. Examines human/environment interactions during leisure, including the impact of the recreation environment on people and the impact of people on the recreation environment. Surveys public agencies and private interests in these settings.

PRTM 205 Program and Event Planning 3(2,2) Principles and methods of program development. Time and facility utilization for sport activities, social functions, arts and crafts, outdoor activities, hobbies or special-interest groups, and activities in the cultural and performing arts are pursued.

PRTM 206 Practicum I 1(0,3) Students conduct a recreation program in a supervised setting. A minimum of 90 hours with a leisure agency approved by the University is required. To be taken Pass/Fail only. Preq: PRTM 205, Sophomore standing in Parks, Recreation and Tourism Management.

PRTM 207 Practicum II 1(0,3) Continuation of PRTM 206. Experience in a leisure situation different from the PRTM 206 exposure. A minimum of 90 hours with a leisure agency approved by the University is required. To be taken Pass/Fail only. Preq: PRTM 205, Sophomore standing in Parks, Recreation and Tourism Management.

PRTM 210 Serving Diverse Populations in Parks, Recreation and Tourism Management 3(3,0) Introduces students to the leisure patterns and constraints of diverse constituencies, including members of ethnic and racial minorities, people of diverse socioeconomic status, women, older adults, people with disabilities, and people with alternative lifestyles. Preq: PRTM 101.

PRTM 211 Impacts of Technology and Science in the Context of Play, Recreation and Tourism 3(3,0) Examines the relationship among society, technology, and leisure and recreation. Introduces theories of play, recreation and tourism as they relate to social concerns. Students learn how science and technology have impacted how people play, recreate and travel.

PRTM 220 Conceptual Foundations of Parks, Recreation and Tourism 2(2,0) Introduces students to the conceptual foundations of play, recreation, and leisure as they relate to contemporary society, the lifespan, and the natural environment. Preq: PRTM 200.

PRTM 221 Delivery Systems for Parks, Recreation and Tourism 2(2,0) Introduces students to the various roles, interrelationships, and importance of leisure service delivery systems in designing and operating programs and facilities to serve diverse populations. Also includes discussion of the role and impact of leisure services and community and economic development. Preq: PRTM 200.

PRTM 222 Program and Event Planning in Parks, Recreation and Tourism 3(3,0) Introduces concepts, principles, and skills necessary to plan, implement, and evaluate leisure and recreation programs and events. Topics include assessing needs, developing goals and objectives, selecting programs, events, and resources, marketing, implementation, evaluation, group dynamics and leadership techniques. Preq: PRTM 200.

PRTM 223 Administration/Management in Parks, Recreation and Tourism 4(3,1) Covers the concepts, principles, and skills of administration/management as they relate to leisure and recreation services. Topics include the fundamental principles of research and data analysis, management, human resource management, supervisory leadership, budgeting and financial management, marketing, professional communication, technology, and facility planning and operations. Preq: PRTM 200.

PRTM 224 Legal Aspects of Parks, Recreation and Tourism 2(2,0) Introduces legal foundations and legislative processes, contracts and tort law, regulatory agents and methods of compliance, safety, emergency, and risk management as they relate to recreation, park resources, and leisure services. Preq: PRTM 200.
PRTM 241 Introduction to Community Recreation, Sport and Camp Management 3(3,0)
Conceptual examination of community recreation, including the history and structure of public and private nonprofit recreation agencies with an emphasis on programs and services, career opportunities, funding mechanisms, the role of government, and current trends and issues impacting delivery of services. Prereq: PRTM 101.

PRTM 254 Introduction to Sport Management 3(3,0)
Development of a conceptual understanding of sport management, career opportunities in sport management, and the necessary competencies for the different career fields.

PRTM 270, H270 Introduction to Recreation Resources Management 3(3,0)
Fundamentals of recreation resources management are presented to include the framework of management, management of specific resources, management of visitors, and management of services.

PRTM 281 Introduction to Golf Management 3(2,3)
Development of a conceptual understanding of the golf industry, career opportunities in professional golf management, and specific introductory competencies utilized within the field. Prereq: Professional Golf Management concentration and consent of instructor.

PRTM 282 Principles of Golfer Development 3(3,0)
Introduction to golf instruction. Provides knowledge and skills necessary to develop successful golf programs. Prereq: PRTM 281 or consent of instructor.

PRTM 283 Advanced Methods of Teaching Golf 3(3,0)
Provides students with the knowledge and skills necessary to succeed as golf instructors. Particular emphasis is on golf swing mechanics, learning styles and motivation theory, the business of teaching golf, and the use of advanced technology in golf instruction. Prereq: PRTM 282.

PRTM 295 PGM Seminar II 1(1,0)
Introduction to the golf industry, professionalism, and current issues of interest in the industry with special emphasis on topics covered in the PGA/PGM Training Program Level I. Prereq: PRTM 195.

PRTM 298 Creative Inquiry—Parks, Recreation and Tourism Management II 1-4(1-3,i-12)
In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

PRTM 301 Recreation and Society 3(3,0)
Investigation of the role of recreation in a technological and work-oriented society. Particular emphasis is on recreation behavior, resources, and programming in public and private organizations that serve the public wants. Not open to Parks, Recreation and Tourism Management majors; may not be substituted or otherwise used to meet Parks, Recreation and Tourism Management area requirements. Prereq: 2.0 cumulative grade-point ratio.

PRTM 304 Challenge Course Facilitation 3(2,2)
Develops knowledge and skill in planning, directing, and evaluating group performance in an adventure challenge course environment; emphasis is placed on low and high ropes elements, processing, assessment, safety, and course management. Prereq: 2.0 cumulative grade-point ratio.

PRTM 305 Safety and Risk Management in Parks, Recreation and Tourism Management 3(3,0)
Provisions of safe services, facilities, and activities in the parks, recreation, and tourism domain are studied through the application of germane concepts from the areas of safety, risk management, and liability. Prereq: PRTM 321, Junior standing, 2.0 cumulative grade-point ratio.

PRTM 307 Facility Planning and Operations 3(3,0)
Introduction to recreation facility planning and operations processes. Design, planning, financing, construction, budgeting, personnel, operating policies and procedures, maintenance, and equipment considerations are covered. Prereq: 2.0 cumulative grade-point ratio.

PRTM 308, H308 Leadership and Group Processes in Recreation 3(3,0)
Leadership is analyzed through experience-based learning. Examines various styles of leadership and communication and their probable consequences. Considers techniques for planning large and small group meetings. Examines literature in the field of leadership and group processes. Prereq: 2.0 cumulative grade-point ratio.

PRTM 309 Behavioral Concepts in Parks, Recreation and Tourism 3(3,0)
Studies social psychological concepts concerning leisure behavior in various park, recreation, and tourism settings. Students learn to apply those theories and behavioral concepts required to understand and manage leisure activities and environments. Prereq: PRTM 101, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 311, H311 Therapeutic Recreation 3(3,0)
Examination of the profession of therapeutic recreation by analyzing the history, philosophy, concepts, roles, and functions involved in the therapeutic recreation services. Prereq: 2.0 cumulative grade-point ratio.

PRTM 317 Group Initiatives 3(2,2)
Examination and development of initiation modalities used by therapeutic recreators to teach teamwork, problem-solving communication, goal setting, leadership and personal interaction to diverse populations in a variety of settings. Prereq: 2.0 cumulative grade-point ratio.

PRTM 318 Leisure Lifestyle Management 3(3,0)
Examines principles and techniques applicable to guiding disabled as well as nondisabled individuals in an exploration of leisure needs, barriers, consequences, and accessibility. Prereq: 2.0 cumulative grade-point ratio.

PRTM 320, H320 Recreation Policymaking 3(3,0)
Structures and processes for public park and/or recreation policy formation in the United States. Prereq: 2.0 cumulative grade-point ratio.

PRTM 321, H321 Recreation Administration 3(3,0)
Analysis of the internal organization of a recreation department dealing with finances and accounting, records and reports, publicity and public relations, state and federal legislation, staff organization, coordination of community resources. Prereq: PRTM 308, Junior standing, 2.0 cumulative grade-point ratio.

PRTM 325 Global Perspectives in Leisure, Recreation and Tourism 3(3,0)
Advanced topics in serving diverse populations in Parks, Recreation and Tourism Management. Multicultural and global perspectives on leisure, recreation and tourism, and ways in which recreation serves as a tool for appreciation and respect of other cultures. Prereq: Consent of instructor.

PRTM 330, H330 Visitor Services and Interpretation 3(3,0)
Introduces the philosophy and principles of the art of environmental interpretation. Comprehensive survey of interpretive theory as it applies to the recreation and parks practitioner and the varying settings within the profession. Prereq: 2.0 cumulative grade-point ratio.

PRTM 342, H342 Introduction to Tourism 3(3,0)
Survey of travel and tourism in the United States with focus on terminology, demographics, financial significance, and trends. Prereq: 2.0 cumulative grade-point ratio.

PRTM 343 Spatial Aspects of Tourist Behavior 3(3,0)
Spatial patterns of national and international leisure travel destinations are explored and analyzed regarding their tourist attractiveness. Prereq: 2.0 cumulative grade-point ratio.

PRTM 344 Tourism Markets and Supply 3(3,0)
Acquaints students with the principles of matching tourism markets and supply. Students examine the strategies used in developing markets. Prereq: 2.0 cumulative grade-point ratio.

PRTM 345 Tourism Management 3(3,0)
Examines the management issues associated with offering tourism products and experiences to travelers by the private and public sectors for the purpose of enhancing visitor opportunities, making a profit and affecting change in a destination.

PRTM 346 Heritage Tourism 3(3,0)
Heritage is an important part of tourism and can be the focal point of many journeys. Students are introduced to key concepts and issues in heritage tourism, including management of heritage tourism resources, politics of heritage tourism and the relationship between heritage tourism and authenticity.

PRTM 349 Survey of Tourism Sites 10(3,0)
On-site study of various exemplary components of the travel and tourism industry in the Southeast. There are additional costs to students to cover travel. To be taken Pass/Fail only. Prereq: PRTM 342, Junior standing in Parks, Recreation and Tourism Management, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 351 Risk Management and Certifications in Parks, Recreation and Tourism Management 3(2,2)
Reviews basics of risk management relative to the administration of recreation programs. Certifies students in Red Cross Wilderness First Aid, First Aid for Sports, and CPR for the Professional Rescuer.

PRTM 352 Camp Organization and Administration 3(3,0)
Surveys the development and trends of camping in America. Considers programming for the operations of agency and private camps. Enables students to master the techniques of group living. Laboratory offers practical experience in camp craft including trips and outdoor cooking. Prereq: 2.0 cumulative grade-point ratio.
PRTM 300 Community Recreation in South Carolina 3(1,4) Students study indoor and outdoor recreation facilities, governmental jurisdiction, funding, programming, management, and staffing at community recreation agencies throughout South Carolina during a hands-on five-day field trip. Preq: PRTM 101, 2.0 cumulative grade-point ratio, or consent of instructor.

PRTM 383 Golf Shop Operations 3(3,0) Provides students with the knowledge and skills necessary to succeed as managers of golf shops. Particular emphasis is on fundamental business planning, development of policies and procedures, merchandising, inventory control, pricing, and customer service. Preq: PRTM 282, 2.0 cumulative grade-point ratio.

PRTM 390 Independent Study in Parks, Recreation and Tourism Management 1-3(1-3,0) Comprehensive studies and investigation of special topics not covered in other courses. Emphasizes field studies, community service, and independent readings. May be repeated for a maximum of six credits. Preq: Junior standing, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 391 Selected Topics in Parks, Recreation and Tourism Management 2-3(2-3,0) In-depth examination of developing trends in parks, recreation, and tourism that warrant timely study. May be repeated twice for a maximum of six credits, but only if different topics are covered. Preq: Junior standing, 2.0 cumulative grade-point ratio.

PRTM 392 Special Event Management 3(3,0) Students acquire an in-depth knowledge about the field of special event management. Planning techniques, strategies, and requirements for planning, implementing, and evaluating community events are included. Emphasizes ordnances, planning, funding, and marketing. Preq: 2.0 cumulative grade-point ratio.

PRTM 395 PGM Seminar III 1(1,0) Covers business planning for golf operations and customer relations emphasizing topics covered in the PGA/PGM Training Program Level II checkpoint. Preq: PRTM 295, 2.0 cumulative grade-point ratio.

PRTM 398 Creative Inquiry—Parks, Recreation and Tourism Management III 1-4(1-3,1-12) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

PRTM H399 Introduction to Field Training and Research I 1(1,0) For students pursuing departmental honors, provides an initial orientation to the internship and research requirements including identification of a faculty mentor to supervise these activities. Preq: PRTM 207, consent of instructor.

PRTM 402 Professional Golf Management Alternative Internship 3(0,3) Under the guidance of a qualified professional supervisor, students gain practical experience and apply knowledge acquired in the classroom to the workplace. May be repeated for a maximum of six credits. Preq: PRTM 206, 207 and 404; Parks, Recreation and Tourism Management major in the Professional Golf Management Concentration; and approval of advisor.

PRTM 403 Elements of Recreation and Park Planning 3(3,0) Basic recreation and park planning principles, processes, and trends in area and facility development combine to form the basis for formulation of a relevant knowledge of planning. Preq: Senior standing, 2.0 cumulative grade-point ratio.

PRTM 404 Field Training I 1(1,0) Preparation for field training experience, including topics such as résumé development, interviewing techniques, internship agency selections, and responsibilities of the student, department, and agency. To be taken Pass/Fail only. Preq: PRTM 206, 2.0 cumulative grade-point ratio, consent of instructor. Coreq: PRTM 207.

PRTM 405 Field Training II 6(0,18) Minimum ten weeks (400 hours of uninterrupted, supervised work in a park, recreation or tourism management agency. Under agency supervision, students observe, organize, and implement activities, events, and programs. To be taken Pass/Fail only. Preq: PRTM 206, 207, 404; Senior standing in Parks, Recreation and Tourism Management; 2.0 cumulative grade-point ratio; consent of instructor.

PRTM 407 Personnel Administration in Parks, Recreation and Tourism Management 3(3,0) Study of personnel administration practices in recreation agencies, including employee selection, training, motivation, rewards, evaluation, and legal issues related to personnel and supervision. Preq: PRTM 321, 2.0 cumulative grade-point ratio.

PRTM H408 Honors Internship 6(0,18) Minimum of 400 hours of uninterrupted, supervised work in a park, recreation, or tourism setting. Written report on observations, special project, or research is required in compliance with a contract between student and course instructor. Preq: PRTM H399, consent of instructor.

PRTM 409, H409 Methods of Recreation Research I 3(3,0) Analysis of the principal methods of recreation research, the application of descriptive statistics to recreation research, and the development of a research proposal. Preq: EX ST 301; Senior standing in Parks, Recreation and Tourism Management; 2.0 cumulative grade-point ratio; or consent of instructor.

PRTM 410, H410 Methods of Recreation Research II 3(3,0) Continuation of PRTM 409; includes supervised execution and reporting of results of research proposal developed in PRTM 409 and the application of inferential statistics to research. Preq: PRTM 409, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 412, H412 612 Therapeutic Recreation and Mental Health 3(3,0) Therapeutic recreation services in mental health clinics, institutions, and outdoor settings. Review of disorders and current modes of treatment as they relate to therapeutic recreation. Preq: PRTM 311, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 416 Leisure and Aging 3(3,0) Examines the role of leisure services in later life, the needs of community-based and institutionalized elderly, and the development of service-delivery systems to meet these needs. Preq: 2.0 cumulative grade-point ratio.

PRTM 417 Therapeutic Recreation Processes I 4(3,2) Examination of models, principles, and procedures applicable to comprehensive program planning, specific program plans, individualized care plans, activity analysis, documentation, and evaluation. Preq: PRTM 311 or consent of instructor, three credit hours of human anatomy and physiology, 2.0 cumulative grade-point ratio.

PRTM 418 Therapeutic Recreation Processes II 4(3,2) Examination of theories and concepts that guide therapeutic recreation interventions, including knowledge and use of communication skills, therapeutic relationships, counseling theories, and group processing techniques. Preq: PRTM 311 and 417 or consent of instructor, 2.0 cumulative grade-point ratio.

PRTM 419 Therapeutic Recreation and Aspects of Disability Across the Lifespan 3(3,0) Examination of characteristics and diagnoses of individuals with various disabilities (cognitive, affective, and/or psychomotor domains) across the lifespan. Application of theories and concepts that guide therapeutic recreation interventions as well as examination of disability theory and concepts. Preq: PRTM 311; BIOSC 222 and 223 or equivalent; or consent of instructor, 2.0 cumulative grade-point ratio.

PRTM 420 Therapeutic Recreation Trends and Issues 3(3,0) Advanced principles and practices of therapeutic recreation, including philosophy, ethics, professional development, standards of practice, certification, recreation inclusion, and marketing services. Preq: PRTM 416, 418 or consent of instructor, 2.0 cumulative grade-point ratio.

PRTM 421, H421, 621 Recreation Financial Resources Management 3(3,0) Analysis of recreation financial resources management. Deals with revenue sources and their allocation. Preq: PRTM 321, Senior standing in Parks, Recreation and Tourism Management; 2.0 cumulative grade-point ratio.

PRTM (GEOG) 430, 630 World Geography of Parks and Equivalent Reserves 3(3,0) Major international patterns in the provision and use of urban and rural parks and recreation are examined. Preq: 2.0 cumulative grade-point ratio.

PRTM 431, 631 Methods of Environmental Interpretation 3(2,3) Practice and instruction in the use of equipment and methods available to the interpreter in public contact work. Coaching in presentation and evaluation of live programs and in design, execution, and evaluation of mediated programs is the major emphasis. Programs are delivered to public audiences in the Clemson area. Preq: PRTM 330; Senior standing in Parks, Recreation and Tourism Management; 2.0 cumulative grade-point ratio; consent of instructor.

PRTM 441, 641 Commercial Recreation 3(3,0) Components of offering leisure services and products to the public by individuals, partnerships, and corporations for the purpose of making a profit. Preq: 2.0 cumulative grade-point ratio.

PRTM 444, 644 Tour Planning and Operations 3(3,0) Provides the opportunity to understand the psychology of touring, with emphasis on packaged and group tours and how tours of different types and scale are planned, organized, marketed, and operated. Preq: PRTM 342, 2.0 cumulative grade-point ratio, consent of instructor.
Courses of Instruction

PRTM 445, 645 Conference/Convention Planning and Management 3(0,0) Provides the opportunity to understand the problems of and solutions to conference and convention planning and management from both the sponsoring organization’s and facility manager’s perspectives. Prq: 2.0 cumulative grade-point ratio.

PRTM 460 Leisure Across the Lifespan 3(3,0) Introduces students to ways in which leisure affects human development and human development affects leisure behavior. Prq: PRTM 205, 309, 2.0 cumulative grade-point ratio.

PRTM 467, 647 Perspectives on International Travel 3(3,0) Using the United States as a destination, international travel patterns and major attractions are presented. Factors which restrain foreign travel to the United States are analyzed. Prq: 2.0 cumulative grade-point ratio.

PRTM 451 Seminar in Community Recreation, Sport and Camp Management 3(3,0) Capstone course of case studies applied to management issues focused on community recreation, sport and camp management. Prq: PRTM 206, 207, 405.

PRTM 452, 652 Campus Recreation 3(3,0) Study of the basic components required for administration of successful college union and intramural-recreation sport programs. Prq: 2.0 cumulative grade-point ratio.

PRTM 453 Sports Information and Event Management 3(3,0) Introduction to basic techniques, tools, and procedures associated with sports information and event management activities. Focuses on the application of sports information and event management activities building upon knowledge from personal interviews, selected readings, event management brochures and field experience. Prq: PRTM 254, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 454 Trends in Sport Management 3(3,0) Examination of trends in the sport management area that allows PRTM majors to obtain an updated knowledge base of the field. Students are able to relate their academic studies to the current trends, problems, and management strategies confronting and being used within the sport management industry. Prq: PRTM 254, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 455 Advanced Program Planning 3(3,0) Advanced recreation programming techniques with an emphasis on funding, outcome measurement, customer service, program development, marketing, specialized populations, and current trends and issues impacting the delivery of recreation programs. Prq: PRTM 205, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 471, 671 Social Problems in Recreation Resource Management 3(3,0) Focuses on social problems in recreation resource management focusing on management strategies and techniques for addressing common resource and social problems in recreation resource management. Case studies and problem analysis are emphasized. Prq: PRTM 270, Senior standing, 2.0 cumulative grade-point ratio.

PRTM 474, 674 Advanced Recreation Resources Management 3(3,0) Advanced topics in recreation resource management focusing on management strategies and techniques for addressing common resource and social problems in recreation resource management. Prq: PRTM 270, Senior standing, 2.0 cumulative grade-point ratio.

PRTM 483 Golf Club Management and Operations 3(0,9) Focuses on activities related to merchandising, purchasing and selling, inventory management, vendor selection, pricing strategies, strategies for monitoring sales and inventory related to financial control and customer service. Students are exposed to the responsibilities of a golf professional at a full-service golf club facility. Prq: 2.0 cumulative grade-point ratio. Coreq: COOP 104 and 105.

PRTM 490 Senior Independent Study 1-3(1-3,0) In cooperation with and under supervision of a faculty member, students develop and execute a field study or community project. May be taken for a maximum of six credits. Prq: Senior standing, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 495 PGM Seminar IV 1(1,0) Covers golf shop merchandising and inventory management and supervising and delegating. Emphasizes topics covered in the PGA/PGM Training Program Level III checklist. Prq: PRTM 395, 2.0 cumulative grade-point ratio.

PRTM 498 Creative Inquiry—Parks, Recreation and Tourism Management IV 1-4(1-3,1-4) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

PRTM H499 Presentation of Honors Projects 1(1,0) Under direction of a faculty supervisor, students prepare and deliver oral presentations on projects that were carried out in PRTM H407 or H410. Prq: PRTM H407 or H410, consent of instructor.

PERFORMING ARTS


P A 101 Introduction to Performing Arts 3(3,0) Overview of performing arts, including performance, careers, technology, production, management, community outreach, safety, sales, and marketing. Prq: Performing Arts major. Coreq: P A 103.

P A 103 Portfolio I 1(0,3) Students develop discipline-specific portfolios that display creative design and contain samples of work that demonstrate integrated learning. Coreq: P A 101.

P A 195 Creative Inquiry—Performing Arts 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

P A 201 Performing Arts Seminar I 3(2,3) Study of selected performing arts topics. Includes seminars and masterclasses with faculty and visiting artists and concert and theatre attendance and evaluation. Emphasis is placed on written communication skills. Prq: P A 101, Sophomore standing.

P A 279 Performing Arts Practicum I 1(0,3) Practical work on performing arts presentations including backstage technical work, multimedia support, and arts management. Prq: P A 101.

P A 280 Performing Arts Practicum II 1(0,3) Continuation of practical work on performing arts presentations, with more specialized opportunities for backstage technical work, multimedia support, and arts management training. Prq: P A 279.

P A 295 Creative Inquiry—Performing Arts 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

P A 301 Principles of Arts Administration 3(2,3) Continuation of P A 201 with added focus on critical and ethical analysis of performing arts. Emphasis is placed on oral communication skills. Prq: P A 201, Junior standing.

P A 395 Creative Inquiry—Performing Arts 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

P A 398 Special Topics in Performing Arts 1-3(1-3,0) Select areas of study in performing arts not addressed by other performing arts course offerings. May be repeated for a maximum of six credits, but only if different topics are covered. Prq: P A 101 and consent of instructor.

P A 399 Internship 1-3(3-3,3) Provides performing Arts majors an opportunity to apply technical, managerial, and artistic concepts in a performing arts environment through preplanned, preapproved, faculty-supervised internships. Minimum of 45 hours of work per credit hour. May be repeated for a maximum of six credits. To be taken Pass/Fail only. Prq: P A 279 and consent of Internship Program Coordinator.

P A 401 Senior Capstone Project 4(3,3) Capstone course for Performing Arts majors. Students research, prepare, execute and assess a substantial project for the community as approved by a faculty committee. Students, with faculty guidance, manage all aspects of the project. Prq: P A 301, Senior standing. Coreq: P A 403.

P A 403 Portfolio II 1(0,3) Students revise discipline-specific portfolios through use of current technologies. Further demonstration of integrated learning is provided with the incorporation of senior project research content from P A 401. Coreq: P A 401.

P A 491 Performing Arts Honors Research 3(3,0) Research for the preparation of an honors project. Prq: P A 301 or consent of instructor.

P A 492 Performing Arts Honors Project 3(3,0) Preparation and presentation of an honors project. Prq: P A 491, consent of department chair and project advisor.
PHIL 305 Existentialism 3(3,0) Inquiry into the core themes of existentialism: freedom, meaningfulness or meaninglessness of life, the existence of God, etc. Representative thinkers from the existentialist tradition, such as Dostoyevsky, Kierkegaard, Sartre, and de Beauvoir, are studied.

PHIL 312 Philosophy in Ancient China 3(3,0) Study of the history of Chinese philosophy from fifth century BCE, including Confucianism, Daoism, Moism, legalism, Buddhism, Neo-Daoism, and Neo-Confucianism. Examination of Chinese philosophers’ views and arguments on questions of life and death, history and society, education and personal cultivation. Not be used to satisfy general foreign language requirements.

PHIL 313 Philosophy in Modern China 3(3,0) Study of the history of Chinese philosophy from the 19th century to the present, including Neo-Confucianism, Conservatism, Liberalism, Nationalism, and Chinese Marxism. Examination of the conflict and fate of traditional and modern values in China. All readings and discussions are in English. Not be used to satisfy general foreign language requirements.

PHIL 314 Comparative Topics in Eastern and Western Philosophy 3(3,0) Study of issues and areas of overlapping concern to Eastern and Western philosophical traditions (e.g., ontology, ethics) with emphasis on both contrasts and convergences in philosophical approaches. Topics may vary.

PHIL 315 Ancient Philosophy 3(3,0) Origins and development of rationality as found in the thought of selected philosophers such as Socrates, Plato, and Aristotle.

PHIL 316 Modern Philosophy 3(3,0) Development of the modern view as seen in major Western philosophers of the 16th, 17th, and 18th centuries. Thought of Berkeley, Descartes, Hume, Leibniz, Locke, and Spinoza may be considered to illustrate the development of rationalism and empiricism.

PHIL 317 Nineteenth-Century Philosophy 3(3,0) Development of 19th century philosophy emphasizing selected works of philosophers such as Kant, Hegel, Marx, Nietzsche, and Kierkegaard.

PHIL 318 Twentieth-Century Philosophy 3(3,0) Historical overview of selected significant movements in 20th-century Western philosophy such as Continental and/or analytic philosophy.

PHIL 320 Social and Political Philosophy 3(3,0) Critical consideration of the views of some major philosophers on the nature of the individual’s relation to society and the state in the context of their wider philosophical (logical, epistemological, metaphysical, and ethical) doctrines. Philosophers may include Plato, Aristotle, Augustine, Hobbes, Rousseau, Mill, Marx, Hegel, Rawls, and Nozick.

PHIL 321 Crime and Punishment 3(3,0) Investigates what sorts of conduct should be criminalized and what society should do with those who engage in criminal activity. Specific topics may include the enforcement of morals, euthanasia, hate crimes, deterrence, retribution, and restitution.

PHIL 323 Theory of Knowledge 3(3,0) Examination of concepts, criteria, and decision procedures underlying rational belief and the justification of knowledge claims. Representative answers to the problem of skepticism are considered, with special attention to some leading theories of knowledge.

PHIL 324 Philosophy of Technology 3(3,0) Examines technology and representative philosophical assessments of it with a focus on understanding its impact on the human condition.

PHIL 325 Philosophy of Science 3(3,0) Philosophical study of problems generated by science, but that are not necessarily scientific, such as what comprises a scientific theory; how scientists formulate theories and acquire knowledge; what, if anything, differentiates science from other ways of knowing; what role concepts play in scientific knowledge; whether scientific progress is rational.

PHIL 326 Science and Values 3(3,0) Examination of several features of the relation between science and values. Topics may include ethical and social obligations of scientists, role of value judgements in scientific practice, and influence of social and political values on science and scientists.

PHIL 327 Philosophy of Social Science 3(3,0) Inquiry into the philosophical foundations of social science, in particular questions of objectivity, explanatory structure, causality, agency, normativism and naturalism, and social determination of knowledge.

PHIL 328 Philosophy and Technology of the Body 3(3,0) Examines the interrelation of human bodies and emerging technologies in light of philosophical notions of human nature, personal identity, and the ethical dignity of the human. Emphasizes the influence of social values on scientific and technological developments and the reciprocal impact of these developments on understandings of the body.

PHIL 330 Contemporary Issues in Philosophy 3(3,0) Examination of a variety of issues of broad concern to philosophers today. Issues may vary. May be repeated once for credit with departmental consent.

PHIL 333 Metaphysics 3(3,0) Examination of issues and problems concerning the ultimate nature of reality. Topics may include the appearance/reality distinction, the nature of existence, freedom and determinism, personal identity, idealism, and realism.

PHIL 340 Technology, Environment, and Sustainability 3(3,0) Philosophical examination of how technology contributes to significant environmental change. Considers role of science in justifying claims about (for example) global climate change, role of technology in responding to these changes, how technology affects relations between humans and the extra-human world, and ethical implications of various kinds of technology.

PHIL 343 Philosophy of Law 3(3,0) Explanation of the nature of legal theory and the law through a critical examination of the basic concepts and principles of these fields.

PHIL 344 Business Ethics 3(3,0) Study of ethical issues created by business activities, relating them to fundamental questions of ethics generally. Representative topics may include hiring, firing, promotions, business and minorities, organizational influence in private lives, consumer interests, economic justice, and reindustrialization.
PHIL 345 Environmental Ethics 3(3,0) Study of ethical problems in our dealings with the rest of nature and of how they relate to ethics in general. Representative topics include the basis of ethics, nature and intrinsic value, duties to future generations, economics and the environment, rare species, animal rights, ethics and agriculture, energy doctrine.

PHIL 346 Medical Ethics 3(3,0) Examines ethical dilemmas facing modern medicine. Topics may include controversies surrounding death, reproductive technologies, abortion, allocation of resources, the concept of disease, the doctor-patient relationship, and medical research.

PHIL 347 Ethics in Architecture 3(3,0) Interdisciplinary course focused on the architectural profession and the practices of design, building, and other processes in a social and business context. Consideration is given to both general moral principles and particular case studies.

PHIL 348 Philosophies of Art 3(3,0) Examines some of the predominant attempts to understand art in ancient and modern philosophy and also considers a variety of contemporary views and controversies about the nature, meaning, value, and future of art.

PHIL (W S) 349 Theories of Gender and Sexuality 3(3,0) Examines the philosophical dimensions of contemporary debates about the relation of sex, gender, and sexuality.

PHIL (NURS) 350 Technology and Philosophy in Nursing 3(3,0) See NURS 350.

PHIL 351 Philosophy of Emotion 3(3,0) Considers a range of classic and contemporary readings on the nature and function of emotion. Topics include cognitive, physiological, and constructionist approaches to understanding emotion, emotion and reason, emotion and morality, and select individual emotions.

PHIL 355 Philosophy of Mind and Cognitive Science 3(3,0) Critical examination of philosophical and scientific theories of mental phenomena and of the relationship between mental and material phenomena. Theories of Mind: Body Dualism, Monism, Functionalism, Eliminative and Reductive Materialism, Connectionism, and the status of folk psychology versus cognitive neuroscience are studied.

PHIL 360 Symbolic Logic 3(3,0) Introduction to the basic concepts of modern symbolic logic, including the symbolization of statements and arguments and the techniques of formal proof.

PHIL 370 Philosophy of War 3(3,0) Examines war from both ethical and strategic perspectives: the nature of a just war, the aims of war, and the kinds of general strategies appropriate for achieving those aims.

PHIL 375 Minds and Machines 3(3,0) Examines controversial questions in artificial intelligence and the Computational Theory of Mind. Topics may include "Can machines think?" "What's involved in being able to think?" "Can machines reason, understand, be conscious, be self-aware, learn, be creative, have emotions, and use natural language?" Focus is on manmade computers and the mind as computer.

PHIL 399 Philosophy Portfolio 2(2,0) Creation of a digital portfolio to demonstrate competence in reasoning, critical thinking, and problem solving skills as well as ethical judgment. Course also serves as a resource for academic and professional development. Preq: Junior standing in Philosophy.

PHIL 401, 601 Studies in the History of Philosophy 3(3,0) In-depth study of a selected philosopher, philosophical school, or movement. Topics vary. With departmental consent, may be repeated once for credit. Current topics and course descriptions are available in the department's course offering brochure. Preq: Consent of instructor.

PHIL 402, 602 Topics in Philosophy 3(3,0) Thorough examination of a particular philosophical topic, issue, or problem. Topics vary. May be repeated once for credit with departmental consent. Current topics and course descriptions are available in the department's course offering brochure. Preq: Consent of instructor.

PHIL 422 Anarchism 3(3,0) Philosophical study of the roots of anarchist thought and its current articulations.

PHIL 475 Philosophy of Film 3(3,0) Pursues several issues at the center of recent debate in the philosophy of film. Questions investigated include whether film has an essence that distinguishes it from other art forms, whether films ought to be thought of as having authors or narrators, and whether films can themselves philosophize.

PHIL 490 Law, Liberty and Justice Prelaw Internship 1-3(3,0) Faculty-supervised internship designed for students in the Law, Liberty and Justice emphasis area of the Philosophy major. Interns are placed with law offices or with institutions and agencies in fields related to law and social policy. May be repeated for a maximum of six credits. To be taken Pass/Fail only. Preq: Philosophy major, Junior standing and consent of internship coordinator.

PHIL 492 Creative Inquiry—Philosophy 1-4(1,4) Small group work on particular issues with emphasis on involving students in research. Content varies. May be repeated for a maximum of nine credits. Preq: Consent of instructor.

PHIL H497 Philosophy Honors Research 3(3,0) Students conduct research, clearly define the topic, and complete an annotated bibliography under the supervision of the thesis advisor. Preq: Consent of department chair and thesis advisor.

PHIL H498 Philosophy Honors Thesis 3(3,0) In consultation with the thesis advisor and committee, students write, revise, defend, and complete the thesis. Preq: PHIL H497 and consent of department chair and thesis advisor.

PHIL 499, 699 Independent Study 1-3(1,3) Course of study designed by the student in consultation with a faculty member who agrees to provide guidance, discussion, and evaluation of the project. Student must confer with the faculty member prior to registration. May be repeated for a maximum of six credits. Preq: Consent of instructor.

PHYSICAL SCIENCE

PHYS CS 107 Introduction to Earth Science 4(3,3) Survey of topics in geology, meteorology, astronomy, and oceanography, emphasizing comprehension and practical application of earth science concepts to experiments and activities appropriate for the elementary school classroom. Enrollment priority will be given to Early Childhood and Elementary Education majors.

PHYS 108 Introduction to Physical Science 4(3,3) Survey of topics in chemistry and physics emphasizing comprehension and practical application of physical science concepts to experiments and activities appropriate for the elementary school classroom. Enrollment priority will be given to Early Childhood and Elementary Education majors.

PHYSICS


PHYS 101 Current Topics in Modern Physics 1(0,2) Demonstrations and lectures serving as an introduction to different areas of physics and astronomy are presented by various members of the staff. May include such topics as astrophysics, energy, relativity, and weather, as well as visits to the planetarium.

PHYS 122, 122H Physics with Calculus I 3(3,0) First of three courses in a calculus-based physics sequence. Topics include vectors, laws of motion, conservation principles, rotational motion, oscillations, and gravitation. Credit for a degree will be given for only one of PHYS 122, 200, or 207. Coreq: MTHSC 106.

PHYS 124 Physics Laboratory I 1(0,3) Introduction to physical experimentation with emphasis on mechanical systems, including oscillatory motion and resonance. Computers are used in the experimental measurements and in the statistical treatment of data. Coreq: PHYS 122.

PHYS 199 Creative Inquiry—Physics and Astron- omy 1-4(1,4) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

PHYS 200 Introductory Physics 4(3,2) Introduction to classical physics. Includes elements of mechanics, heat, electricity, and light. May not be substituted for PHYS 122, but may be substituted for PHYS 207, only with the approval of the Department of Physics and Astronomy. Credit for a degree will be given for only one of PHYS 122, 200, or 207. Coreq: MTHSC 105 or equivalent.
### Courses of Instruction

**PHYS 207 General Physics I 3(3,0)** Introductory course for students who are not majoring in physical science or engineering. Covers such topics as mechanics, waves, fluids, and thermal physics. Credit for a degree will be given for only one of PHYS 222, 200, or 207. Coreq: PHYS 210.

**PHYS 208 General Physics II 3(3,0)** Continuation of PHYS 207. Covers such topics as electricity, magnetism, electromagnetic waves, optics, and modern physics. Credit for a degree will be given for only one of PHYS 208 or 221. Coreq: PHYS 207.

**PHYS 209 General Physics I Laboratory 1(0,2)** Introductory laboratory course for students who are not majoring in physical science or engineering. Covers such topics as mechanics, waves, fluids, and heat. Coreq: PHYS 207.

**PHYS 210 General Physics II Laboratory 1(0,2)** Covers such topics as electricity, magnetism, electromagnetic waves, optics, and modern physics. Preq: PHYS 207, 209. Coreq: PHYS 208.

**PHYS 221, H221 Physics with Calculus II 3(3,0)** Continuation of PHYS 220. Topics include thermodynamics, kinetic theory of gases, electric and magnetic fields, electric currents and circuits, and motions of charged particles in fields. Credit for a degree will be given for only one of PHYS 220 or 221. Preq: PHYS 220.

**PHYS 222, H222 Physics with Calculus III 3(3,0)** Continuation of PHYS 221. Topics include wave motion, electromagnetic waves, interference and diffraction, relativity, atomic particles, and atomic and nuclear structure. Preq: PHYS 221.

**PHYS 223 Physics Laboratory II 1(0,3)** Experiments in heat and thermodynamics, electrostatics, circuits, and magnetism. Computers are used in statistical treatment of data. Coreq: PHYS 221.

**PHYS 224 Physics Laboratory III 1(0,3)** Experiments involve atomic, molecular, and nuclear systems. Wave particle duality of light and matter is emphasized. Calculators and computers are used in statistical treatment of data. Coreq: PHYS 222.

**PHYS 240 Physics of the Weather 3(3,0)** Descriptive introduction to meteorology. Includes atmospheric thermodynamics, solar radiation, heat budget, atmospheric circulation, force laws governing air motion, fronts, precipitation, synoptic prediction. Special topics of current interest, such as the effect of environmental pollution on weather and the effect of weather on health, are included.

**PHYS 245 Physics of Global Climate Change 3(3,0)** Descriptive study of the heating and cooling balance of the Earth’s atmosphere and surface and feedback mechanisms that regulate our climate. Past and future temperature trends, atmospheric greenhouse gas inventories, and solar radiative forcing. Evaluation of claims and news about climate change, and their interaction with public opinion.

**PHYS 280 Physics and Reality 3(3,0)** Non-technical study of the content and meaning of modern physics. Begins with first-principles of physics. Evaluates concepts of substance, matter, locomotion, atomization, fields, space, time, and randomness. Includes quantum mechanics, Bells Theorem, theory of relativity, and Godels Theorem. Intended for a broad audience, including specialists and non-specialists.

**PHYS 290 Physics Research I 3(0,3-9)** Individual research project in any area of experimental or theoretical physics or astronomy supervised by a physics or astronomy faculty member. Project need not be original but must add to students’ ability to carry out research. May be repeated for a maximum of six credits. Coreq: Minimum grade-point ratio of 3.0; consent of instructor.

**PHYS 299 Creative Inquiry—Physics and Astronomy 1-4(1-4,0)** In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

**PHYS 401, H401 Senior Thesis 1-3** Semi-original theoretical, experimental, or computational research project performed under the direction of a faculty member. Fields available include astronomy, astrophysics, atmospheric physics, biophysics, high energy physics, relativity, solid state physics, and statistical mechanics. May be repeated for a maximum of six credits. Preq: Nine credits of physics at the 300-400 level.

**PHYS 417, H417, 617 Introduction to Biophysics I 3(3,0)** Introduction to the application of physics to biological problems. Topics include review of elementary chemical and biological principles, physics of biological molecules, and fundamentals of radiation biophysics. Preq: MTHSC 206, PHYS 221, or consent of instructor.

**PHYS 420, 620 Atmospheric Physics 3(3,0)** Study of physical processes governing atmospheric phenomena. Topics include thermodynamics of dry and moist air, solar and terrestrial radiative processes, convection and cloud physics, precipitation processes, hydrodynamic equations of motion and largescale motion of the atmosphere, numerical weather prediction, atmospheric electricity. Preq: MTHSC 108, PHYS 208 or 221.

**PHYS 432, H432, 632 Optics 3(3,0)** Covers a selection of topics, depending on the interest of the student. Topics may include the formation of images by lenses and mirrors, design of optical instruments, electromagnetic wave propagation, interference, diffraction, optical activity, lasers, and holography. Preq: PHYS 221.

**PHYS 441, H441, 641 Electromagnetics I 3(3,0)** Study of the foundations of electromagnetic theory. Topics include electric fields, electric potential, dielectrics, electric circuits, solution of electrostatic boundary-value problems, magnetic fields, and magnetostatics. Preq: PHYS 221 and MTHSC 208, or consent of instructor.

**PHYS 442, H442, 642 Electromagnetics II 3(3,0)** Continuation of PHYS 441. Study of foundations of electromagnetic theory. Topics include magnetic properties of matter, microscopic theory of magnetization, electromagnetic induction, magnetic energy, AC circuits, Maxwell’s equations, and propagation of electromagnetic waves. Other topics may include waves in bounded media, antennas, electromodynamics, special theory of relativity, and plasma physics. Preq: PHYS 441 or consent of instructor.

**PHYS 445 Solid State Physics 1 3(3,0)** Topics include an overview of crystal structures, chemical and atomic bonding, and periodicity in relation to solid materials. Covers electronic, thermal, and magnetic properties of materials, electrical conduction in metals and semiconductors. Overview of the role of electrons and phonons and their interactions is presented. Preq: PHYS 455 or consent of instructor.
INTRODUCTION

D.L. Bodde, X. Hu, W. Lasser, M.A. Agudelo, J. Kerrigan

PLANT PATHOLOGY

Lecturer: S. Gray

PL PH (BIOSC) 340 Plant Medicine and Magic 3(3,0) Study of use of compounds of plant and fungal origin as poisons, hallucinogens, and pharmaceuticals. Preq: BIOL 104/106, CH 102, or consent of instructor.

POLITICAL SCIENCE


PO SC 101, H101 American National Government 3(3,0) Introduction to American national government and politics examining topics such as the Constitution, federalism, political institutions, political behavior, and political participation.

PO SC 102, H102 Introduction to International Relations 3(3,0) Overview of both theory and practice in contemporary global politics. Topics include the structure of and primary actors in the international system; reasons conflict occurs; and roles of international institutions, law, and policy.

PO SC 104, H104 Introduction to Comparative Politics 3(3,0) Introduction to the study of comparative politics in the post-Cold War era, with emphasis on theories and applications. Topics include democratic and nondemocratic systems; ideology; political culture; party systems; and legislative, executive, and judicial structures.

PO SC 199 Introduction to Political Science 1(1,0) Introduction to political science as a discipline. Topics include an overview of the subfields within political science, core research methodologies and source materials, and ethical issues related to the study of political science.

PO SC 302 State and Local Government 3(3,0) Introduction to American state and local governments, including examination of nature and scope of non-national governments and their interaction with the U.S. federal system. Emphasis is on structural features, functions, and policies of non-national governments.

PO SC 305 Creative Inquiry—Political Science 1(3-1,3) Engages students in research projects selected by the Political Science Department faculty. Research projects vary depending on faculty and student interest. May be repeated for a maximum of six credits. Political Science majors may apply a maximum of three credits toward degree requirements. Preq: Consent of instructor.

PO SC 310 Political Science Internship 1-3(1-3,0) Off-campus internship for at least one semester or its equivalent. May be repeated for a maximum of three credits. No more than three hours credit from PO SC 310, 311, 312, 313, 409, 410 may be applied toward a Political Science major or minor or a Global Politics minor. No more than six hours credit from PO SC 310, 311, 312, 313 may be applied toward any other degree. Preq: PO SC 101 and consent of instructor.
PO SC 311 Model United Nations I(0,1) Participation in United Nations simulation exercises in competition with other colleges and universities. May be repeated for a maximum of six credits; however, no more than three hours credit from PO SC 310, 311, 312, 313, 409, 410 may be applied toward a Political Science major or minor or a Global Politics minor. No more than six hours credit from PO SC 310, 311, 312, 313 may be applied toward any other degree. Prereq: Consent of instructor.

PO SC 312 State Student Legislature I(0,1) Participation in state student legislature simulation exercises in competition with other colleges and universities in the state. May be repeated for a maximum of six credits; however, no more than three hours credit from PO SC 310, 311, 312, 313, 409, 410 may be applied toward a Political Science major or minor or a Global Politics minor. No more than six hours credit from PO SC 310, 311, 312, 313 may be applied toward any other degree. Prereq: Consent of instructor.

PO SC 313 Clemson University Model United Nations Conference I(1,0) Course involves preparation for an annual high school Model United Nations conference held on the Clemson campus. Students plan and prepare for the conference in the spring and participate actively in the conference in the fall. No more than three hours credit from PO SC 310, 311, 312, 313, 409, 410 may be applied toward a Political Science major or minor or a Global Politics minor. No more than six hours credit from PO SC 310, 311, 312, 313 may be applied toward any other degree.

PO SC 321 Public Administration 3(3,0) Introduction to public administration, including the elements of organization, personnel and financial management, administrative law, and administrative responsibility. Prereq: PO SC 101, Junior standing, or consent of instructor.

PO SC 341 Quantitative Methods in Political Science 3(3,1) Introduction to quantitative research methods in political science. Topics include research design, measurement, data collection, sampling procedures, and applications of statistical techniques to research problems in political science. Also stresses computer use for elementary data analysis.

PO SC 343 The Mass Media in American Politics 3(3,0) Role and impact of the mass media in the American political system, emphasizing the media’s role in shaping public opinion and in influencing government and public policy. Prereq: PO SC 101, Junior standing, or consent of instructor.

PO SC (E LE, PSYCH, SOC) 356 Social Science of Entrepreneurship 3(3,0) See SOC 356.

PO SC 361, H361 International Politics in Crisis 3(3,0) Factors contributing to the prevalence of tension and conflict in the contemporary global arena are identified and analyzed, with particular emphasis on political, economic, and military elements. Prereq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 362 International Organizations 3(3,0) Examines normative and institutional foundations of civil society. Examines the formal institutions, decision-making processes, and multilateral capacities of international governmental and nongovernmental organizations. Prereq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 363 United States Foreign Policy 3(3,0) American foreign policy in historical perspective, with particular emphasis on decision-making process, contemporary American capabilities and challenges, and analysis of key issues. Prereq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 367 Political Risk Assessment 3(3,0) Risks associated with conducting business and other activities in different countries, especially in the frequently unstable setting of the developing world. Major commercial providers of country risk assessment are identified and critiqued. Prereq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 371 European Politics 3(3,0) Major emphasis on European governments and issues of importance in the European context. Current methods of comparison are studied and applied to the formal and informal functioning of European governments. Prereq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 372 Political Culture of East Asia 3(3,0) Introduction to political culture that commonly characterizes East Asian countries, with emphasis on political subcultures of different nations, and on the analysis of the mutual influence between politics and culture. Prereq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 375, H375 European Integration 3(3,0) Survey course analyzing increasing institutional cooperation between European countries with a focus on the European Union. Prereq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 381 African American Politics 3(3,0) Examination of African American political thought, interests and agenda setting, and dynamics of African Americans’ participation in political and governmental decision making. Prereq: PO SC 101, Junior standing, or consent of instructor.

PO SC (SPAN) 382 Spanish-Language News 1(1,0) Weekly discussions of Spanish-language news articles in the foreign press with an emphasis on political and on the connections among political, economic, social, and cultural trends. Emphasizes Spanish vocabulary as well as cross-cultural contrasts with the United States. May be repeated for a maximum of three credits. Prereq: SPAN 202 or equivalent or consent of instructor.

PO SC (FR) 383 French-Language News 1(1,0) Weekly discussions of French-language news articles in the foreign press with an emphasis on political and on the connections among political, economic, social, and cultural trends. Emphasizes French vocabulary as well as cross-cultural contrasts with the United States. May be repeated for a maximum of three credits. Prereq: FR 202 or equivalent or consent of instructor.

PO SC 399 Selected Topics 1-3(1-3,0) Study of a selected area of political science. May be repeated for a maximum of six credits, but only if different topics are covered. Prereq: Consent of instructor.

PO SC H395 Junior Honors Research Seminar 1(1,0) Readings and discussion to prepare for the Junior Research Paper and the Senior Thesis. Prereq: Junior standing, membership in Calhoun Honors College, consent of instructor.

PO SC H396 Junior Honors Research 1(1,0) Readings and research in conjunction with an approved political science course at the 300 or 400 level. Prereq: Junior standing, membership in Calhoun Honors College, and consent of instructor.

PO SC 403 United States Congress 3(3,0) Examination of the evolution of Congress, congressional elections, the organization of the legislative branch, congressional rules and procedures, decision making, styles of representation, and policymaking. Prereq: PO SC 101, Junior standing, or consent of instructor.

PO SC 405 The American Presidency 3(3,0) Examines the evolution of the presidency, the powers of the chief executive, the public presidency, executive branch organization and staffing, decision making, and political relations with Congress and the federal judiciary. Prereq: PO SC 101, Junior standing, or consent of instructor.

PO SC 407 Religion and American Politics 3(3,0) Examines the impact of religion on American politics, including an analysis of the role of religion in politics, political behavior of major religious groups, constitutional issues and voting behavior. Prereq: PO SC 101, Junior standing, or consent of instructor.

PO SC 409, 609 Directed Study in American Politics 1(1-3,0) Supervised reading and/or research in selected areas of American government. May be repeated for a maximum of six credits; however, no more than three hours credit from PO SC 310, 311, 312, 313, 409, 410 may be applied toward a Political Science major or minor or a Global Politics minor. Prereq: Consent of instructor.

PO SC 410 Directed Study in International Politics 1(1-3,0) Supervised reading and/or research in selected areas of international/comparative politics. May be repeated for a maximum of six credits; however, no more than three hours credit from PO SC 310, 311, 312, 313, 409, 410 may be applied toward a Political Science major or minor or a Global Politics minor. Prereq: Consent of instructor.

PO SC 416, 616 Interest Groups and Social Movements 3(3,0) Empirical and normative examination of the origins, roles, and influence of interest groups and social movements in the United States and of the relationships among interest groups, social movements, and democratic theory. Prereq: PO SC 101, Junior standing, or consent of instructor.

PO SC 421, 621 Public Policy 3(3,0) Introduction to the major approaches to public policy making in American government. Topics include theories and models of policy making, the identification of policy problems, agenda setting, the formulation and adoption of policy, implementation, and program evaluation. Prereq: PO SC 101, Junior standing, or consent of instructor.

PO SC 423, 623 Urban Politics 3(3,0) Examines the nature and scope of politics in urban communities and offers an analysis of urban governance, especially in the interaction of public authority and private institutions in metropolitan areas. Emphasis is on the structure, processes, and problems challenging governments in urban America. Prereq: PO SC 101, Junior standing, or consent of instructor.
PO SC 424, 624 Federalism and Intergovernmental Relations 3(3,0) Introduction to the historical, theoretical, legal, and fiscal aspects of constitutionally divided government. Federal, state, and local division of responsibility for public services is emphasized, along with the emerging devolution of those responsibilities from the federal government to states and localities. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 427, 627 Public Management 3(3,0) Examination of emerging management problems and issues facing federal, state, and local government and the application of management principles, practices, and techniques of public administration. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 428, 628 National Security Policy 3(3,0) National security threats and policy decision making. Issues covered include weapons of mass destruction, terrorism, organized crime, narcotics, arms control, intelligence, and homeland security. Students deliberate and assess threat priorities and crisis management. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 429, 629 Global Issues 3(3,0) Analysis, assessment, and management of the principal threats facing global security today. Topics include rogue nations, regional superpowers, alliances, organized crime, illegal weapons proliferation, and corruption. Emphasis is on the strategies available to the international community for dealing with these threats. Preq: PO SC 102 or 104; Junior standing, or consent of instructor.

PO SC 430 Public Policy Evaluation 3(3,0) Discussion of the role of policy analysis in government. Applications of analytical and computer tools to substantive policy areas such as transportation, economic/community development, education, poverty, and health. Students focus on assessing a policy from a set of options based on analytic criteria as well as developing policy alternatives. Preq: MTHSC 301 or PO SC 341 or equivalent.

PO SC 436 Law, Courts, and Politics 3(3,0) Introduces the principal features of the American legal system. Analyzes how and why legal actors and institutions operate as they do. Explores how the law functions as both a tool and an institution of government, as well as how the court system affects the formation and implementation of public policies. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 437, 637 American Constitutional Law: Rights and Liberties 3(3,0) Examination and analysis of Supreme Court decisions and other legal materials in the areas of civil rights and civil liberties, with an emphasis on freedom of speech, freedom of religion, equal protection of the laws, and privacy rights. Preq: Junior standing or consent of instructor.

PO SC 438, 638 American Constitutional Law: Structures of Government 3(3,0) Examination and analysis of Supreme Court decisions and other legal materials in the areas of national power, federalism, the separation of powers, and the role of the judiciary. Preq: Junior standing or consent of instructor.

PO SC 442, 642 Political Parties and Elections 3(3,0) Study of the distinctive features of the American two-party system with emphasis on presidential elections. Parties are examined as formal organizations, coalitions of voters and interest groups, coordinators of nomination and election processes, and managers of policy-making institutions. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 448, 648 Studies in Political Economy 3(3,0) Political economy describes the relationship between social and political order and the production, consumption and trading of goods. Course introduces special topics on political economy and familiarizes students with the work of Smith, Ricardo, Marx, Weber and Hayek. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Junior standing.

PO SC 449 Political Theory of Capitalism 3(3,0) Examines the ethical foundations of capitalism. Focuses primarily on the major ethical theories that have supported or criticized capitalism throughout history. Topics include justification of private property, role of corporations, the profit motive, and the source of wealth creation. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 450 Political Theory 3(3,0) Moral concepts central to political life, including equality, freedom, community, and individualism. Emphasis is placed on the ideologies that express these concepts, including democracy, liberalism, conservatism, socialism, and Fascism. Philosophers covered range from Plato to Foucault. Preq: PO SC 101 or 102, Junior standing, or consent of instructor.

PO SC 453 American Political Thought 3(3,0) American political philosophy from the 17th century to the present with emphasis on political and social developments since the 1770s. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 454, 654 Southern Politics 3(3,0) Examination of the unique political environment of the American South, with emphasis on the events and social forces that have shaped politics in the region since World War II. Course material is approached from a variety of perspectives, including history, literature, social themes, and political culture. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 455 Political Thought of the American Founding 3(3,0) Intensive seminar on the principles and practices of America's founders (e.g., Washington, Adams, Jefferson, Madison, and Hamilton). Examines how American revolutionaries struggled between 1765 and 1788 to develop new ideas about rights, liberty, equality, constituions, republicanism, separation of powers, representation, federalism, etc. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 456 Diplomacy: The Art of Negotiation 3(3,0) Examines the conduct of foreign policy in the historical and contemporary context. Explores theories and key concepts of international negotiation, offering a comparative look at the behavior and practice of major powers. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 457, 657 Political Terrorism 3(3,0) Examination and analysis of the international phenomenon of terrorism in terms of origins, operations, philosophy, and objectives. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 458, 658 Political Leadership 3(3,0) Comparative examination of political leaders, focusing particularly on types, methods, and consequences of leadership and on the relationship between leaders and followers. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 459 Ethnic Violence 3(3,0) Examination of both theories and case studies of ethnic violence in today's world, with emphasis on understanding potential strategies of conflict resolution. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 461, 661 American Diplomacy and Politics 3(3,0) Analyzes the process of making and implementing strategies to protect and promote American national interests. Focuses on the role of government agencies and executive-legislative relations, as well as the participation and influence of interest groups and the media. Includes a five-day seminar in Washington, DC. Preq: PO SC 363 or consent of instructor.

PO SC 466 African Politics 3(3,0) Comprehensive survey of major regional blocks, as well as analysis of individual states and thematic concepts. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 471 Russian Politics 3(3,0) Comprehensive examination of the Russian Federation since the fall of the Soviet Union. The successes and failures of democratic transition are analyzed, with topics covering political participation, organized crime and corruption, center-periphery conflict, and ethnic/religious unrest. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 472 Japanese Politics 3(3,0) Concepts and operation of contemporary Japan's political system. Emphasis is on institutions building and political economy after World War II. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 473 Eurasian Politics 3(3,0) Examination of the areas of the Caucasus and Central Asia, covering themes that include democratization, globalization, terrorism, and stability. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 476 Middle East Politics 3(3,0) Comprehensive thematic and empirical analysis of the Middle East region. Issues covered include democratization, political and religious freedom, oil, the role of women, and terrorism. States analyzed include Syria, Jordan, Iran, Iraq, Saudi Arabia, Turkey, and the Gulf States. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 477 Chinese Politics 3(3,0) Concepts and operation of contemporary China's political system; emphasizes institutional innovation and political economy in recent reforms. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.
PORT 202 Intermediate Portuguese 3(3,0) Continuation of PORT 201. Prq: PORT 201 or consent of instructor.

PSYCHOLOGY


PSYCH 201, H201 Introduction to Psychology 3(3,0) Introduction to the study of behavior. Analysis of the biological bases of behavior, learning, thinking, motivation, perception, human development, social behavior, and the application of basic principles to more complex phenomena such as education, personal adjustment, and interpersonal relations.

PSYCH 202 Introductory Psychology Laboratory 1(0,2) Major phenomena and methods of psychology are illustrated and investigated in a series of laboratory modules. Students also explore career and academic development issues.

PSYCH 250 Pursuing Happiness 3(3,0) Introduces psychological theories and principles used to study human behavior (methods, cognition, motivation, etc.). The concept of happiness is investigated as a psychological construct across cultures. Offered summer session only.

PSYCH 275 Applied Psychology and Transportation 3(3,0) Introduces psychological principles used to study human behavior (methods, cognition, motivation, etc.).

PSYCH 306 Human Sexual Behavior 3(3,0) The subject of sexual behavior is approached from the psychophysiological, behavioral, and cultural points of view. Evolutionary, historical, and cross-cultural perspectives are considered.

PSYCH 309 Introductory Experimental Psychology 4(3,2) Introduction to the analysis of data from experimental and correlational research in psychology. Emphasizes the applications and logical nature of statistical reasoning. Laboratory periods stress the techniques of data analysis using micro-computers. Prq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 310 Advanced Experimental Psychology 4(3,2) Continuation of PSYCH 309. Focus is on techniques of empirical research (experiments, quasi-experiments, survey research, etc.) that are widely used in psychology. Students design and carry out their own empirical research projects. Ex- tensive practice in the writing of reports is included.

PSYCH 324 Physiological Psychology 3(3,0) Study of human neuroanatomy with emphasis on the function of the nervous and endocrine systems. Discusses the biological basis of behavior in its normal and abnormal dimensions. Prq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 325 Physiological Psychology Laboratory 10(3,H) Demonstrations and techniques of selected physiological procedures are presented to explain the principles discussed in PSYCH 324. Coreq: PSYCH 324.

PSYCH 330 Motivation 3(3,0) Various aspects of motivation are considered by studying physiological, emotional, and environmental influences on behavior. Orientation is empirical rather than theoretical with emphasis on pertinent research, applications, and measurement of motives. Prq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 333 Cognitive Psychology 3(3,0) Study of higher-order mental processing in humans. Topics include memory, learning of concepts, problem solving, and the psychology of language. Prq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 334 Laboratory in Cognitive Psychology 10(2) Selected experiments and demonstrations are conducted to reveal phenomena related to human perception, memory, reasoning, problem solving, and high-level mental processes. Prq: PSYCH 201 with a C or better and PSYCH 309, or consent of instructor. Coreq: PSYCH 333.

PSYCH 340, H340 Lifespan Developmental Psychology 3(3,0) Survey of current theory and research concerned with the psychological aspects of human growth and development across the entire lifespan. Major topics include developmental methods, physical maturation, cognition, socialization, personality, psycholinguistics, intelligence, learning, behavior problems, and exceptional. Prq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 344 Psychology of Adolescence 3(3,0) Study of the psychosocial processes of adolescence. Major emphasis is on personality development, growth of thinking, social and sexual maturation, and varia- tions in adolescence. Prq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 345 Adulthood and Aging 3(3,0) Special consideration of the major psychological processes of aging as they relate to individual behavior and adaptation. Includes the influences of aging on the body, learning and psychomotor skills, thinking and intelligence, employment and productivity, personal- ity, and psychopathology. Opportunity for contact with institutionalized and noninstitutionalized elderly persons is provided. Prq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 352, H352 Social Psychology 3(3,0) Survey course analyzing human social behavior from the perspective of the individual as a participant in social relationships. Major emphasis is on the study of such contemporary social processes as attitude formation and change, interpersonal relations, conformity, conflict resolution, aggression and violence, social commu- nication, and group phenomena. Prq: PSYCH 201 with a C or better or consent of instructor.

PSYCH (E L E, PO SC, SOC) 356 Social Science of Entrepreneurship 3(3,0) See SOC 356.
PSYCH 364 Industrial Psychology 3(3,0) Reviews perception of work from the pre-industrial revolution to the present. Comparative approaches to motivation, development, maintenance, and attraction of successful work behaviors are discussed. Topics include the organization’s responsibilities to the community, implementing a disease- and accident-free workplace, and the effects of consumerism. Preq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 368 Organizational Psychology 3(3,0) Analysis of individual behavior for the purpose of investigating problems in organizations and increasing organization effectiveness. Topics include psychological factors affecting communication, decision making, conflict, leadership, work stress, power, and organizational change. Preq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 369 Leadership in Organizational Settings 3(3,0) Broad survey of theory and research on leadership in formal organizations. A detailed explanation and critical evaluation of major theories (including participative and charismatic leadership) are bridged with helpful remedies and prescriptions for effective leadership in organizations. Preq: PSYCH 201.

PSYCH 370 Personality 3(3,0) Historical and contemporary views of individual differences in behavior, affect, health, coping, and motivation. Covers topics such as personality development and structure, personality assessment, cross-cultural issues, and applications of personality psychology. Preq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 383, H383 Abnormal Psychology 3(3,0) Introduction to the diagnosis and treatment of mental illnesses. Uses current diagnostic standards for mental disorders as a framework for understanding the symptoms, causes, and treatments of the most commonly observed maladaptive behaviors. Preq: PSYCH 201 with a C or better or consent of instructor.

PSYCH H390 Honors Seminar in Psychology 3(3,0) Variable topic seminar for Honors students from all majors. Topics are announced prior to registration for each semester. May be repeated once for credit, but only if different topics are covered. Preq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 408 Women and Psychology 3(3,0) Explores the wide variety of psychological issues that concern women. Emphasizes empirical research on topics such as motherhood, sexual differentiation, motivation, and psychological disorders. Preq: PSYCH 201 with a C or better or consent of instructor.

PSYCH 415 Systems and Theories of Psychology 3(3,0) Study of the development of psychology, particularly during the past 100 years. Emphasis is on giving students a better perspective of present-day psychology. Focus is on the various approaches taken by influential psychologists and the conflicts among these approaches. Preq: PSYCH 201 with a C or better and one 300-level PSYCH course, or consent of instructor.

PSYCH 422, H422 Sensation and Perception 3(3,0) Study of psychophysical techniques of measurement and sensory and perceptual processes related to vision, hearing, and the other senses. Preq: PSYCH 201 with a C or better and one 300-level PSYCH course, or consent of instructor.

PSYCH 423 Sensation and Perception Laboratory 1(0,2) Selected experiments are conducted to demonstrate the phenomena involved in sensation and perception. Preq: PSYCH 309 or consent of instructor.

PSYCH 426 Advanced Physiological Psychology 3(3,0) Advanced studies of the biological basis of behavior with emphasis on functional neuroanatomy and endocrinology. Topics may vary. May not be repeated for credit. Preq: PSYCH 324 or consent of instructor.

PSYCH 435 Human Factors Psychology 3(3,0) Analyses of theoretical issues and research methods related to the interaction between people and machines and human performance. Topics include information processing theory, human control systems and displays, task simulation, perceptual and motor factors limiting human performance. Preq: PSYCH 201 with a C or better and one 300-level PSYCH course, or consent of instructor.

PSYCH 443 Infant and Child Development 3(3,0) Cognitive, emotional, and social development from conception through childhood (up to age 12). Major theories and research findings are covered. Preq: PSYCH 201 with a C or better and PSYCH 340, or consent of instructor.

PSYCH 447 Moral Development 3(3,0) Explores the development of moral reasoning, judgment, and character from a descriptive psychological point of view. Examines the theoretical and empirical work of Jean Piaget, Lawrence Kohlberg, and Elliot Turiel as well as prosocial, eudaemonistic, and cross-cultural alternatives to these ideas. Preq: PSYCH 201 with a C or better; PSYCH 340, 344, or 345; or consent of instructor.

PSYCH 456 Applied Psychophysiology 3(3,0) Explores the various measures used in psychophysiology to study mind-body interactions. Exposes students to the practice of psychophysiology through an integrated hands-on laboratory experience in which students learn about psychophysiological measures by applying them. Preq: PSYCH 201 or consent of instructor.

PSYCH 471 Psychological Testing 3(3,0) Introduction to the theory of psychological testing, emphasizing the principles of measurement and psychometric characteristics of a good psychological test. Issues in test development, administration, and interpretation are reviewed. Educational, industrial, and clinical uses of tests are examined. Preq: PSYCH 201 and 309, or consent of instructor.

PSYCH 475, H475 Brain and Behavior: An Evolutionary Approach 3(3,0) Examines the interactions between the human brain and behavior from an evolutionary perspective. Topics can include: hunger, stress, sleep, sexual attraction, memory, decision making, in-group and out-group, attachment, and maladaptive behaviors. Preq: PSYCH 201 with a C or better, one 300-level psychology course, and junior-senior standing; or consent of instructor.

PSYCH 480, 680 Health Psychology 3(3,0) Study of the role of health-related behaviors in the prevention, development and/or exacerbation of health problems. Emphasis on the biopsychosocial model and its application in the assessment, treatment, and prevention of health problems. Preq: PSYCH 201 with a C or better and one 300-level PSYCH course, or consent of instructor.

PSYCH 482 Positive Psychology 3(3,0) Examines the research, theories, and applications of the psychology of human strengths and well-being. Fundamental research into the cultural, emotional, personality, cognitive/motivational, and developmental correlates of strengths and well-being is examined, as well as application of these principles to a variety of organizational settings. Preq: PSYCH 201 with a C or better and one 300-level PSYCH course, or consent of instructor.

PSYCH 488 Theories of Psychotherapy 3(3,0) Survey of alternative theories of psychological treatment for behavioral and emotional disorders. Various theoretical assumptions, techniques, and applications of each approach are examined and compared, and case examples are considered. Preq: PSYCH 370 or 383 or consent of instructor.

PSYCH 489, 689 Selected Topics 3(3,0) Seminar in current topics in psychology. Topics change from semester to semester and are announced prior to each semester’s registration. May be repeated once for credit, but only if different topics are covered. Preq: PSYCH 201 with a C or better and one 300-level PSYCH course, or consent of instructor.

PSYCH H490 Senior Division Honors Research 1-24(2-4,0) Preparation and defense of a research proposal. Proposed project should be empirical, historical, or theoretical in nature. Preq: Junior standing, consent of department chair.

PSYCH H491 Senior Division Honors Research II 2-4(2-4,0) Completion of the proposed research project resulting in a written thesis. Preq: PSYCH H490.

PSYCH 492 Senior Laboratory in Psychology 10(2) Students complete an integrative review of topics in psychology in the context of producing a reflective portfolio. Preq: Senior standing in Psychology.

PSYCH 493 Practicum in Clinical Psychology 3(1,5) Students apply classroom theory in solving individual and community problems through interaction with community agencies and other professional groups in the mental health area. Students have limited but well-controlled contact with actual clinical problems as they occur in the community environment. Preq: PSYCH 383 and consent of instructor.

PSYCH 495 Practicum in Applied Psychology 3(1,5) Students are provided practical experience in the area of applied psychology. Students usually are involved in a project designed to help solve an industrial problem through a direct application of industrial or social psychology. Preq: PSYCH 352 or 364 or 454; consent of instructor.

PSYCH 497, H497 Directed Studies in Psychology 1-36(0,240) Study under the direction of a faculty member of a particular topic agreed upon by the student and faculty member. May be repeated for a maximum of 12 credits. Preq: Six credits in psychology, a course in research methods, or consent of instructor.
PSYCH 498, H498 Team-Based Research 1-4(1-4,0)
Students conduct psychological research and learn about phases of the research process with a team of their peers under the direction of a faculty member. The collaborative nature of psychological research is emphasized. May be repeated for a maximum of 18 credits. Prereq: Consent of instructor.

READING
Professor: L.B. Gambrell, V.G. Gillis; Associate Professors: P.J. Dunston, S.K. Fullerton; Assistant Professor: J.C. McNair; Visiting Lecturer: M.A. McBride

READ 103 Learning Strategies 2(3,0) Students learn strategies of active learning and critical thinking skills, which become an integral part of their natural thinking processes. Students learn how to generalize and apply newly acquired strategies to a variety of settings and situations.

READ 458 Early Literacies: From Birth to Kindergarten 3(3,0) Provides Early Childhood Education majors with knowledge of theory and research-based, developmentally appropriate instructional practices related to children's literacy development within the home and school from birth to kindergarten. Factors related to assessment and communication within and between the family, school, and teacher are addressed. Prereq: Admission to the professional level.

READ 459, H459 Teaching Reading in the Elementary Grades K–3 3(3,0) Provides early childhood and Elementary Education majors an understanding of teaching reading in the elementary school setting in kindergarten through third grade. Students investigate general principles of language and literacy development and learn methods for teaching and assessing children's literacy. Prereq: ED EC 336, ED F 301, 302; admission to the professional level. Coreq: ED EC 400 for Early Childhood majors.

READ 460, H460 Teaching Reading in the Elementary Grades 2–6 3(3,0) Provides preservice teachers with an understanding of teaching reading in the elementary setting in grades 2–6. Students investigate general principles of language and literacy development and learn methods for teaching and assessing children's literacy. Prereq: ED F 301, 302, 334; admission to the professional level.

READ 461 Content Area Reading Grades 2–6 3(2,3) Provides preservice teachers with an understanding of teaching content area literacy in grades 2–6. Students learn methods and strategies for teaching children to learn with and make use of expository texts. Comprehension, the role of expository texts, and vocabulary learning in content areas are presented. Prereq: READ 460, admission to the professional level. Coreq: ED EL 451, 487, 488 (for Elementary Education majors).

READ 462 Reading and Responding to Children's Literature in the Elementary Classroom 3(3,0) Introduces children's literature across genres. Participants examine strategies for responding to children's literature through various modes and explore cultural issues and controversies related to children's literature. Prereq: READ 460 and admission to the professional level.

READ 463 Teaching Reading and Writing to English Language Learners 3(3,0) Within a framework of the dimensions of cross-cultural knowledge and knowledge of theories and principles related to second language acquisition, participants develop understanding of the reading and writing processes and instructional models, strategies and tools that offer supportive learning for English language learners. Prereq: READ 460 and admission to the professional level.

READ 498, H498 Secondary Content Area Reading 3(2,2) Designed for preservice teachers who are involved with field experiences prior to student teaching full time. Prepares content area teachers to teach the reading skills necessary for effective teaching of content area material. Prereq: Admission to professional level.

RELIGION
Professor: S.E. Grosby; Lecturers: P.A. Cohen, R. Stephens

REL 101 Introduction to Religion 3(3,0) Study of the variety of religious experience and expression in human life.

REL 102, H102 World Religions 3(3,0) Survey of major religious traditions of the world.

REL 301 The Old Testament 3(3,0) Survey of the books of the Old Testament with special consideration given to the development of the concepts, institutions, and theology of the ancient Hebrews.

REL 302 Survey of New Testament Literature 3(3,0) Study of the books of the New Testament from the standpoint of their occasion, content, literary form, and basic theology.

REL 303 The Quran 3(3,0) Survey of Islamic Scripture, its origins, content, and interpretation, with attention to the development of Hadith and Sunna as well.

REL 306 Judaism 3(3,0) Examines the development of Judaism from biblical to modern times.

REL 307 The Christian Tradition 3(3,0) Examination of the development of Christianity in Western civilization from the post-New Testament period to the present, stressing institutional growth and changes, theological currents, and interaction of Christianity with culture.

REL 308 Religions of the Ancient World 3(3,0) Selected religious movements in ancient Mesopotamia, Egypt, Canaan, and the Greco-Roman world with emphasis on movements outside the Judeo-Christian tradition.

REL 310 Religion in the United States 3(3,0) Development of religion in the U.S. from the Colonial period to the 20th century. Attention is devoted to analyzing the broad currents in religious movements and religious thought that have given shape to the American pluralistic experience.

REL 311 Religion in the United States 3(3,0) Development of religion in the U.S. from the Colonial period to the 20th century. Attention is devoted to analyzing the broad currents in religious movements and religious thought that have given shape to the American pluralistic experience.

REL 311 African American Religion 3(3,0) Study of the religious milieu in the U.S. rooted in our African heritage. Background on African tribal religion is included, along with Christian denominations and new religions such as Nation of Islam, Rastafarianism, Voudun, Santeria, and Candoblame.

REL 314 Buddhism in China 3(3,0) Study of Buddhism in Chinese history since the second century. Examination of the translation and interpretation of the texts, major Chinese Buddhist schools, monastic life, and the comprehensive influence of Buddhism on Chinese culture and society. All readings and discussions are in English.

REL 315 Islam 3(3,0) A study of the origins, development, and history of the religion of Islam and Islamic cultures from the time of the Prophet to the present.

REL 330 Contemporary Issues in Religion 3(3,0) Examination of a variety of issues of broad concern to scholars of religion today. Topics may vary. May be repeated for a maximum of six credits with departmental consent.

REL 401, 601 Studies in Biblical Literature and Religion 3(3,0) Critical examination of a selected topic in biblical studies. Topics vary from year to year. May be repeated once for credit. Prereq: Consent of instructor.

REL 402, 602 Studies in Religion 3(3,0) Thorough examination of a selected topic in one or more of the religious traditions of the world or of religious life in a particular region. Topics vary from year to year. May be repeated once for credit. Prereq: Consent of instructor.

REL 404, 604 History of Early Christianity 3(3,0) Study of the history, social and doctrinal, of early Christianity up to 600 A.D. Prereq: Consent of instructor.

REL H497 Religion Honors Research 3(3,0) Students conduct research, clearly define the topic, and complete an annotated bibliography under the supervision of a thesis advisor. Prereq: Consent of department chair and thesis advisor.

REL H498 Religion Honors Thesis 3(3,0) In consultation with thesis advisor and departmental thesis committee, students write, revise, defend, and complete their theses. Prereq: REL H497 and consent of department chair and thesis advisor.

REL 499, 699 Independent Study 1-3(1-3,0) Study of selected problems, issues, or movements in religion under the direction of a faculty member chosen by the student. Student and faculty member develop an individualized course of study approved by the department chair prior to registration. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

RURAL SOCIOLOGY
Assistant Professor: K.L. Robinson

R S (SOC) 303 Methods of Social Research I 3(3,3) See SOC 303.

R S (SOC) 401, 601 Human Ecology 3(3,0) Analysis of the interrelationships between the physical world, modifications in natural environments, human settlement patterns, and institutions that both encourage and regulate environmental modification. Emphasizes conditions whereby natural resources become public policy concerns. Offered spring semester only. Prereq: Junior standing or consent of instructor.
RUSS 361 Russian Literature Since 1910 3(3,0) Close analysis of the development of contemporary communities and their place in society. Continuing effects of industrialization, migration, and technological change on community location and structure are examined. Structural relations of social class, status, and the associations among institutions are explored. Prereq: Junior standing or consent of instructor.

RUSS 495 Field Experience 3(1,8) See SOC 495.

RUSS 498 Independent Study 3(1,6) See SOC 498.

RUSS 101 Elementary Russian 4(3,1) Training in pronunciation, grammatical forms, and syntax with a view to giving the student the fundamentals necessary to hold simple conversations and to read simple Russian texts.


RUSS 201, H201 Intermediate Russian 3(3,1) Brief review of RUSS 101 and 102 with conversation, composition, and dictation, and the beginning of more serious reading of Russian prose in short stories and plays. Prereq: RUSS 102.

RUSS 202, H202 Intermediate Russian 3(3,1) Conversation, composition, and dictation based on readings of more difficult Russian prose than in the earlier courses. Prereq: RUSS 201.

RUSS 297 Creative Inquiry—Russian 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. Arrangements with faculty members must be established prior to registration.

RUSS 305 Russian Conversation and Composition 3(3,0) Practice in spoken Russian emphasizing vocabulary building, pronunciation, and comprehension. Written exercises promote accuracy. Prereq: RUSS 202 or consent of department chair.

RUSS 307 Russian Civilization 3(3,0) Introduction to significant elements of Russian civilization. Emphasis is on social, geographical, political, and artistic aspects of modern Russia. Taught in Russian. Prereq: RUSS 202 or consent of department chair.

RUSS 340 Russian Culture of the Nineteenth Century 3(3,0) Study of achievements in art, science, music, and literature in Russia during the 19th century. Taught in English.

RUSS 360 Russian Literature to 1910 3(3,0) Study of key texts in the modern literary tradition in Imperial Russia from Pushkin to Chekhov. Readings and lectures are in English.

RUSS 361 Russian Literature Since 1910 3(3,0) Study of key texts in modern Russian and Soviet literature with particular focus on Russian modernist movements and Socialist Realism. Readings and lectures are in English.

RUSS 397 Creative Inquiry—Russian 1-4(1-4,0) Students focus on a special research area under the direction of a faculty member. The collaborative character of research in science and technology in society is emphasized. Prereq: May be repeated for a maximum of 12 credits.

SCIENCE AND TECHNOLOGY IN SOCIETY

T S T 101 Survey of Science and Technology in Society 3(3,0) Surveys historical, philosophical, and social studies of science; introduces the basic requisites for scientific and technological literacy; and considers the problems of responsible participation in a scientifically and technologically advanced society.

T S T 102 Ideas, Machinery, and Society 3(3,0) Interdisciplinary discussion course introducing the fundamental themes of STS: the influence of social groups on the development of science and technology and the effects of science and technology on society.

T S T 120 Topics in Science and Technology in Society 3(3,0) Explores ethical, policy and social issues raised by the complex interactions among science, technology and society. Topics vary depending on the instructor.

T S T 171 Scientific Skepticism 3(3,0) Investigation of unusual phenomena using scientific methodology. Explores the interplay of science, pseudoscience, and society through development of critical thinking skills. Discussion-oriented course that focuses on case studies of extraordinary claims.

T S T 301 Science in Context 3(3,0) Develops an understanding of the social character of scientific activity. Through the study of current work by leading historians, sociologists, and philosophers of science, students develop a comprehensive grasp of the social foundations of modern scientific inquiry.

T S T 303 Technology, Culture and Society 3(3,0) Addresses issues that arise from the interaction of technology with its social and cultural context. To better understand how technologies relate to societies and cultures, students learn to use the analytic tools required to evaluate the significance of technology, as well as its relations to social endeavors and cultural endeavors.

T S T 498, H498 Creative Inquiry 1-3(1-3,0) Students conduct research into Science and Technology in Society with a team of their peers under the direction of a faculty member. The collaborative character of research in science and technology in society is emphasized. Prereq: May be repeated for a maximum of 12 credits.

T S T 499 Independent Study 1-3(1-3,0) Study of selected topics under direction of a faculty member selected by the student. Prereq: Junior standing or consent of instructor.

SECONDARY EDUCATION

EDSEC 226 A Professional Approach to Secondary Algebra 3(3,0) Focuses on the pedagogical content knowledge needed to teach algebra effectively. It helps students master algebraic concepts, connections and representations at a deep level and solve meaningful real world problems. Students also explore the history of mathematical and algebraic thought and create meaningful and engaging lessons. Prereq: Secondary Education major in Mathematics Teaching Area or Mathematics Teaching major.

EDSEC 324 Practicum in Secondary English 3(1,3) Preservice secondary English teachers gain both content and pedagogical knowledge by observing and reflecting upon the classroom practices of selected in-service high school English teachers.

EDSEC 326 Practicum in Secondary Mathematics 3(2,3) Preservice secondary mathematics teachers gain both content and pedagogical knowledge by observing and reflecting upon the classroom practices of selected in-service high school mathematics teachers.

EDSEC 327 Practicum in Secondary Science 3(2,3) Preservice secondary science teachers gain both content and pedagogical knowledge by observing and reflecting upon the classroom practices of selected in-service high school science teachers.

EDSEC 328 Practicum in Secondary Social Studies 3(2,3) Preservice secondary social studies teachers gain both content and pedagogical knowledge by observing and reflecting upon the classroom practices of selected in-service high school social studies teachers.

EDSEC 412 Directed Student Teaching in Secondary School Subjects 12(1,33) Program of supervised observation and teaching in cooperation with selected public schools. Opportunities are provided for prospective teachers to obtain experiences in the subject area. Enrollment is limited.

EDSEC 417 Teaching Internship in the Secondary School 6(1,15) Full-time, supervised teaching internship for one semester in cooperation with a participating South Carolina secondary school. Reserved for students seeking certification in critical-need teaching areas. May be repeated for a maximum of 12 credits. To be taken Pass/Fail only. Prereq: ED F 301, 302, 335, READ 498, and one of the following: EDSEC 424, 425, 426, 427. Application approved by the School of Education.
EDSEC 424, H424 Teaching Secondary English 3(2,2)
Development of instructional practices and materials appropriate for secondary English; familiarization with curriculum materials; includes field experiences in local schools in preparation for student teaching. Taught fall semester only. Prq: Second semester Junior standing, admission to the professional level, ED 105, ED F 301, 302, 335, at least 18 hours of English coursework, concurrent enrollment in EDSEC 498, minimum grade-point ratio of 2.5.

EDSEC 425 Teaching Secondary Modern Languages 3(2,2)
Development of instructional practices and materials appropriate for secondary modern languages; familiarization with curriculum materials; includes field experiences in local schools. Taught fall semester only. Prq: Second semester Junior standing, admission to the professional level, ED 105, ED F 301, 302, 335, at least 18 hours of modern language coursework, concurrent enrollment in EDSEC 498, minimum grade-point ratio of 2.5.

EDSEC 426, H426 Teaching Secondary Mathematics 3(2,2)
Development of instructional practices appropriate for secondary mathematics; familiarization with curriculum materials, planning, and implementation of lessons; includes field experiences in local schools. Taught fall semester only. Prq: Admission to the professional level, ED 105, ED F 301, 302, 335, at least 18 hours of mathematics coursework, concurrent enrollment in EDSEC 498, minimum grade-point ratio of 2.5.

EDSEC 427, H427 Teaching Secondary Science 3(2,2)
Development of instructional practices and materials for teaching secondary school science (biological, earth, and physical sciences); familiarization with secondary science curriculum materials; includes field experiences in local schools. Taught fall semester only. Prq: Second semester Junior standing, admission to the professional level, ED 105, ED F 301, 302, 335, at least 18 hours of science coursework, concurrent enrollment in EDSEC 498, minimum grade-point ratio of 2.5.

EDSEC 428, H428 Teaching Secondary Social Studies 3(2,2)
Development of instructional practices and materials appropriate for secondary social studies; familiarization with curriculum materials; includes field experiences in local schools in preparation for student teaching. Taught fall semester only. Prq: Second semester Junior standing, admission to the professional level, ED 105, ED F 301, 302, 335, at least 18 credits of social studies coursework, concurrent enrollment in EDSEC 498.

EDSEC 429 Teaching Internship in Secondary English 9(0,27)
Interns design, implement, and critically reflect upon instructional units and teaching practices in supervised secondary English classes. Interns must provide evidence of performance that meets national and state teaching standards for secondary English. Taught spring semester only. Prq: EDSEC 424. Coreq: EDSEC 454.

EDSEC 444 Teaching Internship in Secondary English 9(0,27)
Interns design, implement, and critically reflect upon instructional units and teaching practices in supervised secondary English classes. Interns must provide evidence of performance that meets national and state teaching standards for secondary English. Taught spring semester only. Prq: EDSEC 424. Coreq: EDSEC 454.

EDSEC 446 Teaching Internship in Secondary Mathematics 9(0,27)

EDSEC 447 Teaching Internship in Secondary Science 9(0,27)

EDSEC 448 Teaching Internship in Secondary Social Studies 9(0,27)

EDSEC 454 Secondary English Capstone Seminar 3(2,3)
Seminar in conjunction with EDSEC 444. Interns reflect upon and solve problems regarding teaching events, share effective teaching practices, and devise ways to document dimensions of effective teaching. Taught spring semester only. Prq: EDSEC 424. Coreq: EDSEC 444.

EDSEC 455 Secondary Mathematics Capstone Seminar 3(2,3)
Capstone seminar accompanying supervised secondary mathematics teaching internship. Satisfies part of the requirements for South Carolina secondary certification. Taught spring semester only. Prq: EDSEC 426. Coreq: EDSEC 446.

EDSEC 457 Secondary Science Capstone Seminar 3(2,3)
Capstone seminar accompanying supervised high school science teaching internship. Satisfies part of requirement for South Carolina secondary science certification. Offered spring semester only. Prq: EDSEC 427. Coreq: EDSEC 447.

EDSEC 458 Secondary Social Studies Capstone Seminar 3(2,3)

EDSEC (ENGL) 485, 685 Composition and Language Studies for Teachers 3(3,0)
Offered spring semester only. Pertains to the design, implementation, and assessment of writing instruction. Required of all English and language arts majors.

SOC 201, H201 Introduction to Sociology 3(3,0)
Sociological perspective: the study of contemporary social problems and social institutions. Taught fall semester only. Prq: SOC 201 or consent of instructor.
SOC 330 Work and Occupations 3(3,0) Introduces changes in the structure of work from preindustrial to postindustrial periods. Topics include the effects of stratification on career decisions, career paths and implications for life changes, social effects of scientific management of work, unionization, globalization, the rise of multinational corporations, and cross-cultural comparisons of management styles. Preq: SOC 201 or consent of instructor.

SOC 331 Urban Sociology 3(3,0) Urbanization as a social process and related conditions of work, family structure, social mobility, crime, lifestyle, technology, and development of urban areas in the Third World. Preq: SOC 201.

SOC 350 Self and Society 3(3,0) Social psychology from the sociological viewpoint. Examines interactional and group influences on such individual conditions as childhood and life-course development, language, emotions, motives, sexuality, deviance, and self-concept. Preq: SOC 201.

SOC 351 Collective Behavior and Social Movements 3(3,0) Spontaneous, transitory, and sporadic group behavior: crowds, panic, riots, fads, and social movements. Preq: SOC 201.

SOC (E L, PSYCH) 356 Social Science of Entrepreneurship 3(3,0) Examines those areas of the social sciences that have direct relevance for entrepreneurs. Topics include processes by which entrepreneurs are shaped by social institutions such as the family and community, public policy implications and influences on entrepreneurship, risk perception, decision making, motivation, leadership, and group dynamics. Preq: SOC 201 or (C R D) 235 or PSYCH 201 or PO SC 101 or 102 or 104 or consent of instructor.

SOC 360 Social Class and Poverty 3(3,0) Overview of economic stratification and inequality. Topics include measuring and explaining inequality, how inequality is reproduced in society, and the consequences for life outcomes. Course also focuses on poverty, including its nature, causes, demographics and consequences. Preq: SOC 201, 202 or consent of instructor.

SOC 380 Introduction to Social Services 3(3,0) Fundamentals of casework practice, including philosophy and values, models of group work, and ethics in social services work. Preq: SOC 201.

SOC 388 The Criminal Justice System 3(3,0) Social systems analysis of criminal justice agencies. Primary focus is on law enforcement and corrections and their interagency relationship with courts and prosecution. Preq: SOC 201.

SOC 389 Criminology 3(3,0) Study of nature and causes of criminal behavior; societal attempts to control crime; social responses to crime, criminals, and the criminal justice system. Preq: SOC 201.

SOC 391 Sociology of Deviance 3(3,0) Study of patterns of deviant behavior: subcultures, careers, and lifestyles of deviants; deviance theory and research. Preq: SOC 201.

SOC 392 Juvenile Delinquency 3(3,0) Study of nature, extent, and causes of juvenile delinquency; societal attempts to control delinquent conduct and gang violence; emergence of the juvenile justice system. Preq: SOC 201.

SOC 394, H394 Sociology of Mental Illness 3(3,0) Mental illness as a social phenomenon, including cultural and social influence, organizational settings of mental health-care delivery, legal issues, patient-therapist relationships, and mental illness intervention as social control. Preq: SOC 201.

SOC 396 Alcoholism: Social Causes, Consequences and Treatment 3(3,0) Issues involved in alcoholism and alcohol abuse, assessment of sociological and social-psychological theories of alcoholism and prevention; societal problems associated with the misuse of alcohol. Preq: SOC 201 or consent of instructor.

SOC 397 Drug Abuse: Social Causes, Consequences and Treatment 3(3,0) Issues involved in drug abuse other than alcohol; assessment of sociological and social-psychological theories of drug use, abuse, and treatment; societal problems associated with the misuse of drugs other than alcohol. Preq: SOC 201 or consent of instructor.

SOC 398 Computer Crime 3(3,0) Traces the history of technological crime and evaluates forensic practices in light of legislation with an analysis of emerging case law. Addresses guidelines for the development of forensic laboratories, the creation of computer crime task forces, search/seizure of electronic equipment, and the evaluation of criminal subcultures.

SOC (R S) 401, 601 Human Ecology 3(3,0) See R S 401.

SOC 404, 604 Sociological Theory 3(3,0) Survey of the development of sociological theory. Required of all Sociology majors. Preq: SOC 201 and Junior standing or consent of instructor.

SOC H408 Honors Thesis Research I 3 Reading and research related to senior honors thesis. Completion of junior honors requirements and approval of department chair and thesis advisor required. Preq: SOC H303, H310, honors status.

SOC H409 Honors Thesis Research II 3 Research and writing related to the senior honors thesis. SOC H408, honors status.

SOC 414, 614 Policy and Social Change 3(3,0) Uses the sociological perspective to examine policy development, implementation, and evaluation in the public and private sectors. Specifically, focuses on values and ethics and effects of social change efforts on the outcomes of policy formation, social planning, and implementation. Preq: SOC 201 and Junior standing or consent of instructor.

SOC 430 Sociology of Organizations 3(3,0) Analysis of administrative organizations and voluntary associations; applied analysis of their formal and informal group relations, communications, and effectiveness. Preq: SOC 201 and Junior standing or consent of instructor.

SOC 432 Sociology of Religion 3(3,0) Sociological analysis of religious systems and movements and their influence on other social institutions. Preq: SOC 201 and Junior standing or consent of instructor.

SOC 433, 633 Globalization and Social Change 3(3,0) Examination of the social and historical causes of development and underdevelopment. Various sociological theories of development are reviewed. Selected countries are examined in an international context. Preq: SOC 201 and Junior standing or consent of instructor.

SOC 444 Sociology of Education 3(3,0) Examines the relationship between education and society. Topics include theoretical perspectives, school organization, social mobility and stratification in schools, race and gender, tracking and school reform. Preq: SOC 201.

SOC (R S) 459, 659 The Community 3(3,0) See R S 459.

SOC 460, 660 Race and Ethnicity 3(3,0) Investigation of sociological perspectives on race, ethnic relations, and social stratification. Includes analysis of the impact of social class on minority movements. Preq: SOC 201 and Junior standing or consent of instructor.

SOC 461, H461 Sociology of Sex and Gender 3(3,0) Examination of theoretical and empirical approaches to the sociology of sex and gender, focusing primarily on contemporary American society. Focuses on how gender intersects with race, ethnicity, social class and sexuality, and how major institutions in society are sites for the maintenance and reproduction of gender roles, expectations and differentiation. Preq: SOC 201 and Junior standing or consent of instructor.

SOC 462 Men, Masculinity, and Society 3(3,0) Consideration of masculinity and social order: norms, roles, relationships, and activities; identity and socialization: work, family, sexuality, war, sports, including subcultural comparisons. Preq: SOC 201 and Junior standing or consent of instructor.

SOC 468 Sociology of Criminal Evidence 3(3,0) Introduction to the types of evidence, collection of evidence, chain of custody, and procedures relating to the introduction of evidence into judicial proceedings. Attention is given to Fourth Amendment constitutional issues, the development of law within American boundaries, and the cross-cultural development of law.

SOC 471, H471, 671 Population Issues and Methods 3(3,0) Study of demographic concepts, theory, and research methods for vital statistics, migration, and population distribution and projections. Consideration of collection and processing of demographic data and organization of demographic data systems. Offered fall semester only. Preq: ANTH 201 or SOC 201 or R S 301.

SOC 480, 680 Medical Sociology 3(3,0) Study of sociocultural factors in the etiology and treatment of physical illness, medical occupations and professions, and the organization of health care delivery systems. Preq: SOC 201 and Junior standing or consent of instructor.

SOC 481, 681 Aging and Death 3(3,0) Sociological orientation to aging populations focusing on the impact of health care, welfare, and retirement systems. Includes dying as a social phenomenon, suicide, euthanasia, and funerals. Preq: SOC 201 and Junior standing or consent of instructor.

SOC 484, 684 Child Abuse and Treatment 3(3,0) Comprehensive examination of child abuse, neglect, and exploitation as major social problems; causes, effects, and prevalence of physical, sexual, and emotional maltreatment; definitional controversies; social policy and legal considerations; therapeutic approaches for children and their caretakers; child maltreatment and the judicial system. Preq: SOC 201 and Senior standing or consent of instructor.
SOCS 486 Creative Inquiry—Sociology 1-3(1-3,0)
Investigates topics and engages in action research projects selected by faculty and students. Goals, research, activities, and outcomes vary from semester to semester and project to project. May be repeated for a maximum of 12 credits. Prereq: SOC 201.

SOCS 491 The Sociology of Policing 3(3,0) Introduction to the major issues of contemporary policing in the U.S. from a sociological perspective. Topics include the changing functions and structure of policing, the police subculture, and the role of the police in a liberal democracy. Prereq: SOCS 390 or consent of instructor.

SOCS 493, 693 Sociology of Corrections 3(3,0)
Analysis of correctional alternatives. Topics include sentencing strategies and their impact, prison populations (male, female, and juvenile), inmate social structures, treatment and custody issues, community-based alternatives (probation, parole, electronic monitoring, and work release), and correctional management issues. Prereq: SOCS 390 or consent of instructor.

SOCS 494, 694 Sociology of Organized Crimes 3(3,0)
Examines the multifarious aspects of criminal organizations, namely their structure, methods, and networks. Specific topics may include white-collar crime and traditional, nontraditional, and transnational organized crime. Prereq: SOCS 201 or consent of instructor.

SOCS 497 Sociology Senior Laboratory 10(0,3) Concludes overview of theory, research, methodology, and fields of sociology. Students add to and finalize complete portfolio, and prepare for post-degree careers and major field test. Prereq: SOCS 205 with a passing grade, Senior standing, 2.0 cumulative grade-point ratio.

SOCS 498 Independent Study 3(1,6) Individual readings or projects in sociological areas not covered in other courses. A written proposal must be approved by the instructor directing the work and by the department chair prior to registration. May be repeated for a maximum of six credits. Prereq: Consent of department chair.

SOCS 499 Seminar in Selected Topics in Contemporary Sociology 3(3,0) Sociological areas of current interest are explored. May be repeated by special arrangement for a maximum of six credits. Prereq: Consent of department chair.

SOILS AND SUSTAINABLE CROP SYSTEMS


SSCS 101 Survey of Soils and Sustainable Crop Systems 1(1,0) Introduces majors to Soils and Sustainable Crop Systems concentrations, career paths, faculty, and University resources. Prereq: Soils and Sustainable Crop Systems major or consent of instructor.

SSCS 102 Academic and Professional Development I 1(1,0) Introduces Soils and Sustainable Crop Systems majors to University library services, evaluates computer program proficiency and begins development of portfolio. Web-based portfolio showcases skills and experiences (e.g. résumés, accomplishments, and work samples) during undergraduate program. Time management and ethical decision making are discussed.

SSCS 333 Agricultural Genetics 3(3,0) Broad study of genetics as it applies to agricultural species and interacting organisms: weeds, pests, pathogens, beneficial organisms. Topics include genetic centers of origin, mutations and chromosomes in species domestication, transmission genetics and reproduction, genetics of qualitative and quantitative traits, genetics of development, and stress responses, agricultural omics. Prereq: BIOL 104/106, 111, or consent of instructor.

SSCS 335 Agricultural Biotechnology 3(2,2) Strategies for the best use of biotechnology and genetic resources to alleviate constraints in global hunger, environmental sustainability, and health. Includes genetic enhancement and chromosome engineering of plant, animal, and microbial species; issues related to commercial implementation; the impact on developing countries, environmental impact, and governmental policies. Prereq: GEN 301 or consent of instructor.

SSCS (CSENV) 350 Practicum 1-6 See CSENV 350.

SSCS 401 Academic and Professional Development II 1(1,0) Soils and Sustainable Crop Systems majors evaluate, critique, and update portfolios for presentation to future employers. Students work with Career Center and instructor to develop interviewing skills and résumés, access professional goals, and identify skills necessary for reaching goals to be competitive. The importance of ethics in soils and sustainable crop systems careers is discussed.

SSCS 445, 645 Regulatory Issues and Policies 1(1,0) Introduction to regulations of agricultural practices and implementation of novel technologies and products. Emphasizes patenting biotechnology in agricultural systems, modified organisms into biological systems, agricultural genetics of development, and stress responses, agricultural omics. Prereq: Consent of department chair.

SSCS 451, 651 Agricultural Biotechnology and Global Society 1(1,0) In-depth discussion of recent articles on agricultural biotechnology and related global issues. Includes independent and comprehensive literature survey and critical discussions on introduction of modified organisms into biological systems, agricultural adoption, and bio-risk assessment. Discussions relate to scientific discovery, application, and regulatory issues of agricultural biotechnology.

SSCS 451, 651 Agricultural Biotechnology and Global Society 1(1,0) In-depth discussion of recent articles on agricultural biotechnology and related global issues. Includes independent and comprehensive literature survey and critical discussions on implementation of biotechnology products in the context of world agricultural production systems and economics. Discusses the role of international agencies and social and ethical issues.

SSCS (ENT) 496 Selected Topics in Creative Inquiry 1-2(1-2,0) Disciplinary and multidisciplinary projects with the goal of developing the student’s ability to discover, analyze, evaluate, and present data. Students are required to document their activities in their ePortfolios. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

SSCS (ENT) 497 Selected Topics in Creative Inquiry Laboratory 1-2(0-3,6) Disciplinary and multidisciplinary research project with the goal of developing the student’s ability to conduct research along with analysis, evaluation and presentation of results. Students are required to document their research activities in their ePortfolios. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

SPANISH


SPAN 101 Elementary Spanish 4(3,1) Course for students with no previous experience in Spanish study. The fundamentals of grammar and vocabulary are taught, and a foundation is provided for building oral and written proficiency. Three hours a week of classroom instruction and one hour a week in the language laboratory.

SPAN 102 Elementary Spanish 4(3,1) Continuation of SPAN 101.

SPAN 104 Basic Spanish 4(3,1) Condensed first-year course for students who have previously studied Spanish. Upon completion, students are prepared to enter Intermediate Spanish.

SPAN 151 Spanish for Graduate Students 3(3,0) Intensive program only for graduate students preparing for the reading examination in Spanish. A minimum grade of B on a final examination will satisfy graduate school foreign language requirement. May be repeated once. To be taken Pass/Fail only. Prereq: Graduate standing.

SPAN 201, H201 Intermediate Spanish 3(3,1) Interdisciplinary course to practice listening, speaking, reading, and writing. Grammatical structures and basic vocabulary are reviewed systematically. Includes literary and cultural perspectives. Prereq: SPAN 102, 121, or consent of department chair.

Courses of Instruction

SPAN 221 Accelerated Spanish II 6(6,0) Accelerated intermediate course that may be taken in lieu of SPAN 201 and 202. Through conversation, composition, dictation, and intensive grammar review, proficiency is stressed. Includes literary readings and cultural perspectives. May not be taken by students who have completed SPAN 201 or 202. Prereq: SPAN 102, 121, or consent of department chair.

SPAN 297 Creative Inquiry—Spanish 1-4(1-4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. Arrangements with faculty members must be established prior to registration.

SPAN 302 Intermediate Spanish Grammar and Composition 3(3,0) Intensive review of Spanish structure, verbs, idioms, and vocabulary with an introduction to syntax and stylistics through controlled and free composition. Prereq: SPAN 202 or consent of department chair.

SPAN 304 Introduction to Hispanic Literary Forms 3(3,0) Introduction to the basic structures and elements of fiction, poetry, drama, and essay, including literary and critical theory, with readings in 19th- and 20th-century Spanish and Spanish-American literature. Prereq: SPAN 302 or 305.

SPAN 305 Intermediate Spanish Conversation and Composition I 3(3,0) Practice in spoken Spanish with emphasis on vocabulary, pronunciation, intonation, and comprehension. Includes written work to increase accuracy and assignments in the language laboratory. Prereq: SPAN 202 or consent of department chair.

SPAN 306 Spanish Composition for Business 3(3,0) Intensive practice of business writing skills through compositions, general review of grammatical structures, and exposure to business vocabulary and concepts. Prereq: SPAN 202 or consent of department chair.

SPAN 307 The Hispanic World: Spain 3(3,0) Introduction to the significant aspects of the culture of Spain from its origins to the present. Emphasizes the artistic, social, historical, political, and contemporary issues of the Iberian Peninsula. Prereq: SPAN 202 or consent of department chair.

SPAN 308 The Hispanic World: Latin America 3(3,0) Introduction to the significant aspects of the culture of Spanish-American countries. Emphasis is placed on the development of the political, economical, geographical, social, and artistic aspects of Spanish America from the indigenous period to the present. Prereq: SPAN 202 or consent of department chair.

SPAN 309 Introduction to Spanish Phonetics 3(3,0) Study of basic concepts of phonetics and phonology, fundamental principles of Spanish pronunciation and International Phonetic Alphabet. Prereq: SPAN 202 or consent of department chair.

SPAN 310 CLIP Summer Immersion Program 6(6,0) Conducted entirely in Spanish for eight hours daily. Consists of activities that combine interrelating cultural topics with language skill practice. Frequent opportunities to converse with native speakers during meals and on excursions. Students receive six credits, three of which may be taken in lieu of SPAN 202. Prereq: SPAN 201.

SPAN 311 Survey of Spanish-American Literature 3(3,0) Literary movements, influences, authors, and works from the Colonial period to the present. Prereq: Six credits in Spanish at the 300 level, including at least one course in literature or culture.

SPAN 313 Survey of Spanish Literature I 3(3,0) Literary movements, influences, and authors from the beginning to the end of the 17th century; representative works, discussions. Prereq: Six credits in Spanish at the 300 level, including three credits of literature or culture.

SPAN 314 Hispanic Linguistics 3(3,0) Familiarizes students with the theory and practice of linguistics applied to Spanish, in order to deepen their knowledge of phonetics, morphology, syntax, semantics and linguistic change. Prereq: SPAN 302 or consent of department chair.

SPAN 316 Spanish for International Trade I 3(3,0) Introduction to commercial Spanish; study of the spoken and written language, protocol, and cultural environment of the Spanish-speaking business world. Business vocabulary, basic business and cultural concepts, and situational practice. Reading and analysis of commercial texts. Prereq: Two 300-level Spanish language, literature, or culture courses; or consent of instructor.

SPAN 318 Spanish Through Culture 3(3,0) Topic-generated conversation course in Spanish through a broad array of artistic manifestations in the Hispanic World emphasizing conversation and short written exercises. Focuses on one Hispanic culture topic which provides a basis for class discussion and short written compositions in Spanish. Prereq: One 300-level course in Spanish.

SPAN (PO SC) 382 Spanish-Language News 1(1,0) See PO SC 382.

SPAN H391 Honors Introduction to Hispanic Literary Forms 1(1,0) One-hour independent study to allow honors students to pursue supervised research on some aspect of Hispanic literature. Coreq: SPAN 301, membership in Calhoun Honors College.

SPAN H392 Survey of Spanish Literature 1(1,0) Independent study allowing honors students to pursue supervised research on a topic of the 15th and 16th century. Coreq: SPAN 313, membership in Calhoun Honors College.

SPAN H393 The Hispanic World: Latin America 1(1,0) One-hour independent study to allow honors students to pursue supervised research on a topic related to Hispanic American history, politics, geography, economics, social institutions, or artistic movements. Coreq: SPAN 308, membership in Calhoun Honors College.

SPAN 397 Creative Inquiry—Spanish I-4(1-4,0) Students focus on a special research area under the guidance of a faculty member. After acquiring the requisite background, students formulate hypotheses for a group project, develop a critical framework, and initiate research on a specific topic.

SPAN 398 Directed Reading 1-3(1-3,0) Directed study of selected topics in Spanish literature, language, and culture. May be repeated for a maximum of six credits. Prereq: Consent of department chair.

SPAN 401 New Spanish Fiction 3(3,0) Study of selected readings by popular emerging and established authors of Spain, with emphasis on current cultural trends. Readings include, but are not limited to, detective novels, regional fiction, and fiction from marginalized groups in Spain. Prereq: SPAN 300-level literature course or consent of department chair.

SPAN 403 Spanish American Women Writers 3(3,0) In-depth study of selected literary works by Spanish American women. Representative authors are studied within their philosophical and socio-political contexts. Prereq: Spanish 300-level literature course or consent of department chair.

SPAN 404 Nineteenth and Twentieth Century Spanish Literature 3(3,0) Selected readings from major authors in Spain. Emphasis is on readings in poetry, theatre, short story, and novels from the 19th to the early 20th century. Prereq: Spanish 300-level literature course or consent of department chair.

SPAN 405 International Trade, Film, and Literature 3(3,0) Readings and films on the social, economic, and political changes of the Hispanic world. Prereq: Spanish 300-level literature or culture course or consent of department chair.

SPAN 406 Hispanic Narrative Fiction 3(3,0) Topic-generated readings from Spanish America and/or Spain. Readings consider gender issues, the family, ethnicity, religion, politics, history, or socioeconomic issues in the Hispanic world. Prereq: Spanish 300-level literature or culture course or consent of department chair.

SPAN 407 Hispanic Film 3(3,0) Films are "read" as texts that mirror Hispanic society. Besides learning about cinematographic techniques in Spanish, topics include comparative analysis of film and literature, film as propaganda, film as "blockbuster," and the cinematic depiction of social, cultural, and historical realities of Hispanic nations. Prereq: Spanish 300-level language, literature, or culture course or consent of department chair.

SPAN 409 Comprehensive Writing in Spanish 3(3,0) Study of stylistics in addition to grammar review; writing paragraphs, short compositions, and creative papers in Spanish on both fiction and non-fiction topics. Prereq: Any 300-level Spanish course or consent of department chair.

SPAN 411 Advanced Spanish Conversation and Composition 3(3,0) Continuation of SPAN 305 with emphasis on greater fluency and sophistication in oral and written expression. Prereq: SPAN 305 or consent of department chair.

SPAN 415 Spanish for Health Professionals 3(3,0) Medical concepts and terminology in Spanish; designed for students who plan to work in professions related to public health care. Prereq: Six credits in Spanish at the 300-400 level.

SPAN 416 Spanish for International Trade II 3(3,0) Study of more complex business vocabulary, cultural concepts, and environment of Hispanic markets. Social, political, and economic issues related to Spanish-speaking countries and their current economic trends. Prereq: Spanish 300-level literature course or consent of department chair.
SPAN 417 Professional Communication 3(3,0)
Skill-oriented course, taught in a seminar format. Students learn established "protocol" for addressing various Spanish-speaking audiences and learn to give professional presentations in Spanish. Preq: Spanish 300-level course or consent of department chair.

SPAN 418 Technical Spanish for Health Management Professionals 3(3,0) Technical health communication course in Spanish with emphasis on managerial and business aspects of the international health industry. Preq: SPAN 415 and six additional credits in Spanish at the 300-400 level.

SPAN 419 Health and the Hispanic Community 3(3,0) Study of cultural aspects of health and health services in Hispanic populations. Taught in Spanish. Preq: SPAN 415 and six additional credits in Spanish at the 300-400 level.

SPAN 420 Hispanic Drama 3(3,0) Exploration of contemporary Hispanic theatre. The production and reception of the plays are analyzed paying particular attention to notions of dramatic genre. Focuses on the changes and continuity of the plays as well as their historical, cultural, and ideological backgrounds. Preq: Two 300-level Spanish literature or culture classes.

SPAN 421 Spanish-American Modernism and Postmodernism 3(3,0) In-depth study of Spanish-American modernism and postmodernism with focus on narrative and poetry. Preq: Any 300-level Spanish literature course or consent of department chair.

SPAN 422 The Contemporary Spanish-American Novel 3(3,0) New trends in the development of the Spanish-American novel from the 1940s to the present. Preq: Spanish 300-level literature course or consent of department chair.

SPAN 423 Advanced Topics in Hispanic Linguistics 3(3,0) Continuation of SPAN 314 with advanced topics. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: SPAN 314.

SPAN 435 Contemporary Hispanic Culture 3(3,0) Study of social, political, economic, and artistic manifestations of contemporary Hispanic culture. Preq: Spanish 300-level civilization or culture course or consent of department chair.

SPAN H438 Spanish Honors Research 3(3,0) Individual honors research conducted under the direction of Language Department faculty. May not be used to satisfy requirements for the major in Modern Languages–Spanish or Language and International Trade or the minor in Modern Languages. Preq: Junior standing, membership in Calhoun Honors College.

SPAN H439 Spanish Honors Thesis 3(3,0) Individual honors research conducted and thesis completed under the direction of Language Department faculty. May not be used to satisfy requirements for the major in Modern Languages–Spanish or Language and International Trade or the minor in Modern Languages. Preq: Junior standing, SPAN H438, membership in Calhoun Honors College.

SPAN H491 Hispanic Narrative Fiction 1(1,0) One-hour independent study to allow honors students to pursue supervised research on the socio-political climate under Franco's dictatorship, with emphasis on contemporary literary theory. Coreq: SPAN 406; membership in Calhoun Honors College.

SPAN H492 Contemporary Latin American Novel 1(1,0) One-hour independent study to allow honors students to pursue supervised research in the literary and cinematographic images of magic realism. Coreq: SPAN 422, membership in Calhoun Honors College.

SPAN 497 Creative Inquiry—Spanish 1-4(1-4,0) Continuation of research initiated in SPAN 397. Students complete their project and disseminate their research results. Preq: SPAN 397 or consent of instructor.

SPAN 498 Independent Study 1-3(1-3,0-3) Directed study of selected topics in Spanish language, literature, and culture. May be repeated for a maximum of six credits. Preq: Consent of department chair.

SPAN 499, 699 Special Topics 3(3,0) Study of timely or special topics in Spanish. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Consent of department chair.

SPECIAL EDUCATION

Professors: V.I. Correa, A. Katsiyannis, P.M. Stecker; Associate Professors: M.J. Hodge, P.J. Riccomini; Assistant Professors: K.A. McDuffie, J.B. Ryan; Clinical Faculty: R.E. Fish

ED SP 370, H370 Introduction to Special Education 3(3,0) Survey of students with disabilities and with gifts/talents. Individuals with Disabilities Education Act is emphasized, including general educator's role in serving students with special needs. Characteristics, assessment, and effective instructional procedures for students of varying exceptionalities are addressed. Preq: Minimum grade-point ratio of 2.0.

ED SP 371 Characteristics of the Mildly Handicapped 3(3,0) Surveys the characteristics which distinguish the mildly/moderately handicapped from the more severely handicapped. Preq: Minimum 2.0 grade-point ratio.

ED SP 372 Characteristics and Instruction of Individuals with Learning Disabilities 3(3,0) In-depth coverage of characteristics and identification procedures for individuals with learning disabilities. Effective instructional strategies are addressed. Students participate in field experiences throughout the semester. Offered fall semester only. Preq: ED SP 370; admission to professional level.

ED SP 373 Characteristics and Instruction of Individuals with Intellectual Disabilities and Autism 3(3,0) In-depth study of the etiology, assessment procedures, learning and behavioral characteristics, and effective instructional strategies related to the education of individuals with intellectual disabilities and autism. Students participate in a field experience throughout the semester. Preq: ED SP 370; admission to professional level.

ED SP 374 Characteristics and Strategies for Individuals with Emotional/Behavioral Disorders 3(3,0) In-depth coverage of characteristics and identification procedures for individuals with emotional or behavioral disorders. Effective instructional strategies and behavior management are addressed. Students participate in field experiences throughout the semester. Preq: ED SP 370; admission to professional level.

ED SP 468 Early Intervention Strategies for Young Children with Special Needs 3(3,0) Provides students with a working knowledge of the history and legal precedence for providing early intervention services, the characteristics of young children with special needs and their families, and effective instructional techniques for working with this population. Students participate in field experiences throughout the semester. Preq: ED SP 370.

ED SP 469, 669 Characteristics of Individuals with Emotional and Behavioral Disorders 3(3,0) Addresses the characteristics of individuals with emotional and behavioral disorders. Consideration is given to historical and legal aspects, definitions, comprehensive assessment, and the impact of school, home, culture, and society on individuals with behavior disorders. Research findings in the field of behavior disorders are emphasized. Preq: ED SP 370.

ED SP 470, 670 Characteristics of Individuals with Learning Disabilities 3(3,0) Provides specific knowledge of definitions, evaluation procedures, cognitive, social, academic, and functional skills of individuals with learning disabilities across the lifespan. Preq: ED SP 370.

ED SP 472, 672 Characteristics of Individuals with Mental Retardation 3(3,0) Characteristics of mental retardation across the lifespan: learning, behavioral, and developmental aspects are examined. Preq: ED SP 370.

ED SP 473, 673 Educational Procedures for Individuals with Mental Retardation 3(3,0) Identification, selection, and preparation of functional curriculum materials and pedagogy for teaching students with mental retardation. A multidisciplinary, student-centered approach to program planning provides the framework. Preq: ED SP 472.

ED SP 474, 674 Procedures for Individuals with Emotional and Behavioral Disorders 3(3,0) Assists students in developing specific strategies for teaching individuals with emotional and behavioral disorders, utilizing preventive measures, expanding skills in behavior analysis, and implementing the least restrictive intervention warranted. Includes programmatic considerations, social skill instruction, curriculum selection, IEP development, and effective transition. Preq: ED SP 469.

ED SP 475, 675 Educational Procedures for Individuals with Learning Disabilities 3(3,0) Provides knowledge of educational evaluation and instructional procedures to improve outcomes for individuals with learning disabilities. Preq: ED SP 470 or consent of instructor.

ED SP 476, 676 Practicum in Learning Disabilities 3(2,3) Addresses content knowledge, skills, and professional values for successful teaching of students with learning disabilities. Focuses on teacher-directed instruction and the use of critical instructional factors, the use of recommended practices for individuals with learning disabilities, and the measurement and analysis of student performance data. Preq: ED SP 470, 475; completion of student teaching.
ED SP 478, 678 Practicum in Emotional and Behavioral Disorders 3(2,3) Addresses content knowledge, performance skills, and professional values for successful teaching of students with emotional and behavioral disorders. Focuses on teacher-directed instruction and the use of critical instructional factors, the use of recommended practice for students with disabilities, and the measurement and analysis of student performance data. Prq: ED SP 474; completion of student teaching.

ED SP 479, 679 Practicum in Mental Retardation 3(2,3) Addresses content knowledge, performance skills, and professional values for successful teaching of students with mental retardation. Focuses on teacher-directed instruction and the use of critical instructional factors, the use of recommended practices for students with disabilities, and the measurement and analysis of student performance data. Prq: ED SP 473; completion of student teaching.

ED SP 491 Educational Assessment of Individuals with Disabilities 3(2) Introduction to assessment process (verification) in special education. Includes procedural safeguards; data collections via informal and standardized procedures; issues in assessment; psychometric properties of standardized tests; and administration, scoring, and interpretation of selected instruments. Offered spring semester only. Prq: ED SP 372, 373.

ED SP 492 Mathematics Instruction for Individuals with Mild Disabilities 3(0) Prepares students to provide explicit instruction in mathematics for individuals with mild disabilities. Students learn to assess, analyze and teach math skills systematically. Offered fall semester only. Prq: ED SP 374, 491; concurrent enrollment in ED SP 493, 494, 496, 497.

ED SP 493 Classroom and Behavior Management for Special Educators 3(3) Students describe various intervention strategies for increasing and maintaining appropriate behaviors and for decreasing or eliminating inappropriate behaviors. Students accurately recognize, record, and chart inappropriate behaviors; employ the least restrictive intervention; foster self-management skills; and develop preventive strategies and classwide systems for managing academic and social behavior. Offered fall semester only. Prq: ED SP 374, 491; concurrent enrollment in ED SP 493, 494, 496, 497.

ED SP 494 Teaching Reading to Students with Mild Disabilities 3(0) Emphasizes the knowledge and skills necessary for teaching reading to students with mild disabilities. Offered fall semester only. Prq: ED SP 374, 491; concurrent enrollment in ED SP 492, 493, 496, 497.

ED SP 495 Communication and Collaboration in Special Education 3(0) Focuses on effective communication skills for preservice special education teachers to encourage collaboration among relevant stakeholders and improve outcomes for individuals with disabilities. Prq: ED SP 492, 493, 494, 496, 497; concurrent enrollment in ED SP 498.

ED SP 496 Special Education Field Experience 3(0,9) Supervised practical experience prior to Directed Teaching for preservice special education teachers preparing to teach individuals with mild/moderate disabilities. Offered fall semester only Prq: ED SP 374, 491; concurrent enrollment in ED SP 492, 493, 494, 497.

ED SP 497 Secondary Methods for Individuals with Disabilities 3(3,0) Preparation for working with students with mild/moderate disabilities in secondary schools. Focus is on literature, methods, and materials for providing instruction in transition, self-determination, knowledge within content areas, functional skills, and integration into the community. Offered fall semester only. Prq: ED SP 374, 491; concurrent enrollment in ED SP 492, 493, 494, 496.

ED SP 498 Directed Teaching in Special Education 12(1,3) Comprehensive course providing a full-time, semester-long experience for preservice special education teachers who plan to teach individuals with mild/moderate disabilities. Generally the last course in the program; provides teaching experience under the supervision of University and school personnel. Offered spring semester only. Prq: ED SP 492, 493, 494, 496, 497; concurrent enrollment in ED SP 495.

THEATRE

Professors: M.J. Charney, D.J. Hartmann; Associate Professors: K.L. Johnson, A.M. Penia; Assistant Professor: K. Seymour; Lecturers: J. Adkins, C. Collins, S. Robert

THEA 195 Creative Inquiry—Theatre 1(1,4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

THEA 210, H210 Theatre Appreciation 3(3,0) Examination of the theatre event approached through historical context, play reading, analysis of production practices, and field trips to live dramatic performances.

THEA 267 Stage Makeup Techniques 3(2,1) Practically study of basic stage makeup techniques for the acting student including corrective makeup, modeling with paint, three-dimensional makeup, prosthesis with latex, and makeup for other media.

THEA 277 Production Studies in Theatre 3(3) Study of technical production and design including scenery, costume, and lighting through the examination of plays in production.

THEA 278 Acting I 3(2,3) Fundamentals of acting: basic stage techniques; exercises in interpretation, improvisation, characterization; experience in supervised scene study.

THEA 279 Theatre Practicum 1(0,3) Practical work in theatre on a production designed for public presentation. May be repeated for a maximum of four credits.

THEA 288 Introduction to Computer-Aided Drafting 3(2) Introduction to the basics of computer-aided drafting. Software applications include AutoCAD, Vectorworks, and WYSIWYG.

THEA 295 Creative Inquiry—Theatre 1(1,4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. Creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits.

THEA (MUSIC) 308 Survey of Broadway Musicals I 3(3,0) See MUSIC 308.

THEA (MUSIC) 309 Survey of Broadway Musicals II 3(3,0) See MUSIC 309.

THEA 315 Theatre History I 3(3,0) Historical survey of Western theatre. Emphasis is placed on the changing roles of the playwright, director, actor, technician, and spectator from antiquity to the Renaissance. Prq: Sophomore standing.

THEA 316 Theatre History II 3(3,0) Historical survey of Western theatre. Emphasis is placed on the changing roles of the playwright, director, actor, technician, and spectator from the Renaissance to the present. Prq: Sophomore standing.

THEA 317 African-American Theatre I 3(3,0) Accruals students with the origin and development of African-American playwrights, plays, players, and their contributions to the American theatre from the 19th century to the Civil Rights Movement.

THEA 318 African-American Theatre II 3(3,0) Accruals students with the development of African-American playwrights, plays, players, and their contributions to the American theatre from the Black Arts Movement to the present.

THEA (MUSIC) 329 Musical Theatre Vocal Performance 3(2,2) See MUSIC 329.

THEA (ENGL) 347 The Structure of Drama 3(3,0) Introduction to the creative writing and critical study of drama. Prq: ENGL 310 or consent of instructor.

THEA 367 Costume Technology 3(2,3) Theory and practice of costume technology including equipment, patterning, fabric identification, cutting, construction, and fitting.

THEA 368 Voice for the Stage 3(2,3) Study of the principles of vocal production and standard American speech for the stage; exercises in breath support and projection, improving tonal quality, and elimination of regional dialects through the study of the International Phonetic Alphabet. Prq: Sophomore standing.

THEA 372 Creative Drama 3(3) Practical applications using creative drama as a learning tool to strengthen curriculum goals and heighten student participation in the classroom. Students develop classroom teaching strategies based on drama education. Appropriate for elementary and secondary teachers, artists, and workshop leaders.

THEA 374 Stage Movement for Actors 3(1,2) Study of the psychological and physical sources of movement in the human body, with emphasis on the attainment of intellectual and physical control and the application of the skills to the development of a role.

THEA 376 Stage Directing I 3(2,3) Directing and staging techniques for the proscenium stage; exercises in composition, movement, picturization; experience in direction of scenes. Prq: Sophomore standing.

THEA 377 Stagecraft 3(2,3) Theory and practice of stage design and technology. Prq: Sophomore standing.

THEA 379 Acting Ensemble 1(0,3) Performance opportunities in the area of theatre for young audiences. Students are members of a theatrical touring troupe and perform in a variety of spaces and locations. May be repeated for a maximum of four credits. By audition only.
THEA 395 Creative Inquiry—Theatre 1(4-1,4,0) Consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits. 

THEA 398 Special Topics in Theatre 3(3,0) Select areas of study in theatre not addressed by other theatre course offerings. May be repeated once. Preq: Consent of instructor. 

THEA (ENGL) 347 or consent of instructor. 

THEA 467 Costume Design 3(3,0) Theory and practice of costume design for the theatre including the study of production concept and styles, sketching, and rendering. Preq: THEA 367 or consent of instructor. 

THEA 472, 672 Improvisation: Interpreting and Developing Texts 3(3,0) Practical applications using drama as a learning tool to strengthen writing skills, motivate collaboration, heighten analytical skills. Students use improvisation to analyze texts and to revise original work, consider theory and research of contemporary scholars, and develop approaches to literature and composition based on readings and drama experiences. Preq: Senior standing or consent of instructor. 

THEA 476 Stage Directing II 3(2,3) Continued study in the art of stage directing emphasizing leading contemporary theory and methodology. Culminates in the production of a one-act play for public presentation. Preq: THEA 376 or consent of instructor. 

THEA 477 Stage Design 3(2,3) Study and practice in stage design, including drafting, graphics, drawing, rendering, scene painting, and light plotting. Preq: THEA 377 or consent of instructor. 

THEA 479 Acting II 3(2,3) Continued study in the craft of acting for contemporary Western theatre. Students focus on monologue and scene study in a variety of performance settings. Preq: THEA 278 and consent of instructor. 

THEA 480 Advanced Scene Study for Actors 3(2,3) Students interpret and perform characters in complex plays written in heightened styles and integrating period movement into the various genres and styles of plays throughout major periods of theatre history. Styles include Elizabethan, Comedy of Manners, Farce, Chekhov Realism, Absurdism, Mamat, and various contemporary approaches. Preq: THEA 479 or consent of instructor. 

THEA 487, 687 Stage Lighting 1(3,1,2) Theory and practice of stage lighting through an understanding of various lighting instruments, lighting control systems, and execution of lighting designs. 

THEA 488 Stage Lighting II 3(2,3) Study of advanced stage lighting theories and practices including script analysis, technology, software and execution of lighting designs. Other topics include unions and contracts, shop orders, and assisting the lighting designer. Preq: THEA 487 or consent of instructor. 

THEA 495 Creative Inquiry—Theatre 1(4-1,4,0) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits. 

THEA 497, 697 Scene Painting 3(2,1) Practical study of basic painting techniques for the theatre including layout, proper use of materials, painting styles, and texturing techniques. 

THEA 499, 699 Independent Studies 1-3 (1-3,0) Tutorial work for students with special interests outside the scope of existing courses. May be repeated for a maximum of six credits. Preq: Consent of department chair. 

WILDLIFE AND FISHERIES BIOLOGY 


W F B 101 Introduction to Wildlife and Fisheries Biology 1(1,0) Informative sketch of aquaculture, fisheries science, and wildlife management. Introduces principles, resources, professional organizations, and careers in these fields. Offered fall semester only. Preq: Wildlife and Fisheries Biology major or consent of instructor. 

W F B 102 Methods of Wildlife and Fisheries Biology 10(2) Introduction to methodology used in aquaculture, fisheries science, and wildlife management. Students are introduced to terminology, techniques, laws, and legislations. Skills with dimensions, units, computations, and technical communications as applied to aquaculture, fisheries, and wildlife. Preq: Wildlife and Fisheries Biology major. Coreq: W F B 101. 

W F B 300 Wildlife Biology 3(3,0) Natural history, biology, and conservation of wildlife managed by natural resource agencies. Attention is given to those factors important in the management and conservation including species distribution and abundance, habitat requirements, and life-history characteristics. Principles and problems associated with conservation of selected wildlife species are covered. Preq: Two semesters of introductory biology. 

W F B 301 Wildlife Biology Laboratory 10(3) Identification of wildlife species with emphasis on game and non-game wildlife species managed or protected by state and federal agencies. One or more required weekend field trips will be scheduled. Preq: Wildlife and Fisheries Biology major. Coreq: W F B 300. 

W F B 306 Introduction to Wildlife Conservation 2(2,0) Examines the fundamental thinking upon which modern conservation programs have been built. 

W F B 307 Hunting and Wildlife Management 1(1,0) Hunting techniques used to harvest renewable wildlife resources are examined with respect to their roles in sound management practices. The effects of selected hunting regulations on wild populations, safety, and ethics are discussed. Preq: Junior standing or consent of instructor. 

W F B (BIOSC) 313 Conservation Biology 3(3,0) Study of the biological bases for the conservation of flora, fauna, and habitats. Biological factors that influence the decision-making process are also addressed. Preq: One year of general biology or consent of instructor. 

W F B 350 Principles of Fish and Wildlife Biology 3(3,0) Introduction to principles of fisheries and wildlife biology on which sound management practices are based. Interrelationships of vertebrate and invertebrate biology, habitat, and population dynamics are covered. Preq: One year of general biology. 

W F B 410, 610 Wildlife Management Techniques 3(1,6) Covers field and laboratory methods commonly used in wildlife management and research. Students interact with wildlife professionals. Topics include research methodology, estimating wildlife population characteristics, condition measures, and food habits; species determination, sex, and age; capture; population monitoring methods; GIS and mapping techniques, habitat evaluation and improvement. Preq: W F B 300 and 350. 

W F B 412, H412, 612 Wildlife Management 3(2,3) Basic principles and general practices of wildlife management and conservation are covered. Major problems concerning the management of wildlife resources, with emphasis on upland game species. Laboratory work includes practical work on the Clemson University woodlands and field trips to several areas where wildlife management is being practiced. Preq: W F B 300 and 350. 

W F B 414, 614 Wildlife Nutritional Ecology 3(3,0) Concepts of how terrestrial wildlife obtains and utilizes energy and nutrients in wild ecosystems are taught. Energy and nutrient availability are discussed in the ecological context of distribution, flow, and cycling in natural and modified foraging areas. Physiology of digestion is discussed for major homeotherms. Preq: W F B 300 and 350. 

W F B 416, 616 Fishery Biology 3(2,3) Principles underlying freshwater fish production. Introduction to major groups of freshwater fishes and their habitats. Topics include identification, age and growth, fecundity, food habits, populations estimation, environmental evaluation, management practices, and fish culture. Preq: W F B 300 and 350. 

W F B 418 Fishery Conservation 3(3,0) Survey of conservation efforts directed toward freshwater and marine fisheries resources. Topics include threatened, endangered, and over-exploited species and introductions of exotic species. Preq: W F B 300 and 350. 

W F B 430, 630 Wildlife Conservation Policy 3(3,0) Deals with the ecological rationale and management implications of public policy designed for the conservation of American wildlife resources. Emphasis is on managed land issues. Preq: W F B 300 and 350. 

Courses of Instruction
### W F B 440 Non-Game Wildlife Management 3(3,0)
Basic principles and general practices of non-game wildlife management are covered. Emphasis is placed on those principles and practices most appropriately used by state agencies in their management programs for non-game species, along with real-world problems associated with implementation of such programs. Prereq: W F B 300 and 350.

### W F B 444, 644 Wildlife Damage Management 3(2,3)
Covers the philosophical, sociological, ecological, and economical basis for controlling damage caused by animals problem wildlife populations. Emphasis is placed on fundamentals of prevention and control of damage caused by vertebrate species, especially mammals and birds. Includes interaction with federal and state agencies and private consultants. Prereq: W F B 300 and 350.

### W F B 445 Urban Wildlife Management 3(3,0)
Focuses primarily on social, scientific, and ecological aspects of managing wildlife in the urban setting. Basic wildlife management techniques as well as urban planning for wildlife are covered. Prereq: W F B 300 and 350.

### W F B 450, 650 Aquaculture 3(3,0)
Basic aquacultural techniques applied to freshwater and marine organisms; past and present culture of finishes and shellfishes around the world; principles underlying fish production; water quality, feeding, and nutrition as they influence production of cultured aquatic organisms. Prereq: W F B 300 and 350.

### W F B 460, 660 Warmwater Fish Diseases 2(2,0)
Study of diseases in warmwater fish including infectious and noninfectious processes. Prereq: W F B 300 and 350.

### W F B 462, H462, 662 Wetland Wildlife Biology 3(3,0)
Study of wetland wildlife habitats, emphasizing classification by physical, chemical, and biological characteristics; importance of wetland habitats for management and production of wetland wildlife species. Offered fall semester only. Prereq: W F B 300 and 350.

### W F B 463 Directed Research in Aquaculture, Fisheries, and Wildlife Biology 1(0,3)
Research problems in selected areas of aquacultural, fisheries, or wildlife science to introduce students to experimental design, research techniques, and presentation of research results. May be repeated for a maximum of three credits. Prereq: Junior standing, consent of instructor.

### W F B (BIOSC) 468, 668 Herpetology 3(2,3)
See BIOSC 468.

### W F B (BIOSC, ENT) 469, H469, 669 Aquatic Insects 3(1,6)
See ENT 469.

### W F B (AP EC) 475, 675 Economics of Wildlife Management and Policy 3(3,0)
See AP EC 475.

### W F B 476, 676 Field Methods in Avian Monitoring and Conservation 3(1,4)
Field-intensive introduction to the identification, ecology, and conservation of North American birds and their habitats with an emphasis on southeastern species. Includes avian survey and census techniques. Two or three weekend (Friday-Sunday) field trips are required. Prereq: BIOL 104/106, 111 or consent of instructor.

### W F B 493 Selected Topics 1-4(0-4,0-12)
Specialized topics which explore current areas of research and management in aquaculture, fisheries science, or wildlife management are examined in lecture/seminar format. May be repeated for a maximum of ten credits, but only if different topics are covered. Prereq: Junior standing, consent of instructor.

### W F B 498 Senior Portfolio 1(1,0)
Collection of Web-based materials representing the creative and scientific papers, presentations, and résumés written by students to satisfy curriculum requirements. Students are regularly informed regarding the format and content of their portfolios. Prereq: Senior standing in Wildlife and Fisheries Biology. Coreq: F N R 499.

### WOMEN’S STUDIES

**Professor**: J.M. Melton; **Associate Professor**: E.K. Sparks; **Assistant Professor**: M. Shockley; **Lecturer**: S. Watts

#### W S 103 Women in Global Perspective 3(3,0)
Cross-cultural and multidisciplinary introduction to issues facing women globally. Issues may include women and work, violence against women, reproduction and women’s health, sexuality and rites of passage, women and the weight of tradition, movements for women’s empowerment.

#### W S 301 Introduction to Women’s Studies: Women’s Lives 3(3,0)
Interdisciplinary course exploring the unique features of women’s lives from childhood to old age. Content is based on new research in many disciplines, including psychology, sociology, history, literature, and the arts. Prereq: Sophomore standing.

#### W S 390 Women’s Studies Internship 3(3,0)
Supervised internship provides Women’s Studies minors with relevant work experience, mentoring, and networking opportunities with local leaders in business, government, and non-profit organizations. Prereq: Women’s Studies minor, Junior standing, and consent of internship coordinator.

#### W S (PHIL) 349 Theories of Gender and Sexuality 3(3,0)
See PHIL 349.

#### W S 436 Feminist Literary Criticism 3(3,0)
See ENGL 436.

#### W S 499 Selected Topics in Women’s Studies 1-3(1-3,0)
Topics change from semester to semester and are announced prior to registration. May be repeated for a maximum of six credits, but only if different topics are covered.